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(Approved by AICTE, New Delhi, Recognised by Govt. of Karnataka and Affiliated to Visvesvaraya Technological University, Belagavi)

ESTD:2002

2017-18

Internal assessment Question paper with scheme of evaluation

SHRIDEVI INSTITUTE OF ENGINEERING AND TECHNOLOGY

II semester: I-Internal assessment test

An ISO 9001:2015 Certified Institution

Date: 09-03-18

Scheme of valuation

Sub: Engineering Chemistry (17CHE12)

Q.no	Scheme	Marks
1. (a)	Derive Nernst equation for single electrode potential	
	Derivation Substitution Equation	3mark 1mark 1mark
(b)	Explain the construction, working and advantages of Calomel electrode.	
	Fig and Labeling Explanation Reactions	1mark 3mark 1mark
(c)	**Explain the construction, working** and uses of Zn-air battery	
	Fig and Labeling Explanation uses	2mark 2mark 1mark
2.(a)	Explain the electrochemical theory of corrosion	
	Fig and Labeling Explanation	2 marks 3 marks
(b)	What are concentration cells? Explain with an example	
	Fig and Labeling Explanation Reactions Formula	1mark 2mark 1mark 1mark
(C)	Calculate the EMF of the concentration cell Cu(s) / $CuSO_4$(0.005M) // $CuSO_4$(0.5M) / Cu(s) at 298K write the cell reaction.	
	Formula Result	5marks
3.(a)	What are batteries? Explain the Classification of Batteries with example.	
	Definition Classification example	2mark 2mark 1mark
(b)	What are ion selective electrodes? Explain the construction, working of Glass electrode	**5Marks**
	Fig and Labeling Explanation	2mark 3mark
(C)	Explain the construction, working and applications of Methanol-Oxygen fuel cell?	
	Fig and Labeling Explanation	3mark 2mark
4.(a)	Explain the Determination of PH using glass electrode?	
	Fig and Labeling Explanation	2 marks 3 marks
(b)	Explain the differential metal corrosion with suitable example.	
	Explanation Reaction	3 marks 2 marks
(C).	Explain the construction, working and uses of Li-CoO2 battery?	
	Fig and Labeling Explanation Uses	2 marks 2 marks 1 marks

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II Semester: II-Internal assessment test **Date: 13-04-18**

Sub: Engineering Chemistry (17CHE22)

Time: 90minutes **A Section** **Max Marks: 30**

***NOTE*: Answer any *TWO FULL* questions.**

1. (a) Explain the process of galvanization
   (b) Explain the process of anodizing of aluminium
   (c) Explain corrosion control by cathodic protection method **(5+5+5)**

(OR)

2. (a) Explain the determination of calorific value of solid fuel using Bomb calorimeter.
   (b) What petroleum cracking? Explain fluidized bed catalytic cracking method.
   (c) What is petroleum reformation? Explain any four reforming reactions **(5+5+5)**
3. (a) What is metal finishing? Mention the technological importance of metal finishing.
   (b) Explain electroplating process of chromium? Mention why chromium anodes are not used
   (c) What is electro less plating? Give any four differences between electroplating and electro less plating. **(5+5+5)**

(OR)

4. (a) Explain the construction and working of Photovoltaic cell.
   (b) What are fuels? Explain the classification of fuels with examples.
   (c) A coal sample (C = 90%, H_2=6% and Ash=4%) was subjected to combustion in a bomb calorimeter the fallowing data was obtained. Calculate the Gross and net calorific values of the sample. M=0.75g, W_1 = 3500g, W_2 = 750g, rise in temperature = 3.2°C, S = 4.187kJ/Kg/ /°C and Latent heat of steam = 2454kJ/Kg) **(5+5+5)**

SHRIDEVI INSTITUTE OF ENGINEERING AND TECHNOLOGY, TUMKUR-06

II semester: II-Internal assessment test **Date: 13-04-18**

Scheme of valuation

Sub: Engineering Chemistry (17CHE22)

Q.No	Scheme	Marks
1. (a)	Explain the process of galvanization.	
	Explanation Reaction Definition	2ark 2mark 1mark
(b)	Explain the anodizing of aluminium.	
	Explanation Reaction Definition	2ark 2mark 1mark
(C)	Explain corrosion control by cathodic protection method.	
	Diagram & labeling Explanation	3marks 2marks
2.(a)	Explain the determination of Calorific value of solid fuel using Bomb calorimeter	
	Diagram & labeling Explanation	3marks 2marks
(b)	What is petroleum cracking ? Explain fluidized bed catalytic cracking method	
	Definition Explanation	2marks 3marks
(C)	What is petroleum reformation? Explain any four reformation reaction	
	Definition Explanation	2marks 3marks
3.(a)	Whate is metal finishing .Explain the technological importance of metal Finishing.	
	Definition Importance	2marks 3marks
(b)	Explain the electroplating process of chromium? Mention why anodes are not used.	
	Explanation Reason	3marks 2marks
(C)	What is electrolessplating? Give any four differences between electroplating and electrolessplating	
	Definition Differences	2marks 3marks
4. (a)	Explain the construction and working of photovoltaic cells.	
	Diagram Explanation	2marks 3marks
(b)	What are fuels? Explain the classification of fuels with examples.	
	Definition Classification	2marks 3marks
(C)	A coal sample (C=90%, H2=5%, & Ash=2%) was subjected to combustion in a bomb calorimeter the following data was obtained . Calculate GCV and NCV of the sample. M= 0.75g, W1= 3500g, W2= 750g, ise in temperature = 3.2°C, S=4.187J/kg//°C and Latent heat of steam=2454kJ/kg)	
	GCV Formula Substitution Answer NCV Formula Answer	1marks 1marks 1marks 1marks 1marks

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SHRIDEVI INSTITUTE OF ENGINEERING AND TECHNOLOGY

II semester: III-Internal assessment test **Date: 14-05-18**

Sub: Engineering Chemistry (17CHE22)

Time: 90minutes **A, Sections** **Max Marks: 30**

NOTE: Answer any TWO FULL questions, selecting ONE from Part-I and ONE from Part-II

Part-I

1. (a) Explain the free radical mechanism of addition polymerization by taking vinyl chloride as an Example
   (b) What is Polymerization? Explain the types with examples
   (c) What is glass transition temperature? Explain the effect of following factors on glass transition temperature. i) Chain Flexibility ii) Intermolecular forces

(5+5+5)

(OR)

2. (a) Explain the synthesis, properties and applications of PMMA.
   (b) Explain the synthesis, properties and applications of epoxy resin
   (c) Explain the synthesis, properties and applications of Silicone rubber.

(5+5+5)

Part-II

3. (a) Explain the Scale and Sludge formation in boiler. Mention the disadvantages.
   (b) Explain the Priming and Foaming formation in boiler. Mention the disadvantages.
   (c) Explain the Secondary treatment of Sewage by Activated sludge process.

(5+5+5)

(OR)

4. (a) Explain the mechanism of conduction in poly aniline.
   (b) Explain the synthesis, properties and applications of Kevlar fiber.
   (c) Explain the experimental determination of COD of waste water.

(5+5+5)

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II semester: III-Internal assessment test

Sub: Engineering Chemistry (17CHE22) **Date: 14-05-18**

Q.No	Scheme	Marks
1. (a)	Free radical generation Explanation of addition polymerization Example Explanation of condensation polymerization	1mark 2mark 1mark 1mark
(b)	Definition of polymerization Explanation of polymerization	2mark 3mark
(c)	Definition Any three factors	2 mark 1marks each
2. (a)	Synthesis,Properties Any two Applications	3marks 2marks
(b)	Synthesis,Properties Any two Applications	3marks 2marks
(c)	Synthesis,Properties Any two Applications	3marks 2marks
3.(a)	Scale and sludge formation With reactions disadvantages	2marks 2marks 1mark
(b)	Priming and Foaming formation With reactions disadvantages	2marks 2marks 1mark
(c)	Diagram Explanation	1mark 4marks
4. (a)	Mechanism	5 marks
(b)	Synthesis,Properties Any two Applications	3marks 2marks
(c)	Explanation	5 marks

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Semester: I - I Internal assessment test

Date: 16-09-17

Sub: Engineering Chemistry (17CHE12)

Time: 75 Min. **Max Marks: 30**

NOTE: Answer all the questions. Each question carries six marks

1. Derive Nernst equation for single electrode potential.

OR

2. Calculate the emf of the cell represented as $Cu/CuSO_{4\,(0.001M)}$ // $CuSO_{4\,(0.1\,M)}/Cu$ at 25^0 C. Write the cell reactions.
3. Explain the characteristics of battery a) Cell potential b) Cycle life

OR

4. Explain the construction and working of Zn-air battery.
5. What is a battery? Explain the classifications of battery.

OR

6. Explain the construction and working of CH_3OH-O_2 fuel cell.

7. What is concentration cell? Explain with an example.

OR

8. Explain the construction and working of calomel electrode.
9. Calculate the emf of the cell represented as $Zn/ZnSO_{4\,(0.05M)}$ // $ZnSO_{4\,(0.5\,M)}/Zn$ at 25^0 C. Write the cell reactions.

OR

10. Explain the construction and working of Ag-AgCl electrode.

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I semester: I-Internal assessment test **Date: 16-09-17**

Scheme of valuation

Sub: Engineering Chemistry (17CHE12)

Q.No	Scheme	Marks
1	**Derive Nernst equation for single electrode potential**	
	W_{max}= - ΔG	1mark
	ΔG=-nFE, ΔG°= -nFE^0	1mark
	Reversible electrode reaction $M^{n+} + ne^- \leftrightarrow M$	1mark
	$\Delta G = \Delta G^{\circ} + RT\ln K_c$	1mark
	Substitution	1mark
	Final equation $E = E^0 + 0.0591/n \times \log [M^{n+}]$	1mark
2	**Calculate the emf of the cell represented as $Cu/CuSO_{4\,(0.001M)}$ // $CuSO_{4\,(0.1\,M)}$/Cu at 25^0 C. Write the cell reactions.**	
	Cell reactions (Anode and Cathode)	2mark
	Eqation: $E = \frac{0.0591}{n} \log \frac{[M^{n+}] \text{ at Cathode}}{[M^{n+}] \text{ at Anode}}$	2mark
	Substitution	1mark
	Ans 0.0591 V	1mark
3	**Explain the characteristics of battery a) Cell potential b) Cycle life**	
	Explanation : (i) Cell potential	3mark
	(ii) Cycle life	3mark
4	**Explain the construction and working of Zn-air battery.**	
	Construction with labeling	2mark
	Explanation :	2mark
	Cell reactions (Anode and Cathode) $Zn + 2OH^- \rightarrow ZnO + H_2O + 2e^-$ $\frac{1}{2}O_2 + H_2O + 2e^- \rightarrow 2OH^-$	2marks
5	**What is a battery? Explain the classifications of battery**	
	Definition of a Battery	1mark
	Classification with examples. i) Primary battery	2mark
	ii) Secondary battery	2marks
	iii) Reserved battery	1mark
6	**Explain the construction and working of CH_3OH-O_2 fuel cell**	
	Construction with labeling	2mark
	Explanation	2mark
	Cell reactions (Anode and Cathode)	2marks
7	**What is concentration cell? Explain with an example**	
	Definition of concentration cells	1mark
	Construction with labeling	2marks
	Explanation	2mark
	Cell reactions (Anode and Cathode)/Equation	1marks
8	**Explain the construction and working of calomel electrode**	
	Construction	2mark
	Explanation with diagram	2marks
	Electrode reactions (Anode and Cathode)	2marks
9	**Calculate the emf of the cell represented as $Zn/ZnSO_{4\,(0.05M)}$ // $ZnSO_{4\,(0.5\,M)}$/Zn at 25^0 C. Write the cell reactions.**	
	Cell reactions (Anode and Cathode)	2mark
	Eqation: $E = \frac{0.0591}{n} \log \frac{[M^{n+}] \text{ at Cathode}}{[M^{n+}] \text{ at Anode}}$	2mark
	Substitution	1mark
	Ans 0.02955 V	1mark
10	**Explain the construction and working of Ag-AgCl electrode.**	
	Construction	2mark
	Explanation with diagram	2marks
	Electrode reactions (Anode and Cathode)	2marks

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II -Internal assessment test

Date: 27-10-17

Sub: Engineering Chemistry (17CHE22) **Semester: I**

Time: 90minutes **Max Marks: 30**

NOTE: Answer any TWO FULL questions.

1. (a) Define corrosion and explain the electrochemical theory of corrosion
   (b) Explain the process of galvanization.
   (c) What is Anodizing? Explain the process of Anodizing of aluminum. **(5+5+5)**

(OR)

2. (a) What is differential aeration corrosion? Explain Water line corrosion.
   (b) What is cathodic protection? Explain sacrificial anodic protection method.
   (c) What is metal finishing? Mention the Technological importance of metal finishing. **(5+5+5)**

3. (a) Explain the term decomposition potential and over voltage
   (b) Explain the Electroplating process of chromium
   (c) Explain the determination of calorific value of solid fuel using Bomb calorimetric method. **(5+5+5)**

(OR)

4. (a) What is Reformation of Petroleum? Explain the Reformation of Petrol
   (b) What is Petroleum cracking? Explain the Fluidized bed catalytic cracking Method.
   (c) A coal sample with 93% carbon, 3% of Hydrogen and 4% Ash is subjected to combustion in a bomb calorimeter. Calculate GCV and NCV Given that,
   Mass of the coal sample = 0.75g
   Mass of water in copper calorimeter = 2100g.
   Water equivalent wt of calorimeter = 400g.
   Rise in temp = 3.2^{0}C
   Latent heat of = 587 cal/g.
   Specific heat of water = 1 cal/g/^{0}C **(5+5+5)**

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Isemester: II-Internal assessment test **Date: 27-10-17**

Scheme of valuation

Sub: Engineering Chemistry (17CHE12)

Q.No	Scheme	Marks
1.a)	Definition	1mark
	Formation of Galvanic cell	
	Anodic reaction	1mark
	Any three Cathodic reactions	2marks
	Product formation reaction	1mark
b).	Galvonization steps with diagram	4+1marks
c).	Definition	1mark
	Explaination	3marks
	Diagram	1mark
2.a)	Definition	1mark
	Explaination with diagram	2mark
	Reactions	2mark
b)	Definition	1mark
	Explaination	3marks
	Example	1mark
c)	Definition	1mark
	Technical importance any four	4mark
3a)	Decomposition potential	2mark
	Over voltage	3marks
b)	Plating bath	1mark
	Temperature &pH	1mark
	Anode & cathode	1mark
	current density	1mark
c)	Diagram	2marks
	Explanation	3marks
4.a)	Definition	1mark
	Four Reations	4marks
b)	Definition	1mark
	Explaination with diagram	4marks
c)	GCV formula	1mark
	Substitution	1mark
	Answer	1mark
	NCV formula	1mark
	Answer	1mark

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III -Internal assessment test

Date: 16-11-17

Sub: Engineering Chemistry (17CHE22) **Semester: I**

Time: 90 minutes **Max Marks: 30**

NOTE: Answer any TWO FULL questions.

1. (a) What is Polymerization? Explain the types with examples
(b) Explain the free radical mechanism addition polymerization by taking Vinyl chloride as an example
(c) A polymer of ethylene is found to have the fallowing composition. Calculate number and weight average molecular weight. Given that atomic mass of C=12, H=1 and neglect the molecular mass of R.

(a) $R\{CH_2 - CH_2\}_{100}R$ 20%

(b) $R\{CH_2 - CH_2\}_{300}R$ 30%

(c) $R\{CH_2 - CH_2\}_{600}R$ 50%

(5+5+5)

(OR)

2. (a) What is Glass transition temperature? Explain the factors which affect the Tg of a Polymer.
(b) Give the manufacture and applications of Poly methyl methacrylate (Plexi Glass)
(c) Give the manufacture and applications of Poly Carbonates.

(5+5+5)

3. (a) Explain the manufacture and applications of Silicone rubber.
(b) Give the manufacture and applications of Polyurethanes.
(c) Explain the manufacture and applications of Epoxy Resin **(5+5+5)**

(OR)

4. (a) Explain the manufacture and uses of Kevlar fibers.
(b) Explain the mechanism of conduction in Poly aniline
(c) A polymer of ethylene is found to have the fallowing composition. Calculate number and weight average molecular weight. Given that atomic mass of C=12, H=1 and neglect the molecular mass of R.

(a) $R\{CH_2 - CH_2\}_{500}R$ 20%

(b) $R\{CH_2 - CH_2\}_{300}R$ 50%

(c) $R\{CH_2 - CH_2\}_{200}R$ 30%

(5+5+5)

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SHRIDEVI INSTITUTE OF ENGINEERING AND TECHNOLOGY, TUMKUR-06

Isemester: III-Internal assessment test **Date: 16-11-17**

Scheme of valuation

Sub: Engineering Chemistry (17CHE12)

Q.No	Scheme	Marks
1.a)	Definition of polymerization	1mark
	Explanation of addition polymerization	1mark
	Example	1mark
	Explanation of condensation polymerization	1mark
	Example	1mark
b).	Free radical generation	1mark
	Initiation	1mark
	Propagation	2marks
	Termination	1mark
c).	Number average Molecular mass	2marks
	Weight average Molecular mass	3marks
2.a)	Definition	1 mark
	Any two factors with example	2marks each
b)	Synthesis,Properties	3marks
	Any two Applications	2marks
c)	Synthesis,Properties	3marks
	Any two Applications	2marks
3a)	Synthesis,Properties	3marks
	Any two Applications	2marks
b)	Synthesis,Properties	3marks
	Any two Applications	2marks
c)	Synthesis,Properties	2marks
	Any two Applications	3marks
4.a)	Synthesis	3marks
	Any two Applications	2marks
b)	Mechanism	5marks
c)	Number average Molecular mass	2marks
	Weight average Molecular mass	3marks

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SHRIDEVI EDUCATION

Shridevi Institute of Engineering and Technology, Tumkur-06

I Semester: I-Internal Assessment Test: September-2017

17PHY12-Engineering Physics

Time: 90 Minutes] **[Max Marks: 30**

Note: ***1. Answer FIVE full questions***

Q. 1. What is blackbody? Explain energy spectrum of a Blackbody. **06 Marks**

OR

Q. 2. Mention the assumptions Planck's law. Show how one can arrive at Wien's & Rayleigh-Jeans law starting from Planck's law.

Q. 3. Derive the expression for Group velocity. **06 Marks**

OR

Q. 4. Define Phase velocity and Group velocity? Obtain the relation between Group velocity and Phase velocity. **06Marks**

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Q. 5. Show that Group velocity is equal to Particle velocity. **06 Marks**

OR

Q. 6. A particle of mass 940 MeV/c^2 has a kinetic energy 0.5 KeV. Find the de-Broglie wavelength. (c is the velocity of light). **06 Marks**

Q. 7. State Heisenberg's uncertainty principle. Show that electrons cannot exist inside the nucleus. **06 Marks**

OR

Q. 8. Define quantum wave function. Set up time independent Schrödinger wave equation for free particle in one-dimension using complex wave function. **06 Marks**

Q. 9. Obtain energy values and normalized wave function, with respect to a particle in an one dimensional potential well of infinite height. **06 Marks**

OR

Q. 10. Define Fermi factor & Discuss the variation of Fermi factor with Temperature and effect on occupancy of energy levels. **06 Marks**

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I Semester: I-Internal Assessment Test: September-2017

17PHY12-Engineering Physics

Time: 90 Minutes] **[Max Marks: 30**

SCHEME OF EVALUATION

Question No.	Solution	Marks allotted
1	Definition, Figure and Explanation of black body	1+1+4
2	Assumptions Reduction to Weins law and Rayleigh jeans law.	2+4
3	Derivation	6
4	Definitions and derivation	2+4
5	Derivation	6
6	Formula, substitution, result λ=1.28 pm,	1+3+2
7	Statement and derivation	6
8	Definition and derivation	1+5
9	Derivation	6
10	Definition and derivation	1+5

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Shridevi Institute of Engineering and Technology, Tumkur-06

I Semester: II-Internal Assessment Test: October-2017

17PHY12-Engineering Physics

Time: 90 Minutes] **[Max Marks: 30**

Note: *1. Answer FIVE full questions*

Q. 1. Explain the failures of classical free electron theory. **06 Marks**

OR

Q. 2. Obtain an expression for Electrical conductivity in metals based on Quantum free electron theory. **06Marks**

Q. 3. Explain the Success of Quantum free electron theory. **06 Marks**

OR

Q. 4. Gold has one free electron/atom. Its density, atomic weight and resistivity are 19300 kg/m^3, 197 and 2.21×10^{-8} Ωm. calculate the free electron concentration and mobility of conduction electron. **06Marks**

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Q. 5. Derive the expression for electrical conductivity of an intrinsic semiconductor. **06 Marks**

OR

Q. 6. Derive the expression for Fermi level in an intrinsic semiconductor. **06 Marks**

Q. 7. Obtain an expression for energy density of radiation under equilibrium condition in terms of Einstein's co-efficient. **06 Marks**

OR

Q. 8. Explain Meissner effect. Discuss the Type-1 and Type-2 Superconductors. **06 Marks**

Q. 9. Describe the construction of the CO_2 laser and explain its working with the help of energy level diagram. **06 Marks**

OR

Q. 10. What is holography? Explain the construction of hologram. **06 Marks**

Shridevi Institute of Engineering and Technology, Tumkur-06

I Semester: II-Internal Assessment Test: October-2017

17PHY12-Engineering Physics

Time: 90 Minutes] **[Max Marks: 30**

SCHEME OF EVALUATION

Question No.	Solution	Marks allotted
1	Explanation of 3 failures of classical theory	2+2+2
2	Derivation	6
3	Explanation of 3 success of quantum free electron theory	2+2+2
4	$n = 5.902 \times 10^{28}$ m^3 and 4.79×10^{-3} m^2/Vs	2+4
5	Derivation	6
6	Derivation	6
7	Derivation	6
8	Explanation of Meissner effect Explanation of Types of superconductor with diagram	2+2+2
9	With neat diagram explain construction and working CO_2 laser	3+3
10	Definition and with neat diagram Explain the construction of hologram	1+5

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Shridevi Institute of Engineering and Technology, Tumkur-06

I Semester: III-Internal Assessment Test: November-2017

17PHY12-Engineering Physics

Time: 90 Minutes] **[Max Marks: 30**

Note: ***1. Answer FIVE full questions***

Q. 1. With a neat diagram derive the expression for numerical aperture and arrive, condition for propagation in an optical fiber. **06 Marks**

OR

Q. 2. Describe different types of optical fibers with suitable diagram. **06Marks**

Q. 3. An optical fiber of 600 m long has input power of 120 mw which emerges out with power of 90 mw. Find attenuation in the fiber. **06 Marks**

OR

Q. 4. Derive an expression for interplanar spacing in a cubic system. **06Marks**

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Q. 5. Define atomic packing factor. Calculate the packing factor for sc, bcc & fcc structures. **06 Marks**

OR

Q. 6. Explain with neat sketch seven types of crystal systems. **06 Marks**

Q. 7. Explain crystal structure of diamond and calculate its atomic packing factor. **06 Marks**

OR

Q. 8. Describe the construction and working of a Bragg's X-ray Spectrometer. **06 Marks**

Q. 9. Draw the following planes in a cubic crystal: (100), (020),(011), (112) (123) and $(1\bar{1}0)$ **06 Marks**

OR

Q. 10. Determine the interplanar spacing for (1 1 0) planes for copper which has FCC structure with atomic radius 0.1278nm. **06 Marks**

Shridevi Institute of Engineering and Technology, Tumkur-06

I Semester: III-Internal Assessment Test: November-2017

17PHY12-Engineering Physics

Time: 90 Minutes] **[Max Marks: 30**

SCHEME OF EVALUATION

Question No.	Solution	Marks allotted
1	With neat diagram Derivation and condition	1+4+1
2	Explanation of three Types of optical fiber	2+2+2
3	Explanation of 3 success of quantum free electron theory	2+2+2
4	Derivation	6
5	Definition and Calculation of APF for sc, bcc & fcc structures	1+1+2+2
6	With neat sketch Explanation of seven types of crystal systems.	6
7	Explanation of crystal structure of diamond and calculation of A P F	4+2
8	With neat diagram Explain the construction and working of a Bragg's X-ray Spectrometer	3+3
9	Draw the 6 cubes	6
10	$d_{110} = 2.6 \times 10^{-10}$ m	6

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Shridevi Institute of Engineering and Technology, Tumkur-06

Semester: I-Internal Assessment Test: Ma[illegible]-2018

17PHY22-Engineering Physics

Time: 90 Min **Max. Marks: 30**

Note: ***Answer any two full questions.***

1	a.	Write the assumptions of Plancks law of radiation. Show that it reduces to Weins law and Rayleigh jeans law under certain conditions.	**05 marks**
	b.	Set up time independent Schrodinger wave equation in one dimension.	**06 marks**
	c.	A particle of mass 940 MeV/c^2 has a kinetic energy 0.5 KeV. Find the de-Broglie wavelength. (c is the velocity of light).	**04 marks**

OR

2	a.	State Heisenberg's Uncertainity Principle. Using Uncertainity principle Explain non existence of electron in the nucleus.	**06 marks**
	b.	Define phase velocity and group velocity. Obtain the relation between them.	**05 marks**
	c.	An electron is confined to a box of length 10^{-9} m, calculate the minimum uncertainty in its velocity.	**04 marks**

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3 a. Derive an expression for group velocity on the basis of superposition of two travelling waves. **05 marks**

b. Derive the expression for energy Eigen value for an electron in a potential well of infinite depth. **06 marks**

c. The wavelength of a fast neutron of mass 1.675×10^{-27} kg is 0.02 nm. Calculate the group velocity and phase velocity of its de Broglie wave. **04 marks**

OR

4 a. Show that group velocity is equal to particle velocity. **05 marks**

b. What is blackbody? Explain energy spectrum of a Blackbody. **06 Marks**

c. An electron is bound in an one dimensional potential well of width 1Å, but if infinite wall height. Find its energy values in the ground state, and also in the first excited states. **04 marks**

SHRIDEVI EDUCATION

Shridevi Institute of Engineering and Technology, Tumkur-06

II Semester: I-Internal Assessment Test: March-2018

17PHY22-Engineering Physics

Time: 90 Min **Max. Marks: 30**

SCHEME OF EVALUATION

Question No.		Solution	Marks allotted
1	a	Assumptions Reduction to Weins law and Rayleigh jeans law	1+2+2
	b	Derivation	6
	c	Formula, substitution and $\lambda = 1.28$ pm	1+1+2
2	a	Statement and derivation	2+4
	b	Definition Derivation	2+3
	c	Formula, substitution and $\Delta v = 5.8 \times 10^4$ m/s	1+1+2
3	a	Derivation	5
	b	Derivation	6
	c	Formula, substitution and $v_g = 19779$ m/s, $v_p = 4.55 \times 10^{12}$ m/s	1+1+2
4	a	Derivation	5
	b	Definition, Figure and Explanation of black body	1+1+4
	c	Formula, substitution and $E_0 = 37.64$ ev, $E_1 = 150.54$ ev	1+1+2

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Shridevi Institute of Engineering and Technology, Tumkur-06

II Semester: II-Internal Assessment Test: April-2018

17PHY22-Engineering Physics

Time: 90 Min **Max. Marks: 30**

Note: ***Answer any two full questions.***

1	a.	Explain the Success of Quantum free electron theory.	**06 marks**
	b.	Explain Meissner effect. Discuss the Type-1 and Type-2 Superconductors.	**05 Marks**
	c.	The electron concentration in a semiconductor is 5×10^{17} m^{-3}. Calculate the conductivity of the material if the drift velocity of electron is 350 ms^{-1} in an electric field of 1000 Vm^{-1}	**04 marks**

OR

2	a.	Derive the expression for electrical conductivity of an intrinsic semiconductor.	**05 Marks**
	b.	Define Fermi factor & Discuss the variation of Fermi factor with Temperature and effect on occupancy of energy levels.	**06 marks**
	c.	Gold has one free electron/atom. Its density, atomic weight and resistivity are 19300 kg/m^3, 197 and 2.21×10^{-8} Ωm. calculate the free electron concentration and mobility of conduction electron.	**04 marks**

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3 a. Obtain an expression for energy density of radiation under equilibrium condition in terms of Einstein's co-efficient. **05 marks**

b. With a neat diagram derive the expression for numerical aperture and arrive, condition for propagation in an optical fiber. **06 marks**

c. Mention the applications of laser. **04 marks**

OR

4 a. Describe the construction of the CO_2 laser and explain its working with the help of energy level diagram. **05 marks**

b. Describe different types of optical fibers with suitable diagram. **06 Marks**

c. An optical fiber of 600 m long has input power of 120 mw which emerges out with power of 90 mw. Find attenuation in the fiber. **04 marks**

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Shridevi Institute of Engineering and Technology, Tumkur-06

II Semester: II-Internal Assessment Test: April-2018

17PHY22-Engineering Physics

Time: 90 Min **Max. Marks: 30**

SCHEME OF EVALUATION

Question No.		Solution	Marks allotted
1	a	Explanation of 3 success of quantum free electron theory	2+2+2
	b	Explanation of Meissner effect Explanation of Types of superconductor with diagram	1+2+2
	c	Formula, substitution and $\sigma = 0.028$ /Ωm	1+1+2
2	a	Derivation	5
	b	Definition, formula, variation of Fermi factor with 3 cases and graph	1+1+3+1
	c	Formula, substitution, $n = 5.902 \times 10^{28}$ m^3 and 4.79×10^{-3} m^2/Vs	1+1+2
3	a	Derivation	5
	b	Diagram, derivation and condition	1+4+1
	c	Four application	4
4	a	With neat diagram explain construction and working CO_2 laser	3+3
	b	With neat diagram explain the 3 types of optical fibers	2+2+2
	c	Formula, substitution, $\alpha = 2.082$ DB/km	1+1+2

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Shridevi Institute of Engineering and Technology, Tumkur-06

II Semester: III-Internal Assessment Test: May-2018

17PHY22-Engineering Physics

Time: 90 Min **Max. Marks: 30**

Note: ***Answer any two full questions.***

1	a.	Derive an expression for interplanar spacing in a cubic system.	**05 Marks**
	b.	Define atomic packing factor. Calculate the packing factor for sc, bcc & fcc structures.	**06 Marks**
	c.	Draw the following planes in a cubic crystal: (100), (020),(011) and (112).	**04 marks**

OR

2	a.	Explain with neat sketch seven types of crystal systems.	**06 Marks**
	b.	Explain crystal structure of diamond and calculate its atomic packing factor.	**05 marks**
	c.	Determine the interplanar spacing for (1 1 0) planes for copper which has FCC structure with atomic radius 0.1278 nm.	**04 marks**

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3 a. What is Mach number. distinctions between- acoustic, ultrasonic, subsonic and supersonic waves. **05 marks**

b. Describe the construction and working of Reddy's Shock tube. **06 marks**

c. Mention the applications of shock waves. **04 marks**

OR

4 a. Discuss the Sol-Gel method of synthesis of nano materials. **05 marks**

b. Describe the principle construction and working of a Scanning Electron Microscope. **06 Marks**

c. The distance between the two pressure sensors in a shock tube is 150mm. The time taken by a shock wave to travel this distance is 0.3 ms. If the velocity of sound under the same condition is 340m/s. Find the Mach number of the shock waves. **04 marks**

Shridevi Institute of Engineering and Technology, Tumkur-06

II Semester: III-Internal Assessment Test: May-2018

17PHY22-Engineering Physics

Time: 90 Min **Max. Marks: 30**

SCHEME OF EVALUATION

Question No.		Solution	Marks allotted
1	a	Derivation	05
	b	Definition. A P F = 52 %, A P F = 68 % A P F = 72 %	1+1+2+2
	c	4 crystal structure	1+1+1+1
2	a	Explanation of seven types of crystal systems	6
	b	Explanation of crystal structure of diamond, A P F =34 %	4+1
	c	$d_{110} = 2.6 \times 10^{-10}$ m	1+1+2
3	a	Definition, Based on the mach number explain the types of waves	1+4
	b	Construction with neat diagram and Explanation of the working	3+3
	c	Four application	1x4=4
4	a	With neat diagram explanation of Sol-Gel method	5
	b	construction with neat diagram explanation of the working	3+3
	c	Formula, substitution, M =1.47	1+2+1

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING
ENGINEERING ELECTROMAGNETICS – 15EC36
Internal Assessment test - II

Sub: **Engineering Electromagnetics**
Sem: **III**
Max Marks: **25**

Subcode: **15EC36**
Date: **29.10.17**
Duration: **75 minutes**

Note: Question number **one is compulsory**. Answer the other three questions choosing **one full question** from each

1]what is electric force? **(01)**

2] (a_1) Find the total current in outward direction from a cube of 1 m , with one corner at the origin and edges parallel to the co-ordinate axes if , $J = -2x^2 a_x\ 2xy^3 a_y + 2xy\ a_z\ A/m^2$ **(04)**

(a_2) The current density vector is given by $J = 2/r^2 \cos\theta\ a_r + 20e^{-2r} \sin\theta a_\theta - r \sin\theta\cos\Phi a_\Phi\ A/m^2$ find J at r = 3m , θ =0 ,Φ = 𝕀𝕀𝕀 **(04)**

Or

(b_1) Find the current crossing the portion of y = 0 plane defined by -0.1<x<0.1m and -0.002<z<0.002m if $J = 10^2/x/\ a_y$ where J is the current density? **(04)**

(b_2) given the current density $J= 4/r^2 \cos\theta\ a_r + 20\ e^{-2r} \sin\theta a_\theta - r \sin\theta \cos\Phi\ a_\Phi$ find J at r = 3 , θ = 0 , Φ = □

[04].

3](a_1) An aluminum conductor is 2000 ft long and has a circular cross section with a diameter of 20 mm. If there is a d.c voltage of 1.2 V between the ends find: a) the current density b) the current c) power dissipated from the knowledge of circuit theory. Assume □ = 3.82 x 10^7 for aluminium **(04)**

(a_2)A copper conductor having a 0.8 mm diameter and length 2 cm carries a current of 20 A. Find the electric field intensity, the voltage drop and resistance for 2 cm length. Assume conductivity of copper as 5.8 x 10^7 s/m **(04)**

Or

(b_1) Determine the resistance of the insulation of a coaxial cable of length L? **(04)**
(b_2) Find E and J corresponding to a drift velocity of 6.0 x 10 $^{-4}$ m/s in the case of silver conductor using the data : □ $_{silver}$ = 5.6 x 10^{-3} metre ^{2} /Vs , mobility **(04)**

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II

Q.NO	SOLUTION	MARKS
1)	Definition of electric flux	01
2)(a1)	$I = \oint_S \bar{J} \cdot d\bar{s} = \int_{Vol} (\nabla \cdot \bar{J}) dv$ $dv = dx\, dy\, dz$. $\nabla \cdot \bar{J} = 4x + 6xy^2 + 0 = 4x + 6xy^2$. $I = 3A$	04
(a2)	$\bar{J}$ at $r = 3$ $J = 0.222 \bar{a}_r$ i.e. $J = \frac{2}{9} \cos 0^\circ \bar{a}_r + 2 e^{-6} \sin 0^\circ \bar{a}_\phi - 2 \sin 0^\circ \cos\pi \bar{a}_\phi =$ $0.222 \bar{a}_r$ A/m^2.	04
2(b1)	$I = \oint \bar{J} \cdot d\bar{s}$ $\therefore I = 10^2 (2)_{0.000}^{0.001} \int_{x=0}^{0.1} |x| dx$. $= 4$ mA	04
(b2)	$\bar{J} = \frac{4}{2r} \cos\theta \bar{a}_r + 2 e^{-2r} \sin\theta \bar{a}_\theta - 2 \sin\theta \cos\phi \bar{a}_\phi$ $r = 3$, $\theta = 0$ and $\phi = \pi$. $\bar{J} = \frac{4}{3^2} \cos 0 \bar{a}_r + 2 e^{-2\times 3} \sin 0 \bar{a}_\theta - 3 \sin\theta \cos\pi \bar{a}_\phi$ $\bar{J} = \frac{4}{9} \bar{a}_r$ A/m^2	04

Q.NO	SOLUTION	MARKS
3(a1)	$J = \sigma E = 3.82 \times 10^7 \times 2 \times 10^{-3} = 76.4$ kA/m^2. $I = Js = J \times \frac{\pi}{4} d^2 = 76.4 \times 10^3 \times \frac{\pi}{4} \times (20 \times 10^{-3})^2$ $= 24$ A. $P = \frac{V^2}{R} = I^2 R$ W $= 1.2 \times 24 = 28.802$ W.	(04)
3(a2)	$\lvert\bar{J}\rvert = \frac{I}{S} = \frac{I}{\frac{\pi}{4} d^2} = \frac{20}{\frac{\pi}{4} \times [0.8 \times 10^{-3}]^2} = 39.788 \times 10^{+6}$. $\bar{J} = \sigma \bar{E}$ $\lvert\bar{E}\rvert = \frac{\lvert\bar{J}\rvert}{\sigma} = \frac{39.788 \times 10^6}{5.8 \times 10^7} = 0.686$ V/m. $V = EL = 0.686 \times 2 \times 10^{-2} = 0.0137$ V $R = \frac{V}{I} = \frac{0.0137}{20} = 6.86 \times 10^{-4}\ \Omega$.	(04)
3(b1)	diagram + derivation	(04)
3(b2)	$V_d = 6 \times 10^{-4}$ m/s, $\sigma = 61.7$ mho/m, $\mu = 5.6 \times 10^{-3}$ m^2/V-s. $\lvert\bar{V_d}\rvert = \mu_e \lvert\bar{E}\rvert$. $6 \times 10^{-4} = 5.6 \times 10^{-3} \lvert\bar{E}\rvert$. $\bar{E} = 0.1071$ V/m. $\bar{J} = \sigma \bar{E} = 61.7 \times 0.1071 = 6.6107$ A/m^2.	(04)

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING
ENGINEERING ELECTROMAGNETICS – 15EC36
Internal Assessment test - III

Sub: **Engineering Electromagnetics** Subcode: **15EC36**
Sem: **III** Date: **21.11.17**
Max Marks: **25** Duration: **75 minutes**

Note: Question number **one is compulsory**. Answer the other three questions choosing **one full question** from each

1] What is meant by a wave. List the properties of wave? (01)

2] (a) State and explain pointing theorem? (08)

Or

(b) Explain the displacement current density? (08)

3](a) List maxwell equation for steady and time varying fields in point form? (08)

Or

(b) A conducting cylinder of radius 5 cm height 20 cm rotates at 600 revolutions /sec in a radial field of B = 0.5 tesla. Sliding contacts at the top and bottom are connect to voltmeter. Find the induced voltage? (08)

4] (a) Find the frequency at which conduction current density and displacement current density are equal in a medium with $\square = 2 \times 10^4$ v/m and $\epsilon_r = 81$? (08)

Or

(b) An area of $0.65m^2$ in the plane z = 0 encloses a filamentary conductor. Find the induced voltage if $B=0.05 \cos 10^3 + (ay+az/\sqrt{2})$ tesla? (08)

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SHRIDEVI INSTITUTE OF ENGINEERING & TECHNOLOGY, TUMKUR -06

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

ACADEMIC YEAR 2017-18

SCHEME & SOLUTIONS

NAME OF THE FACULTY:	Dr. D.K. Prabhakar
DEPARTMENT:	Electronics and Communications
COURSE TITLE:	Engineering Electromagnetics
COURSE CODE:	15EC36
SIGNATURE:	

Q.NO	SOLUTION	MARKS
	Internal Assessment - III	

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Q.NO	SOLUTION	MARKS
Q①	Properties of waves	01
2②	State and explain poynting theorem	
	$\bar{P} = \bar{E} \times \bar{H}$	02.
	Explⁿ	02
	derivation	02
	diagram of power balance Representation	02.
2(b)	Explⁿ of displacement current density	08.
3(a)	Maxwell eqⁿs for Steady and time Varying fields - derivation	02.
	~~equation~~. formulas.	02.
	equation of Maxwell	02.
	time Varying field	02.
3(b)	$\omega = 2\pi f = 2 \times \pi \times \frac{600}{60} = 62.8318$. $\bar{v} = (R)(\omega)\bar{a}_\phi = (5\times10^{-2})(62.8318)\bar{a}_\phi = 3.1416\,\bar{a}_\phi$ m/sec. ans = 0.31416 Volts.	02+02+02 +02 (08)
4(a)	$\left\lvert \frac{\bar{J}_c}{J_D} \right\rvert = \frac{\sigma}{\omega\varepsilon} = 1$, $\omega = 2\pi f$, $f = \frac{\omega}{2\pi} = 44.372$ kHz	02+02+ 02+02. (08)
4(b)	$e = -\int_S \frac{\partial \bar{B}}{\partial t} \cdot d\bar{s}$ ∴ $e = 35.3558 \sin 10^3 t\,(0.65)$ $= 22.98 \sin 10^3 t$ V	02+02 +02+02. (08)

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SHRIDEVI INSTITUTE OF ENGINEERING AND TECHNOLOGY
Department of Electronics and Communication
Academic Year-2017-2018
Internal Assessment 2
Subject: Principles of Communication system

Max. Marks: 25 **Sub Code: 15EC45**
Time: 75 Minutes **Semester: IV**

Q1 is compulsory. Answer any one full question from each part Q2,Q3 and Q4:

1. Define Angle modulation 1M
2. a1: Explain wideband FM with necessary Block diagram and equations 8M

OR

b1: Explain the direct method of generating FM Wave 8M

3. a1: Explain Phase locked loop with necessary block diagrams and equations 8M

OR

b1: With neat block diagrams explain FM stereo Transmitter and receiver 8M

4. a1: With neat block diagram explain generation of PAM 8M

OR

b1: State and prove Sampling theorem 8M

SHRIDEVI INSTITUTE OF ENGINEERING AND TECHNOLOGY
Department of Electronics and Communication
Academic Year-2017-2018
Internal Assessment 2
Subject: Principles of Communication system

Max. Marks: 25 **Sub Code: 15EC45**
Time: 75 Minutes **Semester: IV**

Q1 is compulsory. Answer any one full question from each part Q2,Q3 and Q4:

1. Define Angle modulation 1M
2. a1: Explain wideband FM with necessary Block diagram and equations 8M

OR

b1: Explain the direct method of generating FM Wave 8M

3. a1: Explain Phase locked loop with necessary block diagrams and equations 8M

OR

b1: With neat block diagrams explain FM stereo Transmitter and receiver 8M

4. a1: With neat block diagram explain generation of PAM 8M

OR

b1: State and prove Sampling theorem 8M

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Scheme of Evaluation

NAME OF THE FACULTY:	Haripriya. R
DEPARTMENT:	ECE
SUBJECT TITLE:	Principles of Communication System
SUBJECT CODE:	15EC45
SIGNATURE:	Hpr

Q.NO	SOLUTION	MARKS
1.	Define Angle Modulation	1M
Soln.	Defn – 1M	
2. a)	Explain Wideband FM with necessary Block diagram and equations	8M
Soln.	Block diagram – 3M Equations – 3M Explanation – 2M	
b)	Explain the direct method of generating FM wave	8M
Soln.	Block diagram – 6M Explanation – 4M	
3. a)	Explain phase locked loop with necessary Block diagrams and Equations	8M
Soln.	Block diagram – 3M Equations – 3M Explanation – 2M	

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Q.NO	SOLUTION	MARKS
6).	With a neat block diagram explain FM Stereo Transmitter & Receiver	8M
Soln:-	Block diagram Transmitter – 3M Block diagram Receiver – 3M Explanation – 2M	
4a).	With a neat block diagram explain generation of PAM	8M
Soln:-	Block diagram – 4M Explanation – 4M	
5).	State and prove Sampling Theorem	8M
Soln:	Statement – 2M Proof – 6M	

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SHRIDEVI INSTITUTE OF ENGINEERING AND TECHNOLOGY
Department of Electronics and Communication
Academic Year-2017-2018
Internal Assessment 3
Subject: Principles of communication system

Max. Marks:25 ***Sub Code: 15EC45***
Time: 75 Minutes ***Semester: IV***

Q1 is compulsory. Answer any one full question from each part

1. Define Noise. 1M

2.a. What is conditional Probability? Prove that P(B/A)=P(A/B) P(B) / P(A) 8M

OR

b. With an example explain What is meant by statistical averages 8M

3.a. Define mean, Autocorrelation and auto-covariance function 8M

OR

b. With relevant equations, explain how noise produced in a receiver model 8M

4.a. Show that the figure of merit for DSB-SC system is unity 8M

OR

b. Explain Pre-emphasis and De-emphasis 8M

SHRIDEVI INSTITUTE OF ENGINEERING AND TECHNOLOGY
Department of Electronics and Communication
Academic Year-2017-2018
Internal Assessment 3
Subject: Principles of communication system

Max. Marks:25 ***Sub Code: 15EC45***
Time: 75 Minutes ***Semester: IV***

Q1 is compulsory. Answer any one full question from each part

1. Define Noise. 1M

2.a. What is conditional Probability? Prove that P(B/A)=P(A/B) P(B) / P(A) 8M

OR

b. With an example explain What is meant by statistical averages 8M

3.a. Define mean, Autocorrelation and auto-covariance function 8M

OR

b. With relevant equations, explain how noise produced in a receiver model 8M

4.a. Show that the figure of merit for DSB-SC system is unity 8M

OR

b. Explain Pre-emphasis and De-emphasis 8M

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING
ACADEMIC YEAR 2017-18

III INTERNAL ASSESSMENT TEST SCHEME & SOLUTIONS

COURSE INSTRUCTOR:	Haripriya. R
DEPARTMENT:	ECE
COURSE TITLE:	Principles of Communication System
COURSE CODE:	15ECA5
SIGNATURE:	Hcp

Q.NO.	SOLUTION	MARKS
1. a	Define noise	1M
Sol^n	Definition Carry 1M	
2. a.	What is Conditional Probability ? Prove that $P(B/A) = P(A/B)\,P(B)/P(A)$	8M
Sol^n:-	Definition of Conditional probability - 1M	
	Proof of $P(B/A) = \frac{P(A/B)\,P(B)}{P(A)}$:-	7M
	(OR)	
b.	With an example explain what is meant by Statistical averages	8M
Sol^n:-	Explanation - 5M Example - 3M	

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Q.NO.	SOLUTION	MARKS
3.a.	Define Mean, Autocorrelation and Auto-Covariance	8M
Sol^	Definition & expression of each term Carry 2½M, 2½M, 3M.	
b.	With relavant equations, explain how noise produced in a receiver model	8M
Sol^:	Block diagram – 2M Explanation – 2M Expressions – 4M.	
4.a.	Show that the figure of merit for DSB-SC system is unity.	8M
Sol^.	Diagram – 2M Explanation – 2M Proof – 4M	
b	Explain Pre-emphasis and De-emphasis	8M
Sol^.	pre-emphasis explanation – 4M De-emphasis explanation – 4M	

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION
ACADEMIC YEAR 2017-18

1st INTERNAL ASSESSMENT TEST
SUBJECT: Microwaves & Radar

Time: 75 minutes **Max Marks: 25M**
Subject Code: 10EC64 **Semester: V**

Note: 1) Question 1 is compulsory
2) Answer any two from Q.2 to Q.4

1. Define RUNAMB? 01M

2. A) Explain Pulsed Radar with a neat block Diagram 06M
   B) Explain Radar Transmitter & Receiver with a neat Block Diagram 04M
   C) Calculate the maximum range of radar system which operates at 3cm with a peak pulse Power of 600KW with its minimum receivable power is 10^{-13}W; the capture area of the antenna is $5m^2$and the radar cross section area of the target $20m^2$. 02M

3. A) Explain the applications of RADARS. 04M
   B) Derive the simple form of RADAR equation. 06M
   C) Briefly Explain Blind speeds. 02M

4. A) Explain MTI Radar with a neat block diagram. 05M
   B) Explain Pulsed Doppler radar with a neat Block Diagram 05M
   C) A Doppler radar set operates at 12GHz and it is used for traffic speed measurements. What are the Doppler frequencies for the speeds of 40KMPH and 100 KMPH? 02M

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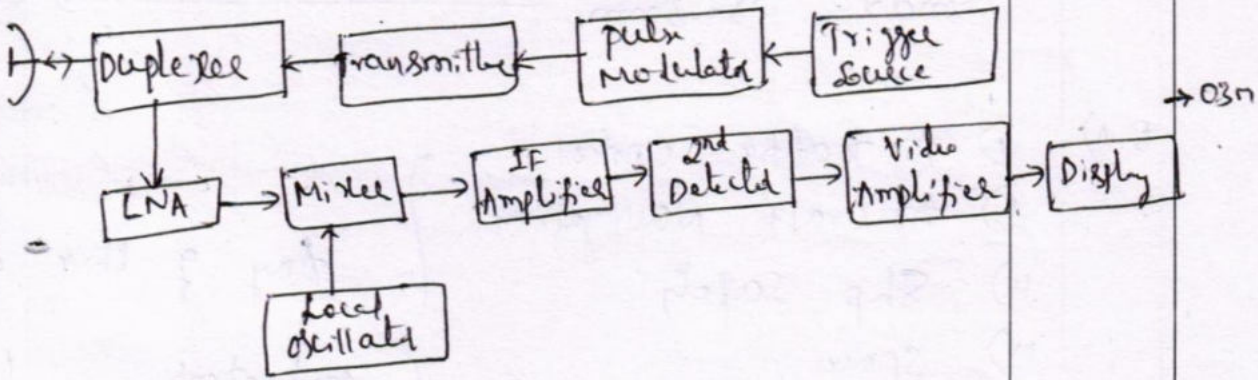
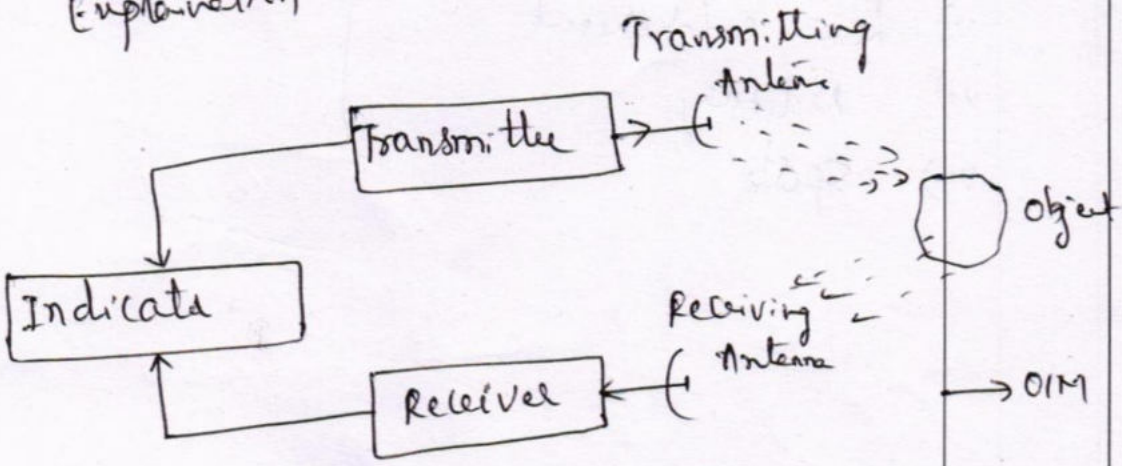
DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

ACADEMIC YEAR 2017-18(odd semester)

1st INTERNAL ASSESSMENT

SCHEME & SOLUTION

NAME OF COURSE INSTRUCTOR:	Pradeep Kumar. S.S.
PROGRAMME:	B.E
COURSE TITLE:	Microwaves & Radar
COURSE CODE:	10EC54
SIGNATURE:	Pradeep — S.S.

Q.NO	SOLUTION	MARKS
1.	RUNAB Definition →	01M
2. A)	 → 03M	
	Explanation →	03M
2. B)	 → 01M	

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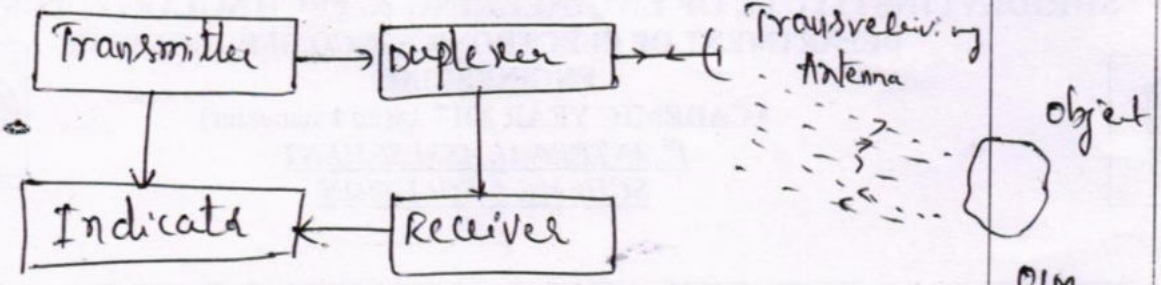

01M

Improved Radar

explanation → 02M

2.c) $R_{max} = \left[\frac{P_t A_e^2 \sigma}{4\pi \lambda^2 S_{min}}\right]^{1/4}$ → 01M

$R_{max} = 387.3$ nmi → 01M

3.A)
i) Air traffic control
ii) Air craft Navigation
iii) Ship safety
iv) Space
v) Remote Sensing
vi) Law enforcement
vii) Military
viii) Sports

Any 4 of these applications → 4

4×1 = 04M

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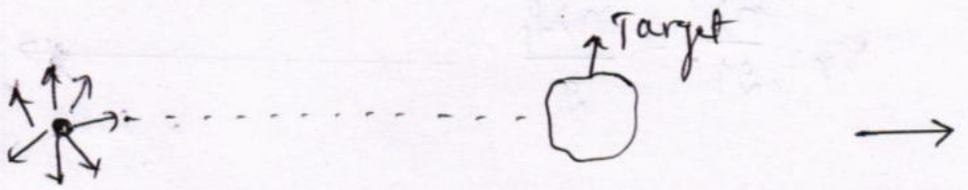
3.B) Simple form of Radar Equation

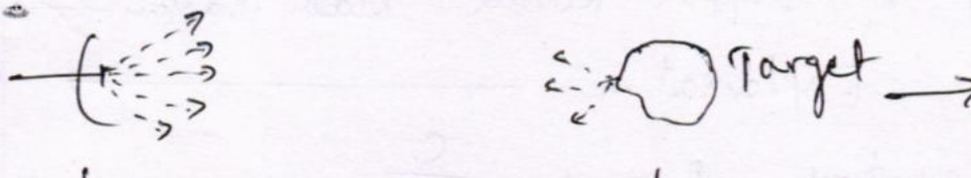


01M

Isotropic Antenna

01M

Power Density of Isotropic Antenna = $\frac{P_t}{4\pi R^2}$ W/m².



01M

Power Radiated by directive Antenna

Power Density of directive Antenna = $\frac{P_t G}{4\pi R^2}$ W/m² } 01M

Power intercepted by a radar of Cross sectional Area σ = $\frac{P_t G \sigma}{4\pi R^2}$ W/m².

Power Density of echo Signal at Radar

$= \frac{P_t G \sigma}{4\pi R^2} \cdot \frac{1}{4\pi R^2}$ W/m² } 01M

$P_r = \frac{P_t G A_e \sigma}{(4\pi R^2)^2}$

$R_{max} = \left[\frac{P_t A_e^2 \sigma}{4\pi \lambda^2 S_{min}}\right]^{1/2}$ → 01M

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3.c) These are the speeds of the target at which the doppler frequency shift is zero. → 01M

$$V_R = \frac{n\lambda}{2T} = \frac{n\lambda f_p}{2} \longrightarrow 01M$$

4.A) MTI Radar Block Diagram → 02M

Explaination → 03M

4.B) pulsed Doppler Radar Block Diagram → 02M

Explaination → 02M

Equations: $R_{UNAMB} = \frac{c}{2(PRF)}$

$$f_{dmax} = \frac{c}{4(R_{UNAMB})}$$

$$V_{rmax} = \frac{\lambda}{8}\frac{c}{R_{UNAMB}}$$

→ 01M

4.C) $f_d = \frac{2V_r f_o}{c}$

i) Fd, $V_r = 40\,KMPH = \frac{40 \times 1000}{3600}$ m/sec

$f_d = 888.89\,Hz$ → 01M

ii) $V_r = 100\,KMPH$

$f_d = 2222.22\,Hz$ → 01M

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION
ACADEMIC YEAR 2017-18
Internal Assessment Test-2
Sub: Microwaves & Radar

Time: 75 min. Max Marks: 25
Course Code: 10EC54 Semester: V

Note: 1) Question 1 is compulsory.
2) Answer any two questions from 2 to 4.

1) Define Reflection Coefficient. 01M
2) A) Derive the expression for voltage and current at any point on the microwave Transmission line. 10M
B) Explain the characteristic impedance of the microwave transmission line. 02M
3) A) Derive the expression for input impedance of the microwave transmission line. 06M
B) Explain (i) Standing Wave (ii) Standing Wave Ratio. 06M
4) A) Explain the different modes of operation of Gunn Diodes. 06M
B) Explain Gunn Diode Oscillator with a neat diagram. 06M

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION
ACADEMIC YEAR 2017-18
Internal Assessment Test-1
Sub: Microwaves & Radar

Time: 75 min. Max Marks: 40M
Course Code: 10EC54 Semester: V

Note: 1) Question 1 is compulsory.
2) Answer any two questions from 2 to 4.

1) Define Reflection Coefficient. 01M
2) A) Derive the expression for voltage and current at any point on the microwave Transmission line. 10M
B) Explain the characteristic impedance of the microwave transmission line. 02M
3) A) Derive the expression for input impedance of the microwave transmission line. 06M
B) Explain (i) Standing Wave (ii) Standing Wave Ratio. 06M
4) A) Explain the different modes of operation of Gunn Diodes. 06M
B) Explain Gunn Diode Oscillator with a neat diagram. 06M

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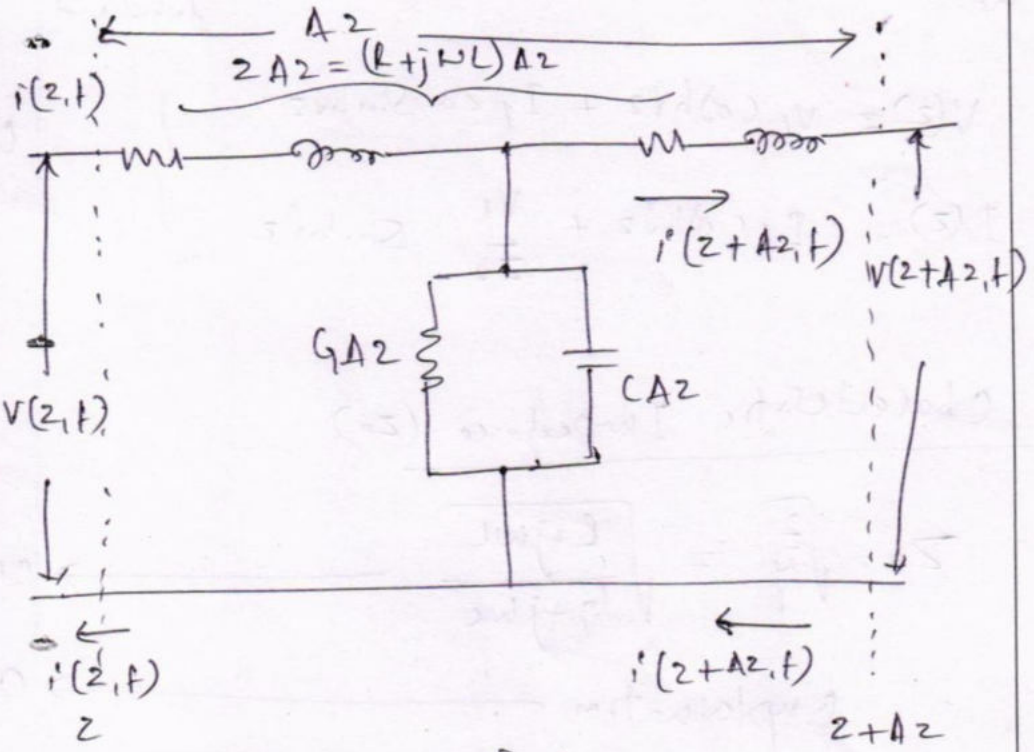
DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

ACADEMIC YEAR 2017-18

2nd INTERNAL ASSESSMENT TEST: SCHEME & SOLUTIONS

NAME OF COURSE INSTRUCTOR:	Pradeepkumar.s.s.
PROGRAMME:	B.E
COURSE TITLE:	Microwaves & Radar
COURSE CODE:	10EC54
SIGNATURE:	Pradeep

Q.NO	SOLUTION	MARKS
1)	Γ = reflected voltage of current / incident voltage of current	
2		02M

$$V(z,t) = V(z)e^{j\omega t}$$
$$i(z,t) = i(z)e^{j\omega t}$$

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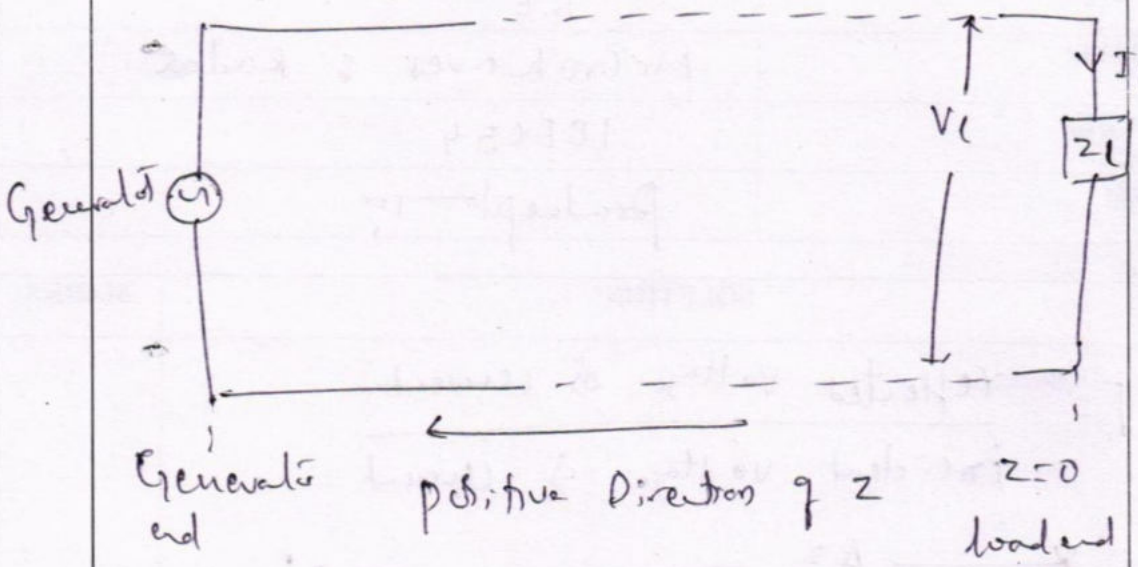
Q.NO	SOLUTION	MARKS

$$V(z) = V_+ e^{\gamma z} + V_- e^{-\gamma z}$$

$$I(z) = \frac{1}{z_0}\left[V_+ e^{\gamma z} - V_- e^{-\gamma z}\right]$$

0 4 M



0 1M

$$V(z) = V_l \cosh\gamma z + I_l z_0 \sinh\gamma z$$

$$I(z) = I_l \cosh\gamma z + \frac{V_l}{z_0} \sinh\gamma z$$

} 0 3M

7-b) **Characteristic Impedance (z_0)**

$$Z_0 = \sqrt{\frac{z}{y}} = \sqrt{\frac{R+j\omega L}{G+j\omega C}} \longrightarrow$$ 0 1M

Explanation $\longrightarrow$ 0 1M

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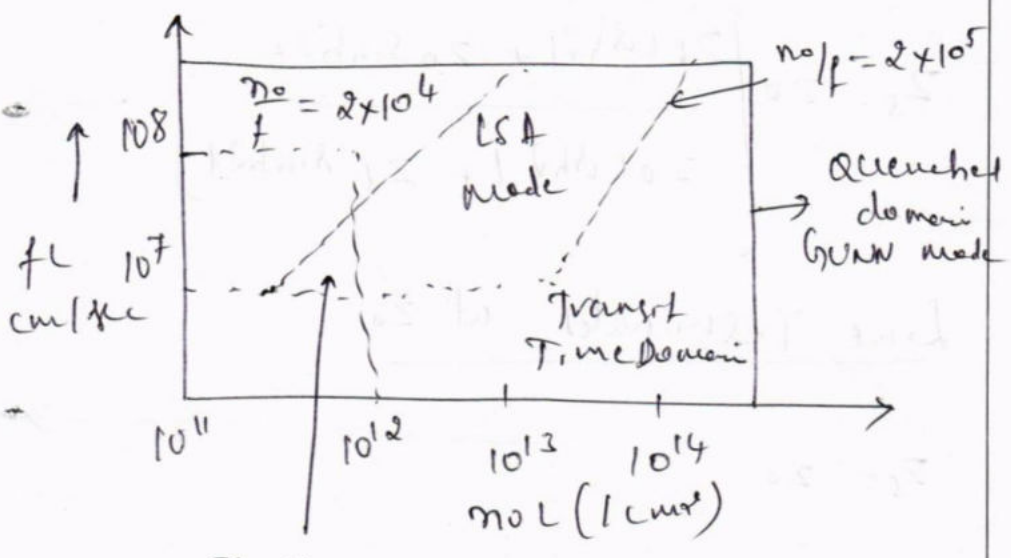
Q.NO	SOLUTION	MARKS
	Standing wave ratio (S)	
	Definition of standing wave ratio →	02M
	$S = \left\lvert \frac{V_{max}}{V_{min}} \right\rvert = \left\lvert \frac{I_{max}}{I_{min}} \right\rvert$ →	01M
4. A)	**Modes of operation of GUNN DIODES**	
		02M
	1) Gunn Oscillator Mode	
	2) Limited Space - Charge - Accumulation Mode (LSA mode)	
	3) Stable Amplification mode	04×1=4M
	4) Bias - Circuit Oscillation Mode	

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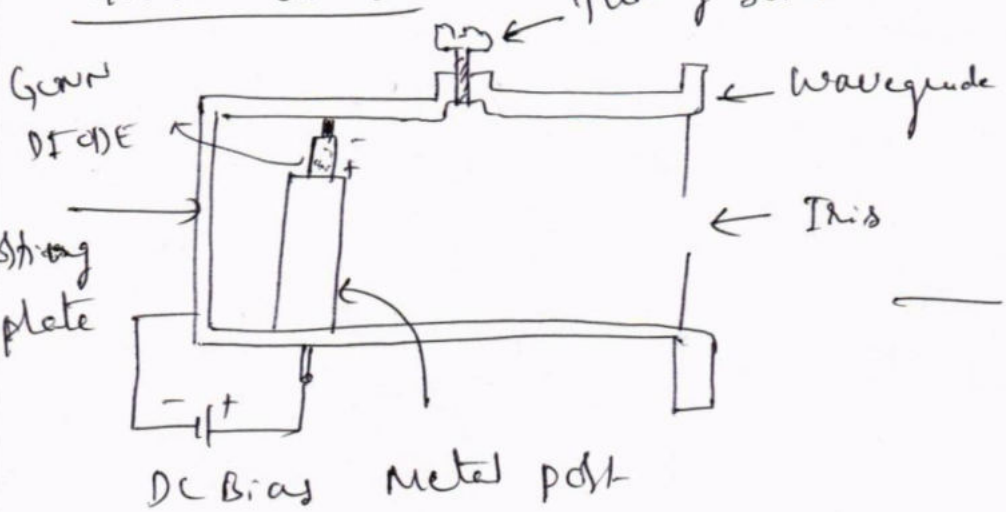
Q.NO	SOLUTION	MARKS
4-B)	GUNN Oscillator 	02M
	Explanation ——————→	02M
	$f_0 = \frac{V_d}{L}$ ——————→	01M

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Department of Electronics and Communication

Academic Year-2017-2018

Internal Assessment 3

Subject: Microwaves and Radars

Max. Marks: 25
Time:75 Minutes

Sub Code: 10EC54
Semester: V

Q1 is compulsory.Answer any two full questions from Q2,Q3 and A4

1.	Write the S-parameter equations	1M
2.	a. Explain the schematic diagram of impatt diode with its operation	6M
	b. Explain the operation of schottky diode	6M
3.	a. Explain the operation of PIN diode	6M
	b. Explain the S-matrix representation of multiport network.	6M
4.	a. Define and derive the 3 losses of S-parameters.	6M
	b. Explain symmetrical Z and Y matrix for reciprocal network	6M

SHRIDEVI INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electronics and Communication

Academic Year-2017-2018

Internal Assessment 3

Subject: Microwaves and Radars

Max. Marks: 25
Time:75 Minutes

Sub Code: 10EC54
Semester: V

Q1 is compulsory.Answer any two full questions from Q2,Q3 and A4

3.	Write the S-parameter equations	1M
4.	a. Explain the schematic diagram of impatt diode with its operation	6M
	b. Explain the operation of schottky diode	6M
3.	a. Explain the operation of PIN diode	6M
	b. Explain the S-matrix representation of multiport network.	6M
4.	a. Define and derive the 3 losses of S-parameters.	6M
	b. Explain symmetrical Z and Y matrix for reciprocal network	6M

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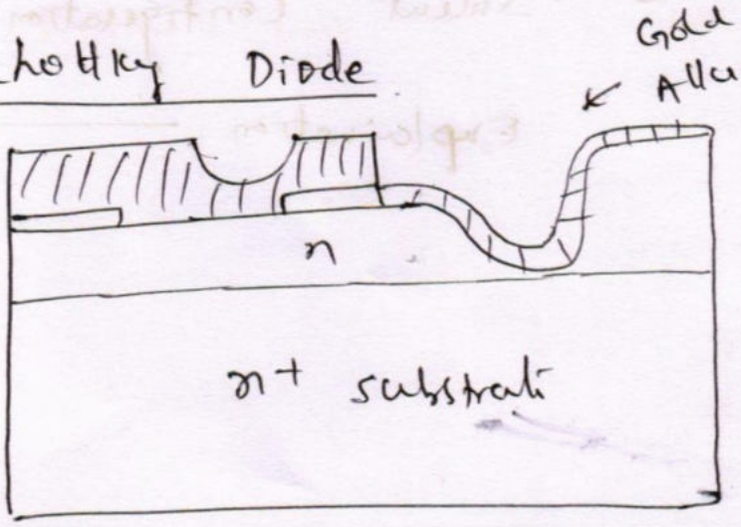
SHRIDEVI INSTITUTE OF ENGINEERING & TECHNOLOGY, TUMKUR -06

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

ACADEMIC YEAR 2017-18

III INTERNAL ASSESSMENT TEST: SCHEME & SOLUTIONS

NAME OF COURSE INSTRUCTOR:	Pradeepkumar. S.S.
PROGRAMME:	B.E
COURSE TITLE:	Microwaves and Radar
COURSE CODE:	10EC54
SIGNATURE:	Pradeep

Q.NO	SOLUTION	MARKS
1.	Equation of S-parameter	01M
2. a)	IMPatt Diodes.	
	Schematic Diagram of Impatt Diode →	03M
	Explanation →	03M
2. b)	Schottky Diode.	
	 →	02M

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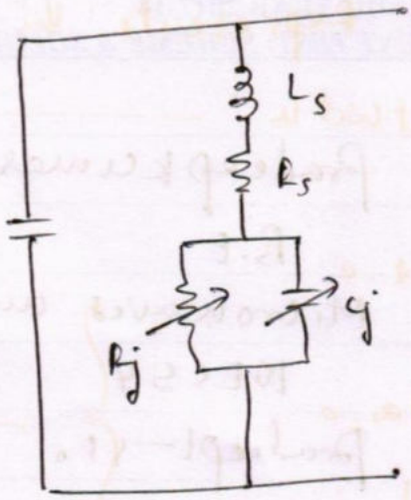
Q.NO	SOLUTION	MARKS
		
		01M
	Explanation	03M
3.a)	PIN Diode:	
	Circuits for SPDT PIN-Diode Switches	
	(a) Series configuration	02M
	(b) Shunt configuration	02M
	Explanation	02M

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Q.NO	SOLUTION	MARKS
3.b)	Diagram which Represents the multiport Network ⟶	02M
	$S_{11} = b_1/a_1 \mid a_2=0$	
	$S_{22} = b_2/a_2 \mid a_1=0$	04M
	$S_{12} = b_1/a_2 \mid a_1=0$	
	$S_{21} = b_2/a_1 \mid a_2=0$	
4.a)	1) Insertion loss =	
	2) Transmission loss 3) Attenuation loss	02×03M = 06M
	3) Reflection loss } Any 3 losses	
	4) Return loss	

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Q.NO	SOLUTION	MARKS
4.b)	Symmetrical z & y parameters of Reciprocal Network	

$$\oint_S (E_i \times H_j - E_j \times H_i)\, ds = 0$$

$$\sum_{i=1}^{N} \oint \left[(E_i \times H_j) - (E_j \times H_i)\right] . ds = 0$$

$$\oint (E_i \times H_j) . ds - \oint_{t_j} (E_j \times H_i) . ds = 0$$

Using poynting theorem,

$$P_{ij} - P_{ji} = 0$$

or $P_{ij} = P_{ji}$

$$V_i I_{ij} = V_i I_{ji}$$

$$V_j [Y_{ij} V_i] = V_i [Y_{ji} V_j)$$

$$Y_{ij} = Y_{ji}$$

$$Z_{ij} = Z_{ji}$$

06M

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ACADEMIC YEAR 2017-18
I INTERNAL ASSESSMENT TEST
Sub: Antenna & Wave Propagation

Time: 75 minutes **Max Marks: 25**
Subject Code: 10EC64 **Semester: VI**

Note: 1) Q.1 is Compulsory

2) Answer any two full questions from Q.2 to Q.4

Q.1. Define Directivity of the Antenna 01M
Q.2. A) Prove the maximum effective aperture of $\lambda/2$ Antenna is $0.13\lambda^2$ 04M
B) Explain the following with respect to an Antenna. 06M
(i) Effective Height (ii) Antenna Field Zones
C) Define (i) Beam solid Angle (ii) Power Density 02M

Q.3.A) Derive Friss Transmission Formula. 04M
B) Derive the relation between Directivity and effective aperture of an antenna. 04M
C) Find the directivity D of the source with the radiation pattern $U=U_m \sin\theta \sin^3\phi$. Given

Q.4. A) Derive an expression and draw the field pattern for two Isotropic Point Sources of same amplitude and same phase. 04M
B) Show that the Directivity of antenna having radiation pattern $U=U_m \cos^n\theta$ is $2(n+1)$. 04M
C) State and Prove Power Theorem. 04M

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ACADEMIC YEAR 2017-18
I INTERNAL ASSESSMENT TEST
Sub: Antenna & Wave Propagation

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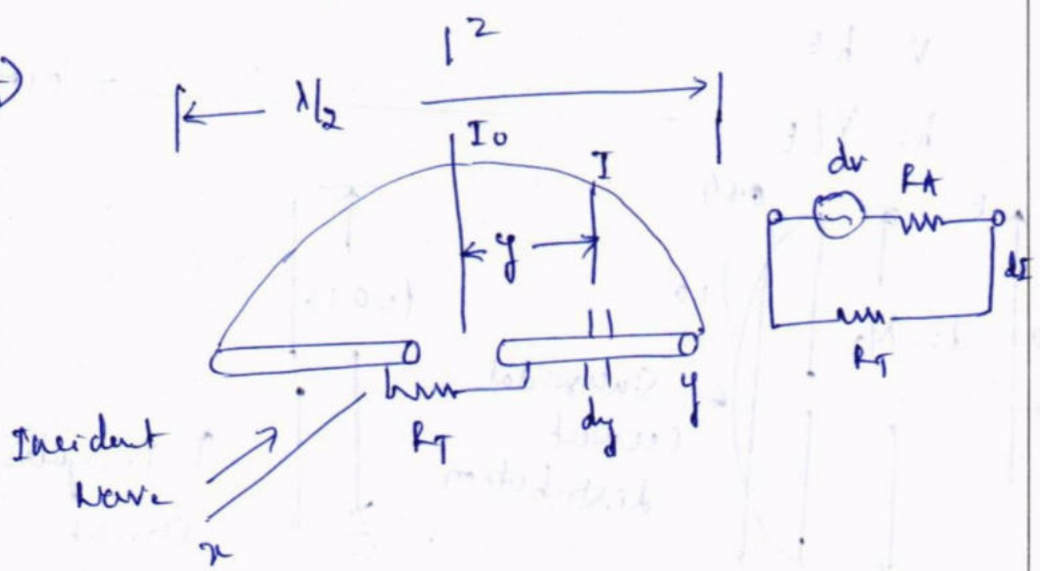
DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

ACADEMIC YEAR 2017-18

I INTERNAL ASSESSMENT TEST: SCHEME & SOLUTIONS

NAME OF COURSE INSTRUCTOR:	Pradeep Kumar. S.S
PROGRAMME:	B.E
COURSE TITLE:	Antenna & Wave propagation
COURSE CODE:	10EC64
SIGNATURE:	Pradeep T S.S

Q.NO	SOLUTION	MARKS
Q.1	Ratio of Maximum Radiation Intensity to Average radiation Intensity ⟶	01M
Q.2 A)		0.2M
	$V = 2\int_0^{\lambda/4} E\cos\frac{2\pi y}{\lambda}\,dy$	01M
	$V = \frac{E\lambda}{\pi}$	

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Q.NO	SOLUTION	MARKS

The value of the radiation resistance for the linear $\lambda/2$ antenna will be taken as 73Ω.

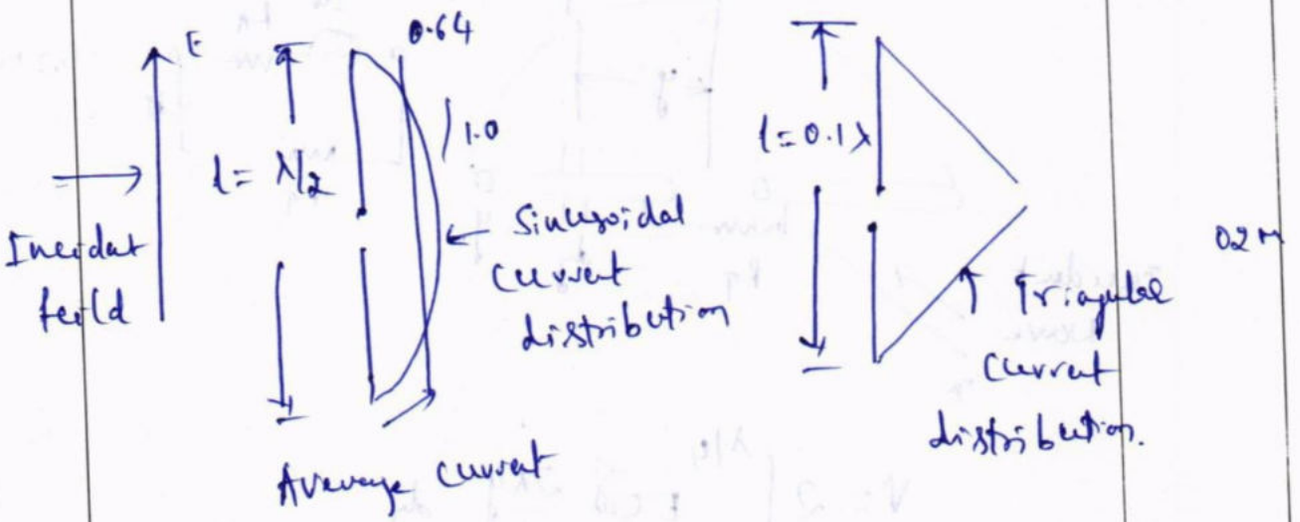
So $A_{em} = \dfrac{120\pi E^2 \lambda^2}{4\pi^2 E^2 \times 73} = 0.13\lambda^2$ 01 M

02. B) (i) Effective height (h_e)

The effective height h in meters of an antenna is given by

$V = hE$

$h = V/E$ → 01M



02 M

(ii) Antenna field zones

1) Fresnel zone or Near field
2) Fraunhofer zone or far field

} 1.5 × 02 = 03 M

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Q.NO	SOLUTION	MARKS
Q.2C)	**Beam Solid angle (Ω_A)**	
	It is the angle through which maximum power is radiated →	01M
	power Density (P)	
	It is the power per unit area.	
	It is measured in Watts / m^2 →	01M
Q.3A)	**Friss Transmission Formula**	
	 →	01M
	$S_r = \frac{P_t}{4\pi r^2}$ (w)	
	$S_r = \frac{P_t G_t}{4\pi r^2}$ (w)	
	$P_r = S_r A_{er} = \frac{P_t G_t A_{er}}{4\pi r^2}$ (w)	
	$G_t = \frac{4\pi A_{et}}{\lambda^2}$	03M
	$\frac{P_r}{P_t} = \frac{A_{er} A_{et}}{r^2 \lambda^2}$	

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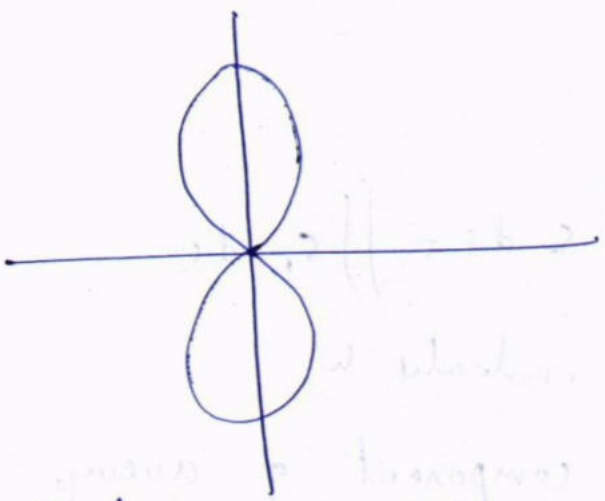
Q.NO	SOLUTION	MARKS
	$d_r = \frac{2\pi d}{\lambda} = \beta d$	
	$E = E_0 e^{-j\psi/2} + E_0 e^{j\psi/2}$ $E = 2E_0 \left[\frac{e^{j\psi/2} + e^{-j\psi/2}}{2} \right]$	02M
	$E = 2E_0 \cos \psi/2 = 2E_0 \cos\left(\frac{d_r}{2}\cos\phi\right)$ $E = 2E_0 e^{j\psi/2} \cos \psi/2$	
	 Radiation pattern	01M
B. 4B)	$W = \int_{\phi=0}^{2\pi} \int_{\theta=0}^{\pi} U \sin\theta \, d\theta \, d\phi$	
	$D = 2(n+1) = \frac{U_m}{U_0} = \frac{4\pi U_m}{4\pi U_0} = 2(n+1) \rightarrow 04M$	

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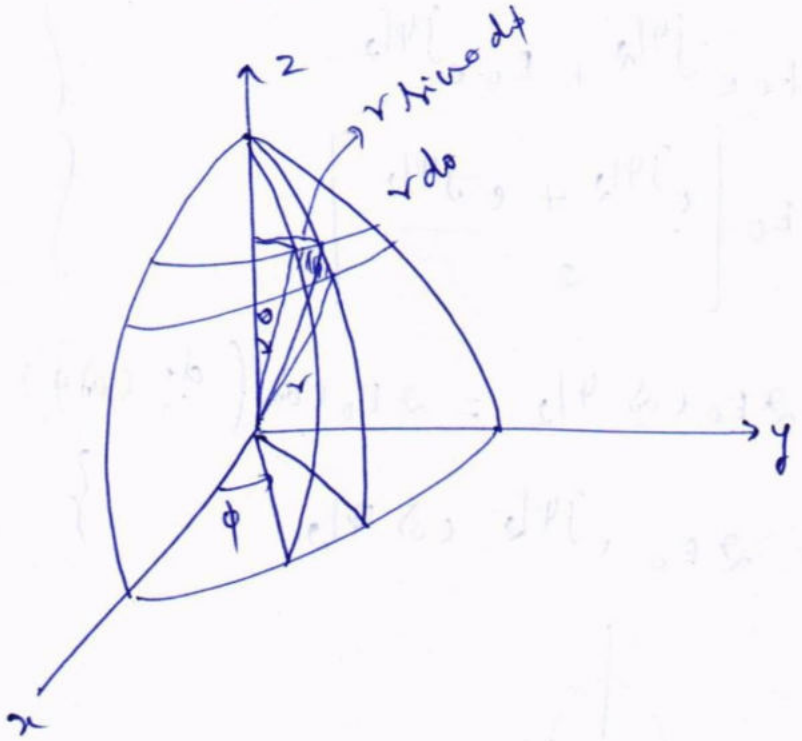
Q.NO	SOLUTION	MARKS
Q.4)	**Power Theorem** 	02 M

$$P = \iint S \cdot ds = \iint S_r \cdot ds$$

P = power radiated, W

S_r = radial component of average pointing vector, $W m^{-2}$ } 01 M

ds = Infinitesimal element of area of sphere

$= r^2 \sin\theta \, d\theta \, d\phi$, m^2

$P = S_r \iint ds = S_r \times 4\pi r^2$ 01 M

$$S_r = \frac{P}{4\pi r^2} \quad (W m^{-2})$$

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION
ACADEMIC YEAR 2017-18
2nd INTERNAL ASSESSMENT
Sub: Antennas & Wave Propagation

Time: 75 Min
Course Code: 10EC64

Max Marks: 25M
Semester: VI

Note: a) Q.1 is Mandatory
b) Answer any two full questions from Q.2 Q.3 & Q.4

1) What is Troposphere Scattering? 1M
2) A) Derive the expression for the array factor of N isotropic point sources. 4M
B) A linear Uniform array of N isotropic point sources having specifications n=4, d= λ/2. Obtain the field pattern. Also find i) HPBW ii) FNBW. 4M
C) Explain Duct Propagation with a neat Diagram. 4M

3) A) Discuss various forms of radio wave propagation. 6M
B) Explain the principal of surface wave propagation. Obtain the expression for tilt angle. 4M
C) A TV transmitter has a height of 169m and the receiver antenna 16m. Calculate the maximum distance through which the TV signal could be received by space wave. What is the radio horizon in this case? 2M

4) A) Derive an expression for space wave field intensity. Show it varies sinusoidally. 4M
B) With a neat diagram explain the different layers of ionosphere. 4M
C) Estimate the surface wave tilt in degrees over an earth of 12millimhos conductivity and relative Permittivity 20 at a wavelength 300m. 4M

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ACADEMIC YEAR 2017-18
2nd INTERNAL ASSESSMENT
Sub: Antennas & Wave Propagation

Time: 75 Min
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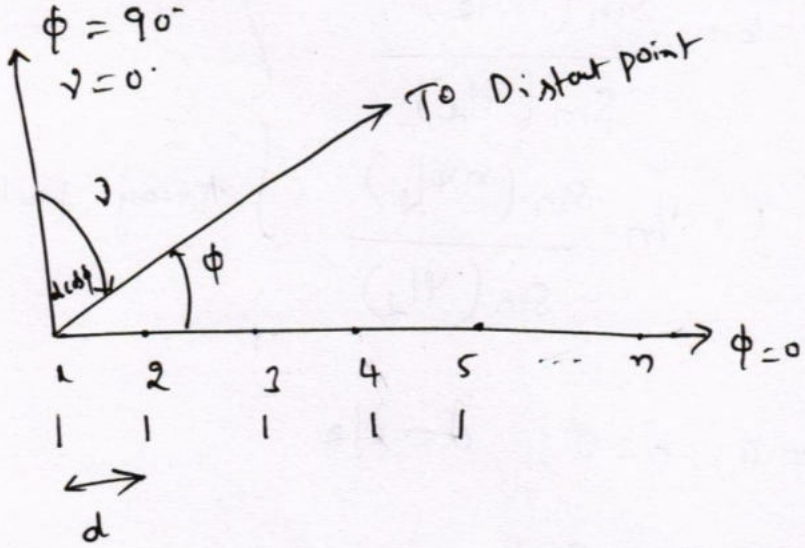
DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING
ACADEMIC YEAR 2017-18

SCHEME & SOLUTIONS

Course Instructor :	Pradeepkumar S.S.
Department:	ECE
Course Title:	Antenna and wave propagation
Course Code:	10EC64
Signature:	Pradeep

Q.NO.	SOLUTION	MARKS
1.	The scattering of waves due to Turbulence in the Troposphere is called Tropospheric scattering	01M
2.A)		01M
	$E = 1 + e^{j\psi} + e^{j2\psi} + \cdots e^{j(n-1)\psi}$ → (1) $\psi = \frac{2\pi d}{\lambda}\cos\phi + \delta = d_r \cos\phi + \delta$	01M

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Q.NO.	SOLUTION	MARKS
	$E e^{j\psi} = e^{j\psi} + e^{j2\psi} + \cdots e^{jn\psi} \longrightarrow (2)$	
	$E = \dfrac{1 - e^{jn\psi}}{1 - e^{j\psi}}$	
	$E = \dfrac{e^{jn\psi/2}}{e^{j\psi/2}} \left[\dfrac{e^{jn\psi/2} - e^{-jn\psi/2}}{e^{j\psi/2} - e^{-j\psi/2}} \right]$	01M
	$E = e^{j\xi} \dfrac{\sin(n\psi/2)}{\sin(\psi/2)} = \dfrac{\sin(n\psi/2)}{\sin(\psi/2)}$ ξ	
	$\xi = \dfrac{n-1}{2}\psi$	
	$E = \dfrac{\sin(n\psi/2)}{\sin(\psi/2)}$ $E = 1/n \dfrac{\sin(n\psi/2)}{\sin(\psi/2)}$ Array factor	01M
Q. 8	$n = 4,; \delta = 0; \quad d = \lambda/2$	
	Peaks: $\psi = 0$	
	$d\cos\psi + \delta = 0 \longrightarrow$	01M
	$\delta = 0, \quad \psi = +90$	

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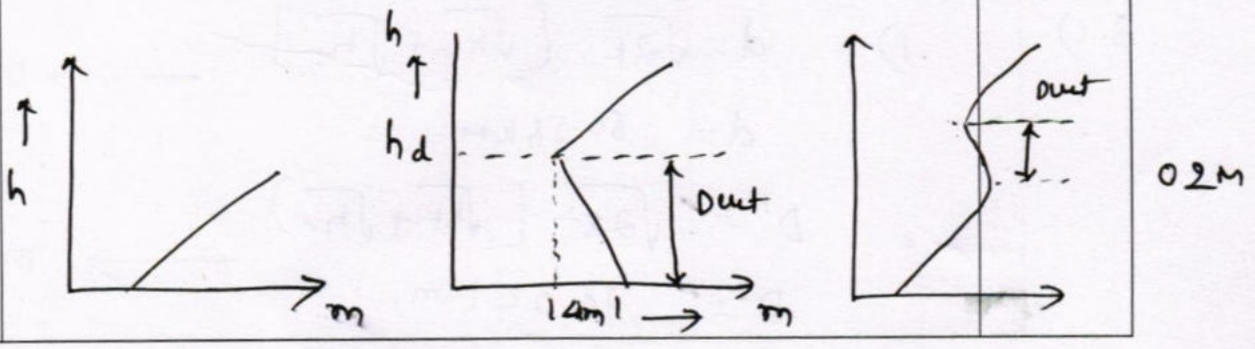
Q.NO.	SOLUTION	MARKS
	Side lobes :	
	$\phi = \pm \cos^{-1}\left[\pm \frac{(2k+1)\pi}{n\,dr}\right]$	
	$k=0, \phi = \pm 75.5^\circ, \pm 104.5^\circ$	01M
	$k=1, \phi = \pm 41.4^\circ, \pm 138.6^\circ$	
	Nulls: $\phi = \pm \cos^{-1}\left[\pm \frac{2k\pi}{n\,dr}\right] = \pm \cos^{-1}\left(\pm \frac{k}{2}\right)$	
	$k=0, \phi = \pm 90^\circ$	01M
	$k=1, \phi = \pm 60^\circ, \pm 120^\circ$	
	$k=2, \phi = \pm 0^\circ, \pm 180^\circ$	
	Radiation pattern, BWFN = 60°	01M
	HPBW = 30°	
2. c)	Duct propagation (super refractions)	
		02M

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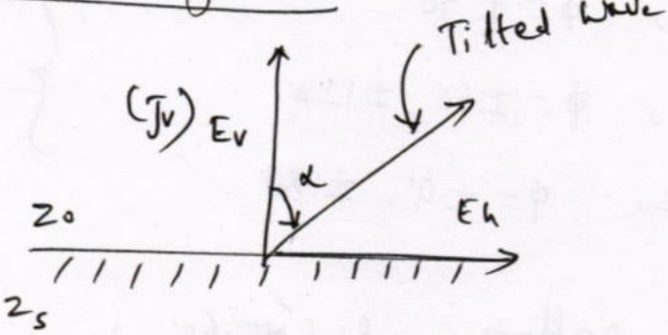
Q.NO.	SOLUTION	MARKS
	Explanation for Duct Propagation ⟶	02M
3.A)	i) Ground wave propagation ⟶	02M
	ii) Space wave propagation ⟶	01M
	iii) Sky wave Propagation ⟶	01M
3.B)	Principle of Diffraction ⟶	01M
	Tilt angle (α)	
	 ⟶	0.5M
	Derivation	
	$\alpha = \tan^{-1}\left[\frac{1}{\sqrt{\epsilon_r}\,[1+x^2]^{1/4}}\right]$ ⟶	2.5M
3.C)	i) $d = \sqrt{2R}\,[\sqrt{h_t}+\sqrt{h_r}]$ ⟶	01M
	$d = 60.58$ km	
	$D' = \sqrt{2R'}\,[\sqrt{h_t}+\sqrt{h_r}]$ ⟶	01M
	$D' = 70.04$ km	

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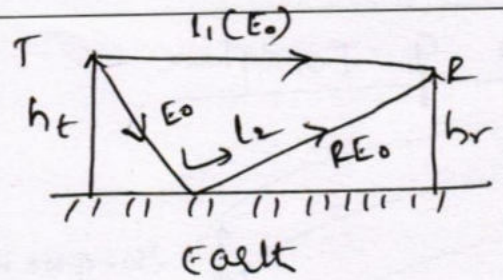
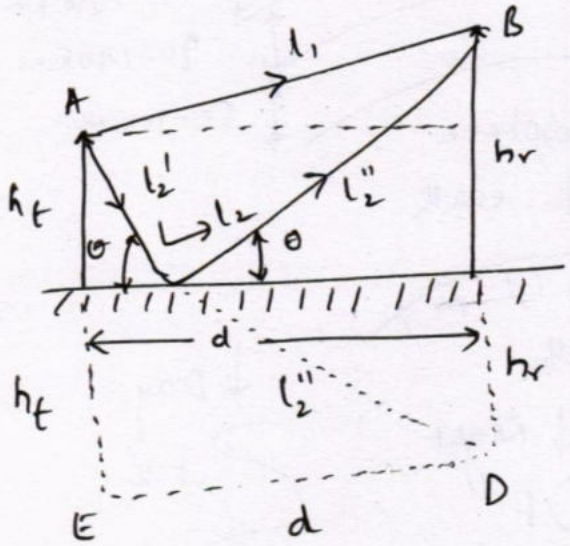
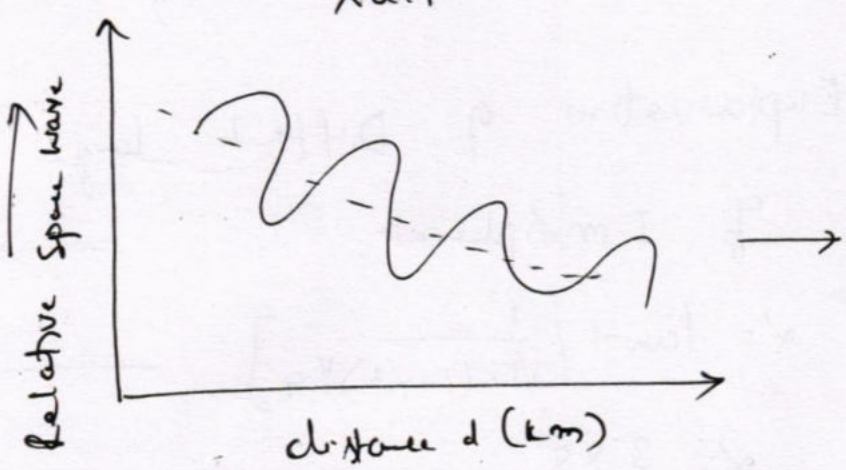
Q.NO.	SOLUTION	MARKS
4. A)	 	01M
	$\lvert E_{space} \rvert = \frac{E_0 \, 4\pi h_t h_r}{\lambda d}$ ⟶	02M
	$\lvert E_{space} \rvert = \frac{88\sqrt{P}\, h_t h_r}{\lambda d l_1}$	
	 ⟶	01M

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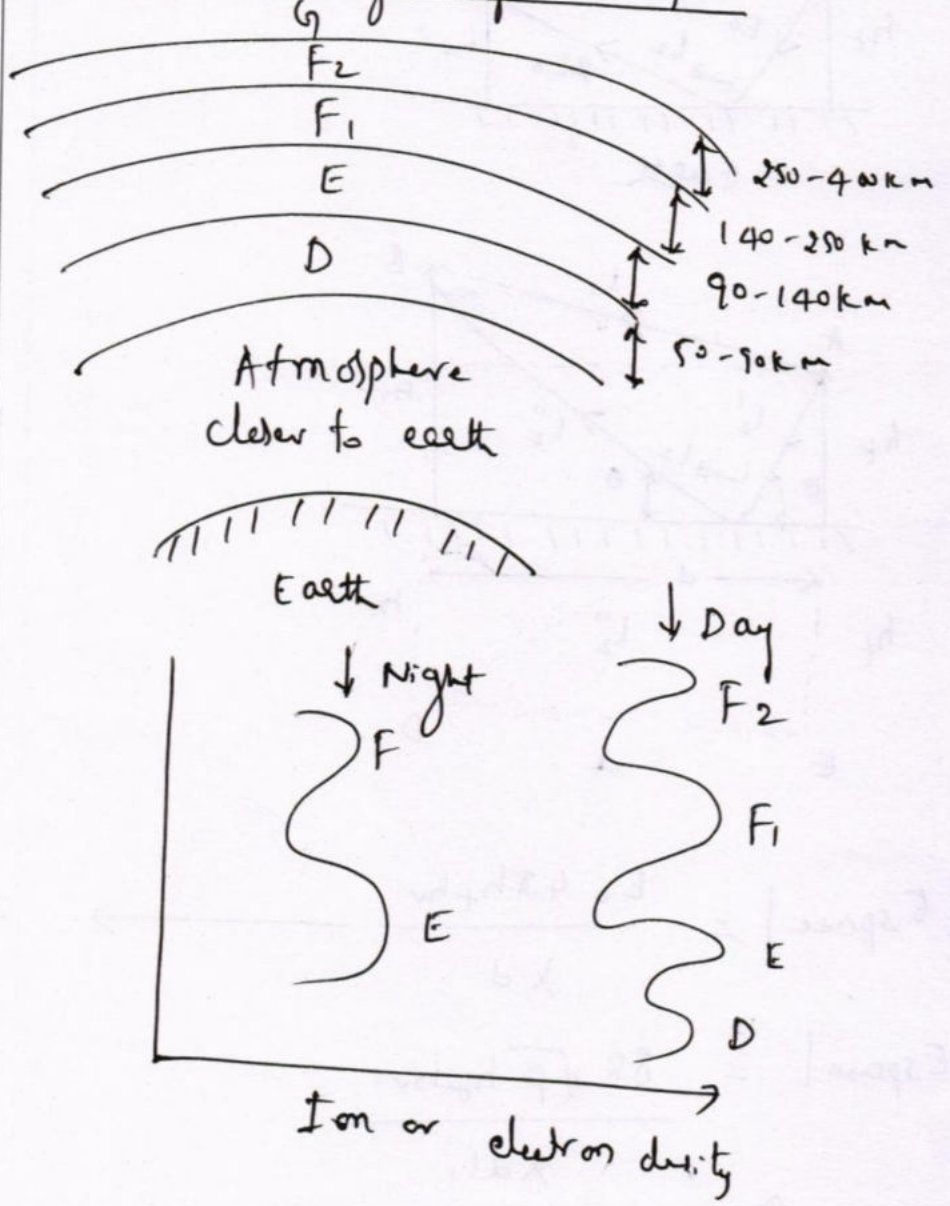
Q.NO.	SOLUTION	MARKS
8(b)	Different layers of Ionosphere  Explanation of Different layers of Ionosphere	01M 03M
8(c)	$\alpha = \tan^{-1}\left[\frac{1}{\sqrt{5}(1+x^2)^{1/4}}\right]$	01M
	$\alpha = 3.88^\circ$	03M

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION
ACADEMIC YEAR 2017-18
II INTERNAL ASSESSMENT TEST
SUBJECT: Embedded System Design

Time:90 minutes
Sub Code:10EC74
Date:28 /10/17

Max Marks:25
Semester: VII

Answer any 2 full questions choosing from Q NO. 2,3,4.

Q NO.1 is Compulsory

1).a).Define an operating system — 1M
2). a).With neat diagram explain the design of 4k×16 SRAM system. — 8M
b).List and explain the various types of memory. — 4M
3).a).Explain associative mapping cache implementation. — 5M
b).Write the inside and outside diagrams for DRAM along with read and write operation.Also explain refresh operation. — 7M
4). a).Explain the different functions of embedded operating system. — 6M
b).Explain the operating system architecture — 6M

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SHRIDEVI INSTITUTE OF ENGINEERING & TECHNOLOGY, TUMKUR -06
DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING
ENGINEERING
ACADEMIC YEAR 2017-18
II Internal Assessment
SCHEME & SOLUTIONS

NAME OF THE FACULTY:	Latha.k
DEPARTMENT:	Electronics and Communication
SUBJECT TITLE:	Embedded system Design
SUBJECT CODE:	10EC74
SIGNATURE:	

Q.NO.	SOLUTION	MARKS
1a	Operating system is a piece of software that supports for execution of task	(1M)
2a.	Design of 4K x 16 SRAM system Design → 5M Explanation → 3M	
2b.	Classification of Memory. * RAM * DRAM * SRAM Semistatic RAM SDRAM ROM PROM EPROM EEPROM FLASH	(4M)

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Q.NO.	SOLUTION	MARKS
3a)	Associative mapping cache mapping diagram → (1M) Tag table → (2M) Explanation → (2M)	
b.	Inside diagram circuit → (1M) outside diagram circuit → (1M) Read diagram → (1M) write diagram → (1M) Refresh opration → (3M) explanation	
4a)	Functions of operating system 1. Task management 2. Memory management 3. I/O system Management 4. File system Management 1×6 5. System protection 6. Networking	6M
4b.	Operating system architecture diagram Explanation	3M 3M

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Department of MBA

II Semester: I Internal Assessment Test, March 2018

Subject: Human Resource Management (17MBA21)

Time: 90 Minutes **Max. Marks: 40**

Answer the following Questions:

1. a. What do you mean by HRM?	**02 Marks**
b. Explain the Nature of HRM?	**06 Marks**
c. Elucidate the Functions of HRM?	**08 Marks**
2. a. What is Job Analysis?	**02 Marks**
b. Explain the Data Collection Methods of Job Analysis?	**06 Marks**
c. Discuss the uses of Job Analysis?	**08 Marks**
3. a. What is Job description? Explain its Contents?	**08 Marks**

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Department of MBA

Scheme of Evaluation – I Internals

IISem **17MBA21 :** **Human Resource Management** **Max.Marks:40**

Q.No	*Question and Answers*	*Marks*
1 a.	Human Resource Managementmeans employing the people ,developing their resources, utilizing, maintaining & compensating their services in tune with the job & organizational requirements with a view to contribute to the goals of the organization, individual & the society.	2 marks
b.	Nature of HRM • It is pervasive in nature as it is present in all enterprises. • Its focus is on results rather than on rules. • It tries to help employees develop their potential fully. • It encourages employees to give their best to the organization. • It is all about people at work, both as individuals and groups. • It tries to put people on assigned jobs in order to produce good results. • It helps an organization meet its goals in the future by providing for competent and well-motivated employees. • It tries to build and maintain cordial relations between people working at various levels in the organization. • It is a multi-disciplinary activity, utilizing knowledge and inputs drawn from psychology, economics, etc. .	6 marks Listing: 2m Explana tion" 4m
C	Functions of HRM I Managerial Functions : 1. PLANNING . 2. ORGANIZING 3. DIRECTING 4. CONTROLLING II Operative Functions 1. EMPLOYMENT 2. HUMAN RESOURCE DEVELOPMENT: . 3.COMPENSATION 4. HUMAN RELATIONS – 5.INDUSTRIAL RELATIONS –	8marks Listing 2m Explan ation 6m
2 a	Job analysis refers to the process of studying the operations, duties and organizational aspects of jobs in order to derive specifications or as they called by some, job descriptions.	2 marks
B	**Methods of Data Collection for Job Analysis** **1.**Observation: 2.Interview: 3.Questionnaire: 4.Checklists: 5.Critical Incidents: 6. Diaries or Log Records:	6 marks Listing: 2m Explan ation" 4m

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C	**Uses of Job Analysis** 1. **Organization and Manpower Planning**: It is helpful in organization planning, for it defines labour in concrete terms and co-ordinates the activities of the work force, and clearly divides duties and responsibilities. **2. Recruitment and Selection:** Job analysis provides you with information on what the job entails and what human requirements are required to carry out these activities. This information is the basis on which you decide what sort of people to recruit and hire. **3. Placement and Orientation**: Job analysis helps in matching the job requirements with the abilities, interests and aptitudes of people. Jobs will be assigned to persons on the basis of suitability for the job. The orientation programme will help the employee in learning the activities and understanding duties that are required to perform a given job more effectively. **4. Job Evaluation and Compensation**: Job evaluation is the process of determining the relative worth of different jobs in an organization with a view to link compensation, both basic and supplementary, with the worth of the jobs. The worth of a job is determined on the basis of job characteristics and job holder characteristics. Job analysis provides both in the forms of job description and job specification. **5. Performance Appraisal**: Performance appraisal involves comparing each employee's actual performance with his or her desired performance. Through job analysis industrial engineers and other experts determine standards to be achieved and specific activities to be performed.	8marks Listing 2m Explanation 6m
3a	Job Description is a written record of the duties, responsibilities and requirements of a particular job. It is concerned with the job itself and not with the job holders. It is a statement describing the job in such terms as its title, location, duties, working conditions and hazards **<u>Contents of job description</u>** **1) Job title:** first of all the job description document must describes the job title. It must be short, definite and suggestive of the nature of job. **2) Job location:** it means the name of department where the job exists. **3) Job summary:** it means a short summary of the task to be performed by the employee. **4) Job duties:** job description document should include the percentage of time that is devoted to the performance of each task. **5) Equipments, machines and tools:** equipments, machines and tools to be used in the job should be written in the job description document. **6) Relation to other jobs:** relation to other jobs will help the organization to understand the nature of the job. **7) Nature of supervision:** job description must include the nature of supervision it includes. **8) Working environment:** the working conditions, hazards involve in the job must be mentioned in the job description document.	3 marks Explanation 5m

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Department of MBA

II Semester Preparatory Examination, May 2018

Subject: Human Resource Management (17MBA21)

Time: 3 Hours **Max. Marks: 80**

Note: 1. Answer any four full questions from Q.No 1 to Q.No 7.
2. Q. No 8 is Compulsory.

1. a. What is HRM?	2 Marks
b. Outline the objectives of HRM	6 Marks
c. Discuss the functions of HRM	8 Marks
2. a. What is HRP	2 Marks
b. Explain the process of Job Analysis	6 Marks
c. Elucidate the Methods of Recruitment	8 Marks
3. a. Explain the term Placement and Induction?	2 Marks
b. Differentiate between Training and Development.	6 Marks
c. Discuss Job Description and Job Specification.	8 Marks
4. a. What do you mean by Job Evaluation?	2 Marks
b. Describe the various methods of Training	6 Marks
c. Explain the process of Performance Appraisal	8 Marks
5. a. What is internal Mobility?	2 Marks
b. Elaborate the essentials of a Good Disciplinary System	6 Marks
c. Explain the steps in Selection Process	8 Marks
6. a. What is reference Check?	2 Marks
b. Explain the objectives of Compensation	6 Marks
c. Discuss the methods of Performance Appraisal	8 Marks
7. a. What is Discipline	2 Marks
b. Discuss the causes of Grievance	6 Marks
c. Explain the Grievance Procedure	8 Marks

8. Case Study

Mr. Laxmanan has been working as Agricultural Officer in Corporation Bank since 1982. He is married in 1983 and he has a son and a daughter. He has worked in various rural branches in Kerala, Karnataka and Orissa. Mr. Laxmanan and his wife belong to Tiruchirappalli city in Tamil Nadu. He is a graduate in agricultural science. Mr. Laxmanan is one of the most sincere and committed officers of

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the bank. He leaves his house at 8 AM almost every day (including Sundays), visits the farmers, their fields suggests them on various issues, attends the Bank to work between 12 Noon and 8 PM with one hour lunch break. He helps the Branch Manager in finalizing the daily accounts, in completing the work left incomplete by other staff. His wife manages all domestic chores and also the schooling of their Children. She could not admit her son in a residential English Medium high School in Coimbatore. She asked her husband to try for his admission but in vain immediately she wrote to the Branch Manager, Regional Manager and Personnel Manger in the regional head offices, requesting them to help her in getting admission for her son in any English Medium High School preferably in Chennai/Coimbatore giving the facts that her husband serves the bank right from 8 AM to 8 PM and he could not find time to successfully try for his son's admission. The Regional Manager, Personnel Manager and Branch Manager enquired into the case and found the information furnished by Mrs. Laxmanan was correct.

The bank's policy at present is to redress the grievances of the employees and to deal with only those grievances relating to the terms and conditions of employment and work. Immediately the regional manager sought the active participation of the personnel manager at the head office.

Questions:

a. Being the personnel manager what would you suggest to the regional manager and the branch manager in solving the problem 8 Marks

b. If you were the regional manager, how would you redress this grievance? 8 Marks

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Department of MBA

Scheme of Evaluation Preparatory Examination

II Sem **17MBA21 :** **Human Resource Management** **Max.Marks:80**

Q.No	Question and Answers	Marks
1a	Human Resource Managementmeans employing the people ,developing their resources, utilizing, maintaining & compensating their services in tune with the job & organizational requirements with a view to contribute to the goals of the organization, individual & the society.	2m
B	**Objectives of HRM:** • Helping to establish and maintain a harmonious employer/employee relationship • Helping to create and maintain a safe and healthy work environment • Developing programs to meet the economic, psychological, and social needs of the employees and helping the organization to retain the productive employees. • To provide organization with well-trained and well-motivated employees • To increase the employees satisfaction and self-actualization • To develop and maintain the quality of work life	2+4=6m
C	Functions of HRM I Managerial Functions : 1. PLANNING . 2. ORGANIZING 3. DIRECTING 4. CONTROLLING II Operative Functions 1. EMPLOYMENT 2. HUMAN RESOURCE DEVELOPMENT: . 3.COMPENSATION 4. HUMAN RELATIONS – 5.INDUSTRIAL RELATIONS –	2+6=8m
2a	Human resource planning is a technique company uses to balance its flow of employees and prevent situations such as team member shortages or surpluses. This also ensures that the business has the right people with the appropriate skills and ability to build a strong workforce.	2m
B	**Process of Job analysis** **1.** Determine the Use of the Job Analysis Information: 2. Collection of Background Information: 3. Selection of Jobs for Analysis: 4. Collection of Job Analysis Data: 5. Processing the Information 6. Preparing Job Descriptions and Job Classifications 7. Developing Job Specifications	2+4=6m
C	**Methods of Recruitment** **I)**Traditional sources of Recruitment **Internal sources** • Present Permanent employees • Present Temporary employees	2+6=8

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	• Retrenched / Retired employees. • Dependents of the deceased, disabled , Retired,& Permanent employees **External Sources** • Campus recruitment. • Private Employment Agencies/Consultants. • Public Employment Exchanges. • Professional associations. • Data banks. • Casual applicants. • Similar organizations • Trade unions II) Modern Sources **Internal sources** Employee Referrals – Present employees are well aware of the qualifications, attitudes, experience and emptions of their friends and relatives. They also know the job requirements and organizational culture of the company. As such they can make preliminary judgement regarding the match between the job and their friends or relatives. **Externalsources** • Walk—in. • Consult—in • Head hunting. • Body shopping • Mergers & Acquisitions • Tele recruitment • Outsourcing	
3a	**Placement** refers to the process of connecting the selected person and the employer in order to establish an ongoing employment relationship. In this step the employee is given the activities he/she needs to perform and is told about his/her duties. **Induction** is the process through which employees adjust or acclimatise to their new jobs and working environment.	2m
B		2+4=6m

Training	**Development**
Training is skills focused	Development is creating learning abilities
Training is presumed to have a formal education	Development is not education dependent
Training needs depend upon lack or deficiency in skills	Development depends on personal drive and ambition
Trainings are generally need based Development is voluntary	Development is voluntary
Training is a narrower concept focused on job related skills	Development is a broader concept focused on personality development
Training may not include development	Development includes training wherever necessary
Training is aimed at improving job related efficiency and performance	Development aims at overall personal effectiveness including job efficiencies

C	**Job Description** Job description is the immediate product of job analysis process; the data collected through job analysis provides a basis for job description and job specification. Job Description: is a written record of the duties, responsibilities and requirements of a particular job. It is concerned with the job itself and not with the job holders. It is a statement describing the job in such terms as its title, location,	2+6=8

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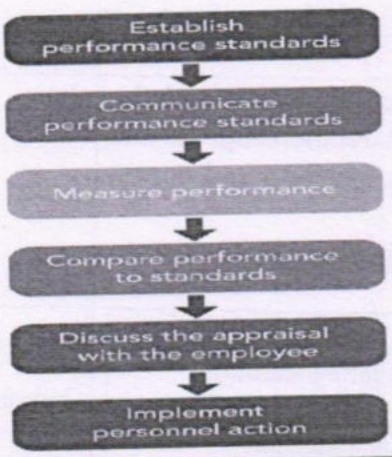
<table>
<tr><td></td><td>duties, working conditions and hazards.
Job Specification
According to Dale Yoder, “The job specification, as such a summary properly described is thus a specialized job description, emphasizing personnel requirement and designed especially to facilitate selection and placement.”
Flippo has defined job specification as, “Job specification is a statement of the minimum acceptable human qualities necessary to perform a job properly</td><td></td></tr>
<tr><td>4a</td><td>Job Evaluation is a systematic process of determining the worth of one job in relation to another job in the organisation. During job evaluation, the relative worth of various jobs are assessed so that wages can be paid depending upon the worth of the job.</td><td>2m</td></tr>
<tr><td>B</td><td>Method of training
<table>
<tr><td>On the job Training</td><td>Off the Job Training</td></tr>
<tr><td>• Apprenticeship</td><td>• Class Room Lectures</td></tr>
<tr><td>• Job Instruction</td><td>• Simulation Exercises</td></tr>
<tr><td>• Coaching</td><td>• Programmed Instructions</td></tr>
<tr><td>• Job Rotation</td><td>• Role Playing</td></tr>
<tr><td>• Committee Assignments</td><td>• Vestibule Training</td></tr>
<tr><td>• Mentoring</td><td>• Conference or Discussion</td></tr>
</table></td><td>2+4=6m</td></tr>
<tr><td>C</td><td>A performance appraisal is a systematic and periodic process of measuring an individual’s work performance against the established requirements of the job. It’s a subjective evaluation of the employee’s strengths and weaknesses, relative worth to the organization, and future development potential.
 
</td><td>2+6=8m</td></tr>
<tr><td>5a</td><td>Internal mobility is the movement of employees within an organization. An internal mobility strategy takes this a few steps further by implementing a process or framework for moving existing employees between roles, vertically and laterally.</td><td>2m</td></tr>
<tr><td>B</td><td>Essentials of a good disciplinary system
• Rules and performance criteria
• Documentation of the facts
• Consistent response to rule violations
• Training of supervisors
• Impersonal discipline
• Reasonable penalty
• Follow-up</td><td>2+4=6m</td></tr>
</table>

c	**PROCESS OF SELECTION** STEP 1. JOB ANALYSIS STEP 2. HUMAN RESOURCE PLAN STEP 3. RECRUITMENT P STEP 4. APPLICATION BLANK: STEP 5. WRITTEN EXAMINATION: STEP 6. PRELIMINARY INTERVIEW: STEP 7. BUSINESS GAMES: STEP 8. TESTS:	2+6=8
6a	Reference checking is an objective evaluation of an applicant's past job performance based on information collected from key individuals (e.g., supervisors, peers, subordinates) who have known and worked with the applicant.	2m
b	1. Attractingandretainingtalented employees: The compensation system 2. Motivatingemployees: 3. Enhancing job satisfaction: 4. Fostering a culture of performance:.	2+4=6m
c	**Methods of Performance Appraisals Include:** • 720-Degree feedback: • The Assessment Center Method: • Behaviorally Anchored Rating Scale (BARS): • Checklist Method: • Critical Incidents Method: • Customer/Client Reviews: • Field Review Method: • Forced Choice Method: • General Performance Appraisal: • Human Resource Accounting Method: • Management By Objective (MBO): • Performance Tests and Observations: . • Project Evaluation Review: • Ratings Scales:	2+6=8
7a	Discipline is the quality of being able to behave and work in a controlled way which involves obeying particular rules or standards. Discipline is an act of rules and regulation which we follow from our childhood till the end of our life.	2m
b	***Causes of Grievances:*** **1**. Economic: 2. Work environment: 3. Supervision: 4. Organizational change: 5. Employee relations: 6. Miscellaneous:	2+4=6m
c	**Grievance procedure: 6 steps** 1. The employee makes a formal, written complaint. A company may 2. Once the employee files the grievance, a formal investigation begins. . 3. The investigator writes a conclusion. 4. A mediator can be called in. 5. There are consequences. . 6. If the employee is not satisfied,	2+6=8m
8ab	• Marks to given based on the justification given by students	10*2=2

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Department of MBA

II Semester: I Internal Assessment Test, March 2018

Subject: Financial Management (17MBA22)

Time: 90 Minutes **Max. Marks: 40**

Answer the following questions

1. a. What is Venture Capital? **02 Marks**

   b. Explain the objectives of Financial Management? **06 Marks**

   c. Explain the sources of financing available to the Company? **08 Marks**

2. a. What is Time Value of Money? **02 Marks**

   b. What are the roles played by Finance Manager? **06 Marks**

   c. calculate the present value of the following series of yearly payments at 10 discount rate?

Year	Cash flow (Rs.)
1	500
2	1000
3	1500
4	2000
5	2500

08 Marks

3. a. An investor deposits Rs.100 in a bank account at 8 % interest for 5 years. Find out the amount which he will have in his account if interest is compounded (a) annually (b) semi annually (c) quarterly?

08 Marks

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Department of MBA

Scheme of Evaluation – I Internals

I Sem **17MBA22 :Financial Management** **Max.Marks:40**

Q.No	*Question and Answers*	*Marks*
1 a.	Venture capital (VC) is a type of private equity financing that is provided to early-stage or high-growth companies that have the potential to become successful in the long run. This type of financing is typically provided by wealthy investors, investment banks, or other financial institutions, and is intended to help startups and emerging companies get off the ground, grow quickly, and ultimately achieve a profitable exit..	3 marks
b.	Objectives of financial management: • profit maximization • wealth maximization • Maintenance of Liquidity • proper estimation of financial requirement • proper mobilization • Improved efficiency • meeting financial commitments with creditors • creating reserves • Decreases cost of capital • Balanced structure	6 marks
C	Sources of financing available to the company • Equity Financing: This involves selling ownership shares in the company to investors in exchange for cash. Common forms of equity financing include venture capital, angel investors, and initial public offerings (IPOs). • Debt Financing: This involves borrowing money from lenders, such as banks, financial institutions, or individual investors, which must be repaid with interest over a specified period of time. • Government Grants and Subsidies: Companies can also seek funding from the government in the form of grants, loans, or subsidies, for specific purposes like research and development, environmental sustainability, and others. • Crowdfunding: A popular alternative to traditional financing, crowdfunding involves raising small amounts of money from a large number of individuals over the internet. • Retained Earnings: Companies can also finance their operations by retaining profits generated from their operations instead of paying	Listing 3m Explanation 5 m

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	dividends to shareholders. • Loans: Loans are the most commonly used source of funding for small and medium sized company. Consider the fact that all lenders offer different advantages, whether it's personalized service or customized repayment. It's a good idea to shop around and find the lender that meets your specific needs. The source of financing that a company chooses depends on factors such as its financial needs, stage of development, risk tolerance, and objectives. It's important for companies to evaluate each option carefully and weigh the benefits and drawbacks before making a decision	
2 a	Time value of money (TVM) is the concept that money available at the present time is worth more than the same amount of money in the future, due to its potential earning capacity. In other words, the value of money changes over time due to factors such as inflation, interest rates, and opportunity cost. TVM is a fundamental concept in finance and is used in a wide range of financial calculations, such as calculating loan payments, investment returns, and determining the present value of future cash flows	3 marks
B	The finance manager is responsible for managing the financial operations of a company or organization. The roles and responsibilities of a finance manager can vary depending on the size and nature of the business, but some common responsibilities of a finance manager include: • Financial Planning: Develop and implement financial plans, budgets and strategies to help the company achieve its financial goals. • Financial Analysis: Analyse financial data to provide insight and recommendations on areas for improvement, such as cost reduction or revenue growth. • Risk Management: Identify and manage financial risks that could impact the company's financial health, such as market volatility, credit risk, and liquidity risk. • Capital Management: Manage the company's capital structure, including debt and equity financing, to optimize the cost of capital and ensure adequate funding for the company's operations. • Investment Management: Make investment decisions to ensure the company's investment portfolio is diversified and aligned with its overall financial objectives. • Financial Reporting: Prepare and present financial reports and statements to management, stakeholders and regulators, to ensure compliance with relevant accounting standards and regulations. • Tax Planning: Develop and implement tax strategies to minimize the company's tax liability while ensuring compliance with tax laws. Overall, the finance manager plays a critical role in ensuring the financial health and success of the company.	6 marks

C

Computation of present value at the rate of 10%

Year	Cashflow	PV factor	Present value
1	500	0.909	454
2	1000	0.826	826
3	1500	0.751	1128
4	2000	0.683	1366
5	2500	0.621	1552

3a

8 marks

a) If the interest is **compounded annually,** the formula to calculate the amount is:

A = P (1 + r/n)^(nt)

where A is the final amount, P is the principal amount, r is the annual interest rate, n is the number of times the interest is compounded per year, and t is the number of years.

In this case, P = Rs.100, r = 8% = 0.08, n = 1 (since interest is compounded annually), and t = 5.

So, A = 100(1 + 0.08/1)^(1*5) = Rs. 146.93

Therefore, the investor will have Rs. 146.93 in his account if the interest is compounded annually.

b) If the interest is **compounded semi-annually**, the formula to calculate the amount is:

A = P (1 + r/n) ^(nt)

where A is the final amount, P is the principal amount, r is the annual interest rate, n is the number of times the interest is compounded per year, and t is the number of years.

In this case, P = Rs.100, r = 8% = 0.08, n = 2 (since interest is compounded semi-annually), and t = 5.

So, A = 100(1 + 0.08/2)^(2*5) = Rs. 148.02

Therefore, the investor will have Rs. 148.02 in his account if the interest is compounded semi-annually.

c) If the interest is **compounded quarterly**, the formula to calculate the amount is:
A = P(1 + r/n)^(nt)
where A is the final amount, P is the principal amount, r is the annual interest rate, n is the number of times the interest is compounded per year, and t is the number of years.
In this case, P = Rs.100, r = 8% = 0.08, n = 4 (since interest is compounded quarterly), and t = 5.

So, A = 100(1 + 0.08/4)^(4*5) = **Rs. 149.04**

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Department of MBA

II Semester: II Internal Assessment Test, April 2018

Subject: Financial Management (17MBA22)

Time: 90 Minutes **Max. Marks: 40**

Answer the following questions

1. a. What is Cost of Capital? **02 Marks**

b. Calculate operating, financial and combined leverages from the following data:

Sales (1,00, 000 units)	Rs.2,00,000
Variable cost per unit	Rs.0.70
Fixed Cost	Rs.65,000
Interest Charges	Rs.15,000

06 Marks

c. A Company has on its books the following amounts and specific costs of each type of capital.

Type of Capital	Book Value(Rs.)	Market Value(Rs.)	Specific cost (%)
Debt	4,00,000	3,80,000	5
Preference	1,00,000	1,10,000	8
Equity	6,00,000		15
Retained earnings	2,00,000	12,00,000	13
	13,00,000	16,90,000	

Determine the weighted average cost of capital using (a) Book value weights and, (b) Market value weights. How are they different? Can you think of a situation where the weighted average cost of capital would be the same using either of the weights? **08 Marks**

2. a. What is optimum capital structure? **02 Marks**

b. What are types of leverages? **06 Marks**

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c. Calculate the cost of debt for each of the following situations:

(a) Debentures are sold at par and floatation costs are 5 per cent.

(b) Debentures are sold at premium 10 per cent and floatation costs are 5 per cent on issue price.

(c) Debentures are sold at discount of 5 per cent and floatation costs are 5 per cent on issue price.

Assume interest on debentures is 10%, face value of debentures is Rs.100, maturity period is 10 years and tax rate is 35%. **08 Marks**

3. a. ABC company is currently on ordinary share capital of 25,000,00 consisting of 25000 shares of 100 each. The management is planning to raise another 20,00, 000 to finance for an expansion programme. The options are

a. Entirely through ordinary shares.
b. 10lakh through ordinary shares & 10 lakh through debt @8%p.a.
c. 5lakh through ordinary shares & 15lakh through debt @9%p.a.
d. 10lakh through ordinary shares & 10 lakh through preference share with 5% dividend.

The company's expected EBIT will be 8,00,000. Assuming tax rate is 50%. Determine EPS and comment which alternative is best? Why?

08 Marks

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Department of MBA

Scheme of Evaluation – II Internals

IISem 17MBA22 **Financial Management** **Max.Marks:40**

Q. No	*Question and Answers*	*Marks*
1 a.	Cost of capital refers to the minimum rate of return that a company must earn on its investments in order to satisfy its investors, both debt and equity holders. It is the cost of funds used by a company for financing its investments, which includes the cost of debt, cost of equity, and any other sources of financing. Essentially, it is the cost of obtaining the money that a company needs to invest in its operations and grow its business.	3 marks
b.	**Computation of financial operating and combined leverage** Contribution margin per unit = Sales price per unit - Variable cost per unit = Rs. 1.00 - Rs. 0.70 = Rs. 0.30 Next, we can calculate the total contribution margin as follows: Total contribution margin = Contribution margin per unit x Number of units sold = Rs. 0.30 x 2,00,000 = Rs. 60,000 Using the total contribution margin, we can calculate the different types of leverages as follows: A) Operating leverage = Contribution margin / Operating income Operating income = Sales - Variable cost - Fixed cost Operating income = Rs. 2,00,000 - (Rs. 0.70 x 2,00,000) - Rs. 65,000 Operating income = Rs. 25,000 **Operating leverage = Rs. 60,000 / Rs. 25,000 = 2.4** B) Financial leverage = Operating income / Earnings before interest and taxes (EBIT) EBIT = Operating income + Interest charges EBIT = Rs. 25,000 + Rs. 15,000 = Rs. 40,000 **Financial leverage = Rs. 25,000 / Rs. 40,000 = 0.625** C) Combined leverage = Operating leverage x financial leverage **Combined leverage = 2.4 x 0.625 = 1.5** Therefore, the operating leverage is 2.4, the financial leverage is 0.625, and the combined leverage is 1.5	6 marks

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C

8 Mark

Computation of cost of capital

BOOK VALUE

Type of capital	Book value	Weights	Specific rate	WACC
Debt	400,000	0.307	5	1.5
Preference	100,000	0.076	8	0.608
equity	600,000	0.416	15	6.24
Retained earnings	200,000	0.153	13	2
Total	13,00,000	1		10.348

MARKET VALUE

Type of capital	Book value	Weights	Specific rate	WACC
Debt	380,000	0.224	5	1.12
Preference	1,10,000	0.065	8	5.2
Retained earnings	12,00,000	0.710	13	9.23
Total	16,90,000			15.55

Book value cost= 10.348

Market value cost= 15.55

2a

2 marks

The optimal capital structure is typically determined by analysing the company's financial position, including its current debt-to-equity ratio, interest coverage ratio, and cost of capital. This analysis involves evaluating the company's operating and financial risks, the stability and predictability of its cash flows, and its growth prospects.

Ultimately, the optimal capital structure is one that balances the benefits and costs of both debt and equity financing and is aligned with the company's long-term financial goals and risk tolerance.

B	Leverage refers to the use of borrowed money, assets, or resources to increase the potential return on an investment. There are several types of leverage, including: Financial leverage: This is the use of debt to finance an investment. By borrowing money, investors can increase their potential returns, but they also increase their risk, as they are required to make regular interest payments and repay the principal. Operating leverage: This refers to the use of fixed costs, such as rent, salaries, and equipment, to increase the potential returns on an investment. This type of leverage is often used in businesses, where fixed costs are necessary to operate the business, but can also increase the risk if revenue decreases. Market leverage: This is the use of market positioning, branding, and other marketing strategies to increase the potential returns on an investment. By creating a strong brand and positioning the investment in the market, investors can increase demand and drive-up prices, but they also increase the risk if the market changes or competitors enter. Time leverage: This refers to the use of time to increase the potential returns on an investment. By investing early and holding onto the investment for a long time, investors can benefit from compounding returns, but they also increase the risk if the investment loses value over time. Intellectual leverage: This is the use of knowledge, skills, and expertise to increase the potential returns on an investment. By applying unique knowledge or skills to an investment, investors can gain a competitive advantage and increase returns, but they also increase the risk if their knowledge or skills become outdated or irrelevant.	6 marks
C	(a) If debentures are **sold at par and floatation costs are 5%, then the cost of debt can be calculated as follows:** Interest rate on debentures = 10% Floatation costs = 5% Effective interest rate = Interest rate + Floatation costs = 10% + 5% = 15% Therefore, the cost of debt is 15%. (b) **If debentures are sold at a premium of 10% and floatation costs are 5%, then the cost of debt can be calculated as follows:** Interest rate on debentures = 10% Premium = 10% Floatation costs = 5% Effective interest rate = (Interest rate + Premium)/(1 - Floatation costs) = (10% + 10%)/(1 - 5%) = 21.05% Therefore, the cost of debt is 21.05%. (c) **If debentures are sold at a discount of 5% and floatation costs are 5%, then the cost of debt can be calculated as follows:** Interest rate on debentures = 10%	8 marks

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	Discount = 5% Floatation costs = 5% Effective interest rate = (Interest rate - Discount)/(1 - Floatation costs) = (10% - 5%)/(1 - 5%) = 12.63% Therefore, **the cost of debt is 12.63%**	
3a	To determine the EPS for each alternative, we first need to calculate the earnings available to equity shareholders, which is calculated as: **EBIT (1-tax rate)** where EBIT is the expected earnings before interest and taxes. Given that EBIT is expected to be 8,00,000 and the tax rate is 50%, we have: Earnings available to equity shareholders = 8,00,000(1-0.50) = 4,00,000 a. **Entirely through ordinary shares:** If the entire 20,00,000 is raised through ordinary shares, then the number of shares will be: 20,00,000/100 = 20,000 The total number of shares will be 45,000 (25,000 existing + 20,000 new). EPS = earnings available to equity shareholders / total number of shares EPS = 4,00,000 / 45,000 = 8.89 b. **10 lakh through ordinary shares & 10 lakh through debt 28%:** If 10 lakh is raised through ordinary shares, then the number of shares will be: 10,00,000/100 = 10,000 The total number of shares will be 35,000 (25,000 existing + 10,000 new). Assuming the debt of 10 lakh at 28% interest rate, the interest payment would be: 10,00,000 x 0.28 = 2,80,000 Earnings available to equity shareholders after paying interest = 4,00,000 - 2,80,000 = 1,20,000 EPS = earnings available to equity shareholders / total number of shares EPS = 1,20,000 / 35,000 = 3.43 c. **15 lakh through ordinary shares & 15 lakh through debt 29%pa:** If 15 lakh is raised through ordinary shares, then the number of shares will be: 15,00,000/100 = 15,000 The total number of shares will be 40,000 (25,000 existing + 15,000 new). Assuming the debt of 15 lakh at 29% interest rate, the interest payment would be: 15,00,000 x 0.29 = 4,35,000 Earnings available to equity shareholders after paying interest = 4,00,000 - 4,35,000 = -35,000 d. **10 lakh through ordinary shares & 10 lakh through preference share with 5% dividend:** If 10 lakh is raised through ordinary shares, then the number of shares will be: 10,00,000/100 = 10,000 The total number of shares will be 35,000 (25,000 existing + 10,000 new). If 10 lakh is raised through preference shares with a 5% dividend, the dividend payment would be: 10,00,000 x 0.05 = 50,000 Earnings available to equity shareholders after paying preference dividends = 4,00,000 - 50,000 = 3,50,000 EPS = earnings available to equity shareholders / total number of shares EPS = 3,50,000 / 35,000 = 10.00	Smarty

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Department of MBA

II Semester: II Semester Preparatory Examination, May 2018

Subject: Financial Management (17MBA22)

Time: 3 Hours **Max. Marks: 80**

Note: 1. Answer any four full questions from Q.No 1 to Q.No 7.
2. Q. No 8 is Compulsory.

1.a) What is Venture Capital? **02 Marks**

b) Explain the emerging role of Financial Manager? **06 Marks**

c) Calculate the cost of debt for each of the following situations:

(a) Debentures are sold at par and floatation costs are 5 per cent.

(b) Debentures are sold at premium 10 per cent and floatation costs are 5 per cent on issue price.

(c) Debentures are sold at discount of 5 per cent and floatation costs are 5 per cent on issue price.

Assume interest on debentures is 10%, face value of debentures is Rs.100, maturity period is 10 years and tax rate is 35%. **08 Marks**

2.a) What is Time Value of Money? **02 Marks**

b. What are the roles played by Finance Manager? **06 Marks**

c) A Company has on its books the following amounts and specific costs of each type of capital.

Type of Capital	Book Value(Rs.)	Market Value(Rs.)	Specific cost (%)
Debt	4,00,000	3,80,000	5
Preference	1,00,000	1,10,000	8
Equity	6,00,000		15
Retained earnings	2,00,000	12,00,000	13
	13,00,000	16,90,000	

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Determine the weighted average cost of capital using (a) Book value weights and, (b) Market value weights. How are they different? Can you think of a situation where the weighted average cost of capital would be the same using either of the weights? **08 Marks**

3.a) What do you mean by Profitability Index? **02 Marks**

b) Explain the steps involved in capital budgeting process? **06 Marks**

c) A Company is considering an investment proposal to install new milling controls at a cost of Rs.50,000. The facility has a life of 5 years and no salvage value. The tax rate is 35%. Assume the firm uses straight line depreciation and same is allowed for tax purposes. The estimated cash flows before depreciation and tax(CFBT) from the investment proposal are as follows:

Year	CFBT(Rs.)
1	10,000
2	10,692
3	12,769
4	13,462
5	20,385

Compute the following: a) PBP b)ARR d) NPV @10% e) Profitability index at 10 % discount rate. **08 Marks**

4.a) What is Leverage? Also mention its types? **02 Marks**

b) Calculate the operating leverage for each of the four firms, A,B, C & D, from the following price and cost data. What conclusions can you draw with respect to levels of fixed cost and the degree of operating leverage result? Explain. Assume of units sold is 5,000. **06 Marks**

	A firm	B firm	C firm	D firm
Sale price per unit	Rs 20	Rs 32	Rs 50	Rs 70
Variable cost per unit	6	16	20	50
Fixed operating cost	80,000	40,000	2,00,000	nil

c) Explain the factors influencing working capital requirements? **08 Marks**

5.a) Define operating and cash cycle? **02 Marks**

b) Explain the factors affecting dividend policy of the firm? **06 Marks**

c) ABC company is currently on ordinary share capital of 25,000,00 consisting of 25000 shares of 100 each. The management is planning to raise another 20,00, 000 to finance for an expansion programme. The options are

a. Entirely through ordinary shares.
b. 10lakh through ordinary shares & 10 lakh through debt @8%p.a.
c. 5lakh through ordinary shares & 15lakh through debt @9%p.a.
d. 10lakh through ordinary shares & 10 lakh through preference share with 5% dividend.

The company's expected EBIT will be 8,00,000. Assuming tax rate is 50%. Determine EPS and comment which alternative is best? Why? **08 Marks**

6.a) What is MIRR? **02 Marks**

b) What is the sources working capital financing. **06 Marks**

c) Excel ltd is considering three financing plans. The key information is as follows

a) Total funds to be raised Rs 2,00,000.
b) Financing plans

Plans	Equity (%)	Debt(%)	Preference(%)
A	100	-	-
B	50	50	-
C	50	-	50

c) cost of debt 8% ; cost of preference shares 8%

d) Tax rate, 35%

e) Equity shares of the face value of Rs 10 each will be issued at a premium of Rs 10 per share.

f) Expected EBIT Rs 80,000

Determine for each plan Earnings per share (EPS) **08 Marks**

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7. a) What is Gross Working capital?

b) Pentagon Ltd is evaluating a project that has the following cash flow associated with it

Year	:	0	1	2	3	4	5	6
Cash flow	:	-120	-80	20	60	80	100	120

Cost of capital is 15 %.Calculate MIRR.

C) From the following information compute operating and cash cycle.

Period Covered	365 days
Average period of credit allowed by supplier	16 days
Average of debtors	480
Raw material Consumption	4400
Cost of Production	10000
Cost of goods sold	10500
Sales	16000
Value of Average stock maintained:	
Raw Material	320
WIP	350
Finished goods	260

8. Case study: (Compulsory)

X & Y ltd is desirous to purchase a business and has consulted you, and one point on which you are asked to advise them, is the average amount of working capital which will be required in the first year's working

You are given the following estimates and are instructed to add 10% to your computed figure to allow for contingencies.

PARTICUILARS	Amount(Rs.)
1. Average amount backed up for stocks ;	
Stocks of finished product	5000
Stock of stores and materials	8000
2. Average credit given	
Inland sales,6 weeks' credit	3,12,000
Export sales , 1.5 weeks' credit	78,000
3. Average time lag in payment of wages and other out goings;	
Wages ,1.5weeks	2,60,000
Stocks and materials ,1.5 months	48,000
Rent and royalties , 6 months	10,000
Clerical staff,0.5 month	62,400
Manager , 0.5 month	4,800
Miscellaneous expenses, 1.5 months	48,000
4. Payment in advance ;	8,000
Sundry expenses (paid quarterly in advance)	11,000
Undrawn profits on average throughout the year	

Set up your calculations for the average amount of working capital required. **16 Marks**

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Department of MBA

Scheme of Evaluation Preparatory Examination

II Sem **17MBA22:Financial Management** **Max.Marks:100**

Q.No	Question and Answers	Marks
1a	Venture capital (VC) is a type of private equity financing that is provided to early-stage or high-growth companies that have the potential to become successful in the long run. This type of financing is typically provided by wealthy investors, investment banks, or other financial institutions, and is intended to help startups and emerging companies get off the ground, grow quickly, and ultimately achieve a profitable exit.	3m
B	Here are some of the emerging roles and responsibilities of **financial managers:** Data Analysis: Strategic Planning: Risk Management: Compliance: Technological Innovation: Overall, the emerging role of financial managers is to be a strategic partner to their organization, providing financial insights and recommendations that drive growth and profitability while mitigating risk	6m
C	Cost of Debt = (Interest Payment × (1 - Tax Rate)) ÷ (Proceeds from Debt Issue - Floatation Costs) Where: Interest Payment = Annual interest payment on the debentures Tax Rate = Corporate tax rate Proceeds from Debt Issue = The amount of money raised by issuing the debentures Floatation Costs = The costs associated with issuing the debentures **(a) Debentures are sold at par and floatation costs are 5 per cent.** In this situation, the debentures **are sold at par, so the proceeds from the debt issue will be equal to the face value of the debentures. The floatation costs are 5 per cent of the face value.** Let's assume that the annual interest payment on the debentures is 10,000, the corporate tax rate is 30 per cent, and the face value of each debenture is $1,000. The total proceeds from issuing 1,000,000 worth of debentures would be: Proceeds from Debt Issue = 1,000,000 The total floatation costs would be: Floatation Costs = 5% × 1,000,000 = 50,000 The net proceeds from issuing the debentures would be: Net Proceeds = $1,000,000 - $50,000 = $950,000 Therefore, the cost of debt would be: Cost of Debt = (10,000 × (1 - 0.3)) ÷ (950,000) Cost of Debt = 0.00767 or 0.767% **(b) Debentures are sold at premium 10 per cent and floatation costs are 5 percent on issue price.** In this situation, the debentures are sold at a premium of 10 per cent, so the proceeds from the debt issue will be higher than the face value of the debentures. The floatation costs are 5 per cent of the issue price.	8m

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	Let's assume that the annual interest payment on the debentures is 10,000, the corporate tax rate is 30 per cent, and the face value of each debenture is 1,000. The total proceeds from issuing 1,000,000 worth of debentures would be: Proceeds from Debt Issue = 1,100,000 **The total floatation costs would** be: Floatation Costs = 5% × 1,100,000 = 55,000 The net proceeds from issuing the debentures would be: Net Proceeds = 1,100,000 - 55,000 = 1,045,000 Therefore, the cost of debt would be: Cost of Debt = (10,000 × (1 - 0.3)) ÷ (1,045,000) Cost of Debt = **0.00713 or 0.713%** (c) **Debentures are sold at discount of 5 per cent and floatation costs are 5 per cent on issue price.** In this situation, the debentures are sold at a discount of 5 per cent, so the proceeds from the debt issue will be lower than the face value of the debentures. The floatation costs are 5 per cent of the issue price. Let's assume that the annual interest payment on the debentures is 10,000, the corporate tax rate is 30 per cent, and the face value of each debenture is 1,000. The total proceeds from issuing 1,000,000 worth of debentures would be: 900	
2a	Time value of money (TVM) is the concept that money available at the present time is worth more than the same amount of money in the future, due to its potential earning capacity. In other words, the value of money changes over time due to factors such as inflation, interest rates, and opportunity cost. TVM is a fundamental concept in finance and is used in a wide range of financial calculations, such as calculating loan payments, investment returns, and determining the present value of future cash flows	2m
B	The finance manager is responsible for managing the financial operations of a company or organization. The roles and responsibilities of a finance manager can vary depending on the size and nature of the business, but some common responsibilities of a finance manager include: • Financial Planning: Develop and implement financial plans, budgets and strategies to help the company achieve its financial goals. • Financial Analysis: Analyse financial data to provide insight and recommendations on areas for improvement, such as cost reduction or revenue growth. • Risk Management: Identify and manage financial risks that could impact the company's financial health, such as market volatility, credit risk, and liquidity risk. • Capital Management: Manage the company's capital structure, including debt and equity financing, to optimize the cost of capital and ensure adequate funding for the company's operations. • Investment Management: Make investment decisions to ensure the company's investment portfolio is diversified and aligned with its overall financial objectives. • Financial Reporting: Prepare and present financial reports and statements to management, stakeholders and regulators, to ensure compliance with relevant accounting standards and regulations. • Tax Planning: Develop and implement tax strategies to minimize the company's tax liability while ensuring compliance with tax laws. Overall, the finance manager plays a critical role in ensuring the financial	2+5=7m

health and success of the company.

C

Computation of cost of capital

BOOK VALUE

8m

Type of capital	Book value	Weights	Specific rate	WACC
Debt	400,000	0.307	5	1.5
Preference	100,000	0.076	8	0.608
equity	600,000	0.416	15	6.24
Retained earnings	200,000	0.153	13	2
Total	13,00,000	1		10.348

MARKET VALUE

Type of capital	Book value	Weights	Specific rate	WACC
Debt	380,000	0.224	5	1.12
Preference	1,10,000	0.065	8	5.2
Retained earnings	12,00,000	0.710	13	9.23
Total	16,90,000			15.55

Book value cost= 10.348
Market value cost= 15.55

3a

Profitability index (PI) is a financial metric used to evaluate the potential profitability of an investment or project. It is also known as the profit investment ratio (PIR) or the benefit-cost ratio (BCR). The profitability index is calculated by dividing the present value of the expected cash inflows from the investment by the initial cost of the investment.

The formula for profitability index is:

PI = Present value of cash inflows / Initial investment

3m

B

Capital budgeting is the process of making decisions about long-term investments in projects or assets that will produce benefits over a period of time greater than one year. The capital budgeting process generally involves the following steps:

Identification of Investment Opportunities:

Evaluation of Investment Opportunities:

Financing the Investment:.

Monitoring and Control:

6m

C

The cost of the investment is Rs.50,000, and the facility has a life of 5 years, so the annual depreciation expense is:

Annual Depreciation = Cost of investment / Life of the facility

Annual Depreciation = Rs.50,000 / 5

Annual Depreciation = Rs.10,000

Using straight-line depreciation, the annual depreciation expense is the same each year, so we will subtract Rs.10,000 from the cash flows before tax (CFBT) for each year to arrive at the taxable income for each year.

Now, let's calculate the various financial metrics for the investment proposal:

a) **Payback period (PBP):**

To calculate the payback period, we add up the cash flows each year until the sum equals the initial investment of Rs.50,000.

Year Cash Flows Total Cash Flows

3m

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0 -50,000 -50,000
1 10,000 -40,000
2 10,692 -29,308
3 12,769 -16,539
4 13,462 -3,077
5 20,385 17,308

The payback period is between Year 4 and Year 5.

PBP = Year 4 + (Unrecovered cost at the beginning of Year 5 / Cash flow in Year 5)

PBP = Year 4 + (Rs.3,077 / Rs.20,385)

PBP = Year 4.15 (approx.)

So, the payback period is approximately 4 years and 2 months.

b) **Average accounting rate of return (ARR):**

ARR = Average annual income / Average investment

Average annual income = (Total CFBT - Total depreciation expense) / Number of years

Total CFBT = Rs.70,308

Total depreciation expense = Rs.50,000

Number of years = 5

Average annual income = (Rs.70,308 - Rs.50,000) / 5

Average annual income = Rs.4,062

Average investment = (Initial investment + Salvage value) / 2

Since there is no salvage value, average investment = Initial investment / 2

Average investment = Rs.50,000 / 2

Average investment = Rs.25,000

ARR = Rs.4,062 / Rs.25,000

ARR = 16.25%

c) Net present value (NPV) @10%:

To calculate the NPV, we discount the cash flows at a rate of 10% and subtract the initial investment.

Year CFBT Depreciation Taxable income PV factor @ 10% Present value

Year	Cashflow	Pv factor	CIFA
0	-50,000		-50,000
1	10,000	0.909	9,090
2	10,692	0.826	8,840
3	12,462	0.751	10,373
4	13,462	0.683	9,365
5	20,385	0.621	16,443

NPV = Sum of Present values - Initial investment

NPV = Rs.44,101 – Rs 50,000= 50901

4a

In finance, leverage refers to the use of borrowed funds or debt to finance an investment, with the aim of generating higher returns than would be possible using only equity. Leverage can amplify both gains and losses, making it a potentially powerful tool for investors, but also increasing their risk.

3m

B

To calculate the operating leverage for each firm, we can use the following formula:

Operating Leverage = Contribution Margin / Net Operating Income

Contribution Margin = Sale Price per Unit - Variable Cost per Unit

Net Operating Income = Operating Income - Interest and Taxes

Let's calculate the contribution margin for each firm first:

A firm:

6m

	Contribution Margin = Rs 20 - Rs 6 = Rs 14 per unit Total Contribution Margin = Rs 14 x 5,000 = Rs 70,000 **B firm:** Contribution Margin = Rs 32 - Rs 16 = Rs 16 per unit Total Contribution Margin = Rs 16 x 5,000 = Rs 80,000 **C firm:** Contribution Margin = Rs 50 - Rs 20 = Rs 30 per unit Total Contribution Margin = Rs 30 x 5,000 = Rs 150,000 **D firm:** Contribution Margin = Rs 70 - Rs 50 = Rs 20 per unit Total Contribution Margin = Rs 20 x 5,000 = Rs 100,000 **Next, let's calculate the net operating income for each firm:** **A firm:** Net Operating Income = (Rs 14 x 5,000) - Rs 80,000 = Rs -6,000 **B firm:** Net Operating Income = (Rs 16 x 5,000) - Rs 40,000 = Rs 40,000 **C firm:** Net Operating Income = (Rs 30 x 5,000) - Rs 200,000 = Rs -50,000 **D firm:** Net Operating Income = (Rs 20 x 5,000) - Nil = Rs 100,000 **Finally, we can calculate the operating leverage for each firm:** **A firm:** Operating Leverage = Rs 70,000 / Rs -6,000 = -11.67 **B firm:** Operating Leverage = Rs 80,000 / Rs 40,000 = 2 **C firm:** Operating Leverage = Rs 150,000 / Rs -50,000 = -3 **D firm:** Operating Leverage = Rs 100,000 / Rs 100,000 = 1	
C	Working capital is the difference between current assets and current liabilities of a business. It represents the funds required to finance the day-to-day operations of a business, including the purchase of raw materials, payment of salaries, and other expenses. The factors that influence working capital requirements can be categorized as follows: • Nature of the Business: The nature of the business determines the level of working capital required. For instance, a manufacturing company requires more working capital than a service-based company, as it needs to maintain a stock of raw materials, work-in-progress, and finished goods. • Seasonal Variations: The demand for products or services may vary throughout the year, which affects the level of working capital required. For example, a company that produces air conditioners will require more working capital in summer months as compared to winter months. • Production Cycle: The production cycle of a business also affects its working capital requirements. A longer production cycle means a higher level of working capital is required to maintain the flow of raw materials and finished goods. • Credit Policy: The credit policy of a business influences its working capital requirements. If a company offers credit to customers, it may require more working capital to cover the delay in payment.	8m

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	• Operating Efficiency: The operating efficiency of a business also affects its working capital requirements. A business that is efficient in managing its inventory, receivables, and payables will require less working capital as compared to a business that is inefficient. • Growth Plans: If a business has plans for expansion or growth, it will require more working capital to finance the increased level of activity. In summary, the factors that influence working capital requirements are the nature of the business, seasonal variations, production cycle, credit policy, operating efficiency, and growth plans. Understanding these factors can help businesses manage their working capital effectively and ensure the smooth running of their operations.	
5a	The operating cash cycle, also known as the cash conversion cycle, is a financial metric used to measure the length of time it takes for a company to convert its investments in inventory and other resources into cash flows from sales. The operating cash cycle measures the time between when a company pays for its inventory (or other resources), and when it receives cash from the sale of the products made from that inventory. Specifically, it is the length of time from when the company pays its suppliers for the raw materials to when it receives cash payments from customers for the finished goods.	3m
B	Dividend policy refers to the approach a company takes in determining the amount and timing of its dividend pay-outs to shareholders. The decision to pay dividends is influenced by various factors, including: Profitability: The primary determinant of a company's dividend policy is its profitability. If a company is earning profits and has a healthy cash reserve, it is more likely to pay dividends to shareholders. Shareholder expectations: A company's dividend policy is also influenced by the expectations of its shareholders. Taxation: Taxation policies can also impact a company's dividend policy. In some countries, companies may be incentivized to pay dividends to avoid higher taxation rates on retained earnings. Availability of funds: A company's dividend policy may be influenced by its access to funds. If a company has limited cash reserves or is in debt, it may choose to reduce or eliminate dividend payouts. Legal and contractual obligations: Companies may have legal and contractual obligations that require them to pay dividends. Industry norms: The dividend policy of a company may also be influenced by industry norms. Companies in mature industries with stable cash flows may be more likely to pay dividends than those in rapidly changing industries. Overall, a company's dividend policy is a complex decision that depends on a range of internal and external factors, including profitability, growth opportunities, shareholder expectations, taxation policies, availability of funds, legal and contractual obligations, and industry norms.	6m
C	To determine the EPS under each alternative, we need to calculate the earnings available to shareholders after payment of interest and taxes. a. **Entirely through ordinary shares**: If the company raises the entire 20,00,000 through ordinary shares, there will be no interest payment. So, the earnings available to shareholders will be the same as the EBIT minus taxes.	8m

	EBIT = 8,00,000 Taxes = 50% of EBIT = 4,00,000 Earnings available to shareholders = EBIT - Taxes = 4,00,000 Number of shares = 25,000 Earnings per share (EPS) = Earnings available to shareholders / Number of shares EPS = 4,00,000 / 25,000 = 16 b. **10 lakh through ordinary shares & 10 lakh through debt @8%p.a.** If the company raises 10 lakh through ordinary shares and 10 lakh through debt at 8% interest rate, the interest payment will be: Interest payment = 10,00,000 x 8% = 80,000 EBIT = 8,00,000 Interest payment = 80,000 Earnings before taxes (EBT) = EBIT - Interest payment = 7,20,000 Taxes = 50% of EBT = 3,60,000 Earnings available to shareholders = EBT - Taxes = 3,60,000 Number of shares = 25,000 EPS = Earnings available to shareholders / Number of shares EPS = 3,60,000 / 25,000 = 14.4 **c. 5 lakh through ordinary shares & 15 lakh through debt @9%p.a.** If the company raises 5 lakhs through ordinary shares and 15 lakhs through debt at 9% interest rate, the interest payment will be: Interest payment = 15,00,000 x 9% = 1,35,000 **EBIT = 8,00,000** Interest payment = 1,35,000 Earnings before taxes (EBT) = EBIT - Interest payment = 6,65,000 Taxes = 50% of EBT = 3,32,500 Earnings available to shareholders = EBT - Taxes = 3,32,500 Number of shares = 25,000 EPS = Earnings available to shareholders / Number of shares EPS = 3,32,500 / 25,000 = 13.3 d. 10 lakh through ordinary shares & 10 lakh through preference share with 5% dividend. If the company raises 10 lakhs through ordinary shares and 10 lakhs through preference shares with 5% dividend, the dividend payment will be: Dividend payment = 10,00,000 x 5% = 50,000 EBIT = 8,00,000 Dividend payment = 50,000 Earnings before taxes (EBT) = EBIT - Dividend payment = 7,50,000 Taxes = 50% of EBT = 3,75,000 Earnings available to shareholders = EBT - Taxes = 3,75,000 Number of ordinary shares = 25,000 Number of preference shares = 10,00,000 / 100 = 10,000 Total number of shares = 25,000 + 10,000 = 35,000 EPS = Earnings available to ordinary shareholders / Number of ordinary shares **EPS = (3,75,000 - 50,000) / 25,000 = 13**	
6a	MIRR stands for "Modified Internal Rate of Return." It is a financial metric used to evaluate the profitability of an investment by calculating the rate of return that equates the present value of cash inflows with the present value of cash outflows.	3m

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	The MIRR is a modification of the traditional Internal Rate of Return (IRR) metric. Unlike IRR, which assumes that all cash inflows are reinvested at the same rate of return as the initial investment, the MIRR assumes that cash inflows are reinvested at the firm's cost of capital. This modification makes the MIRR a more accurate measure of an investment's profitability because it accounts for the opportunity cost of capital.	
B	Working capital financing refers to the funds that a business uses to cover its day-to-day operational expenses, such as salaries, rent, inventory, and utilities. There are several sources of working capital financing available to businesses, including: Trade credit: This is when a business purchases goods or services from a supplier but is not required to pay immediately. Instead, the supplier allows the business to pay at a later date, often with interest. Bank loans: Businesses can take out loans from banks to finance their working capital needs. These loans may be secured or unsecured and may have varying interest rates and repayment terms. Lines of credit: A line of credit is a type of loan that allows a business to borrow up to a certain amount of money as needed. Interest is only charged on the amount borrowed, and repayment terms may be flexible. Factoring: This is when a business sells its accounts receivable to a third party for a percentage of their value. The third party then collects payment from the customers and remits the balance to the business, minus a fee. Asset-based financing: This is when a business uses its assets, such as inventory, equipment, or accounts receivable, as collateral to secure a loan. The amount of the loan is typically a percentage of the value of the assets. Crowdfunding: This is when a business raises funds from a large number of individuals through an online platform. The funds raised can be used for working capital or other business purposes.	6m
C	Expected EBIT Rs 80,000 **Determine for each plan Earnings per share (EPS)** EPS = (Net income - Preference dividends) / Number of equity shares a) **Plan A:** Since Plan A is an all-equity plan, there is no interest or preference dividends to deduct. Net income = EBIT x (1 - Tax rate) = Rs 80,000 x 0.65 = Rs 52,000 Number of equity shares = Total funds raised / Issue price per share Issue price per share = Face value + Premium = Rs 10 + Rs x = Rs x+10 Number of equity shares = Rs 2,00,000 / (Rs x+10) Net income - Preference dividends = Rs 52,000 - 0 = Rs 52,000 EPS = (52,000 / Number of equity shares) b) **Plan B:** Debt and equity are in equal proportion in Plan B. Interest = Debt % x Total funds raised x Cost of debt = 50% x Rs 2,00,000 x 0.08 = Rs 8,000 Preference dividend = Preference % x Total funds raised x Cost of preference = 50% x Rs 2,00,000 x 0.08 = Rs 8,000 Net income = EBIT x (1 - Tax rate) - Interest = Rs 80,000 x 0.65 - Rs 8,000 = Rs 44,000 Number of equity shares = Rs 1,00,000 / (Rs x+10) Net income - Preference dividends = Rs 44,000 - Rs 8,000 = Rs 36,000 EPS = (36,000 / Number of equity shares) c) **Plan C:**	8m

	Debt and equity are in equal proportion in Plan C. Interest = Debt % x Total funds raised x Cost of debt = 50% x Rs 2,00,000 x 0. Preference dividend = Preference % x Total funds raised x Cost of preference = 50% x Rs 2,00,000 x 0.08 = Rs 8,000 Net income = EBIT x (1 - Tax rate) - Interest = Rs 80,000 x 0.65 - Rs 8,000 = Rs 44,000 Number of equity shares = Rs 1,00,000 / (Rs x+10) Net income - Preference dividends = Rs 44,000 - Rs 8,000 = Rs 36,000 EPS = (36,000 / Number of equity shares) **Therefore, the EPS for each financing plan is:** Plan A: EPS = (52,000 / Number of equity shares) Plan B: EPS = (36,000 / Number of equity shares) Plan C: EPS = (36,000 / Number of equity shares).	
7a	Gross Working Capital refers to the total amount of current assets owned by a company. These current assets include cash, accounts receivable, inventory, and other assets that are expected to be converted into cash within a year. The Gross Working Capital does not take into account the company's current liabilities or short-term debt. In other words, it is the amount of money a company has on hand or tied up in assets that can be readily converted into cash to meet its short-term financial obligations such as paying suppliers, covering salaries, and maintaining day-to-day operations. Gross Working Capital is an important metric for businesses, as it helps them determine their ability to meet short-term obligations and to finance their daily operations.	2m
B	Year Cash Flow Discount Factor Discounted Cash Flow	6m

Year	Cashflow	Discounted factor	CIFA
1	-120	0.870	-104.40
2	-80	0.756	-60.48
3	60	0.658	39.48
4	220	0.572	125.84

Terminal Value? 0.572?
Using this information, we can calculate the terminal value as follows:
Terminal Value = 120 / (1 + 0.15)^4 = 57.84
Now, we can calculate the MIRR using the terminal value:
MIRR = [(PV of positive cash flows at reinvestment rate) / (FV of negative cash flows at finance rate)] ^(1/n) - 1
where PV is the present value, FV is the future value, n is the number of periods, and the reinvestment rate and finance rate are the rates at which positive and negative cash flows are reinvested or financed, respectively.
Assuming that the positive cash flows are reinvested at 10% and the negative cash flows are financed at 15%, we can calculate the MIRR as follows:
PV of positive cash flows at reinvestment rate = 39.48 + 125.84 + 57.84*(1+0.10)^3 = 220.25
FV of negative cash flows at finance rate = -104.40*(1+0.15)^3 - 60.48*(1+0.15)^2 - 120*(1+0.15) - 120 = -438.29
n = 4
MIRR = [(PV of positive cash flows at reinvestment rate) / (FV of negative cash flows at finance rate)]^(1/n) - 1
MIRR = [(220.25 / -438.29)]^(1/4) - 1
MIRR = 0.139 or 13.9%

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C	**Operating Cycle = Inventory Conversion Period + Accounts Receivable Collection Period** where: Inventory Conversion Period = (Average Raw Material Stock + Average WIP Stock + Average Finished Goods Stock) / Cost of Goods Sold per day Accounts Receivable Collection Period = (Average Debtors / Annual Sales) x 365 Average Raw Material Stock = (Opening Raw Material Stock + Closing Raw Material Stock) / 2 = 320 Average WIP Stock = (Opening WIP Stock + Closing WIP Stock) / 2 = 350 Average Finished Goods Stock = (Opening Finished Goods Stock + Closing Finished Goods Stock) / 2 = 260 Cost of Goods Sold per day = Cost of Goods Sold / 365 = 10500 / 365 = 28.77 Average Debtors = 480 Annual Sales = 16000 Inventory Conversion Period = (320 + 350 + 260) / 28.77 = 34.64 days Accounts Receivable Collection Period = (480 / 16000) x 365 = 10.95 days Operating Cycle = 34.64 + 10.95 = 45.59 days To calculate the cash cycle, we need to add the Accounts Payable Payment Period to the operating cycle. The Accounts Payable Payment Period is the amount of time it takes for the company to pay its suppliers for raw materials purchased. This is calculated as: Accounts Payable Payment Period = (Average Period of Credit Allowed by Supplier / 365) x Raw Material Consumption Average Period of Credit Allowed by Supplier = 16 Raw Material Consumption = 4400 Accounts Payable Payment Period = (16 / 365) x 4400 = 192.22 days Cash Cycle = Operating Cycle + Accounts Payable Payment Period Cash Cycle = 45.59 + 192.22 = 237.81 days **Therefore, the operating cycle is 45.59 days and the cash cycle is 237.81 days**	8m
8a	To calculate the average amount of working capital required, we need to add up the amounts for each of the particulars provided and then **add 10% to account for contingencies. The calculations are as follows:** Average amount backed up for stocks: Stocks of finished product: Rs. 5,000 Stock of stores and materials: Rs. 8,000 Total: Rs. 13,000 10% contingency: Rs. 1,300 Total for Particular 1: Rs. 14,300 Average credit given: Inland sales, 6 weeks' credit: Rs. 5,000 Export sales, 1.5 weeks' credit: Rs. 3,12,000 Total: Rs. 3,17,000 10% contingency: Rs. 31,700 Total for Particular 2: Rs. 3,48,700 Average time lag in payment of wages and other outgoings: Wages, 1.5 weeks: Rs. 78,000 Stocks and materials, 1.5 months: Rs. 2,60,000 Rent and royalties, 6 months: Rs. 10,000 Clerical staff, 0.5 month: Rs. 4,800 Manager, 0.5 month: Rs. 48,000	8m

	Miscellaneous expenses, 1.5 months: Rs. 8,000 Total: Rs. 4,08,800 10% contingency: Rs. 40,880 Total for Particular 3: Rs. 4,49,680 Payment in advance: Sundry expenses (paid quarterly in advance): Rs. 11,000 Undrawn profits on average throughout the year: Rs. 62,400 Total: Rs. 73,400 10% contingency: Rs. 7,340 Total for Particular 4: Rs. 80,740 Adding up the totals for each particular and the contingencies, we get: **Total Working Capital Required = Rs. 14,300 + Rs. 3,48,700 + Rs. 4,49,680 + Rs. 80,740** **= Rs. 8,93,420** **Adding 10% for contingencies, we get:** Average Amount of Working Capital Required = Rs. 8,93,420 + 10% of Rs. 8,93,420 = Rs. 9,82,762 **Therefore, the average amount of working capital required is Rs. 9,82,762.**	

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Department of MBA

II Semester: I Internal Assessment Test, March 2018

Subject: Business Law and Policy (17MBA24)

Time: 90 Minutes **Max. Marks: 40**

Answer the following questions:

1. a. Define contract.	**02 Marks**
b. Explain the types of offer.	**06 Marks**
c. Explain the essential elements of a valid contract.	**08 Marks**
2. a. Define a minor.	**02 Marks**
b. What is bailment? Mention the types of bailment with examples	**06 Marks**
c. Explain Capacity to contract in detail	**08 Marks**
3. a. What is a Pledge? Explain the rights of pawnor and pawnee	**08 Marks**

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Scheme of Evaluation – I Internals

IISem **17MBA24 :Business Law and Policy** **Max.Marks:40**

Q.No	*Question and Answers*	*Marks*
1 a.	A contract is an agreement that specifies certain legally enforceable rights and obligations pertaining to two or more mutually agreeing parties. A contract typically involves the transfer of goods, services, money, or a promise to transfer any of those at a future date. In the event of a breach of contract, the injured party may seek judicial remedies such as damages or rescission.	2 marks
b.	**Types of Offer** Specific Offer General Offer Counteroffer Cross Offer Standing Offer Express and Implied Offers	6marks Listing: 2m Explanation" 4m
C	**Elements Of A Contract** **1.** Identification For businesses: For individuals: 2. Offer 3. Acceptance 4. Consideration 5. Meeting of the minds 6. Competency and capacity 7. Legality	Listing 2m Explanation 6m
2 a	Any person who is not of the age of majority is a minor. In India, 18 years is the age of majority. Below the age of 18 years does not have the capacity to enter into a contract. A contract or agreement with a minor is null from the beginning, and no one can sue them.	2 marks
B	A bailment involves the contractual transfer of assets or property from a bailor, who temporarily relinquishes possession but not ownership, to a bailee. The bailee must intend to and actually physically possess the bailable chattel or asset. **Types of Bailment** Bailments That Benefit Both Bailor and Bailee Bailments That Benefit Only the Bailor Bailments That Benefit Only the Bailee Rights and Liabilities in a Bailment	6marks Listing: 2m Explanation" 4m
C	**Capacity to contract** means a party has the legal ability to enter into a contract. Capacity also means a person has to be competent as defined by law. Someone's capacity is determined by whether or not they have reached the age of majority and if they are mentally capable of understanding the applicable contract terms. **Who is Competent to Enter into a Contract?** **Legal Age of Majority** **1.** Legal Status of a minor in India A Person of Unsound Mind	Listing 2m Explanation 6m

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	Disqualified Individual	
3a	A **pledge** is a bailment that conveys possessory title to property owned by a debtor (the *pledgor*) to a creditor (the *pledgee*) to secure repayment for some debt or obligation and to the mutual benefit of both parties. The term is also used to denote the property which constitutes the security.The pledge is a type of security interest. **Rights of Pawnee and Pawnor** Rights of Pawnor Right to Retain Merchandise, Section 173 Right to Retain Ensuant Advances, Section 174 Right to Unordinary Expenses, Section 175 Right Against the True Owner, Section 178 A **Rights of Pawnee** Right to Retain Goods until Payment Right to the Redemption of Debt. Right to Maintenance and Preservation of Merchandise Rights of the Ordinary Debtor Right to Suit Right to Sell	8 marks

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Department of MBA

II Semester: II Internal Assessment Test, April 2018

Subject: Business Law and Policy (17MBA24)

Time: 90 Minutes **Max. Marks: 40**

Answer the following Questions:

1. a. What do you mean by agent?	**02 Marks**
b. Explain the ways of creating agency	**06 Marks**
c. Explain the types of agents with example.	**08 Marks**
2. a. What do you mean by prospectus?	**02 Marks**
b. Explain various clauses under memorandum of Association	**06 Marks**
c. State the difference between public company and a private company.	**08 Marks**
3. a. Explain the stages in the formation of a company.	**08 Marks**

Department of MBA

Scheme of Evaluation – II Internals

IISem17MBA24 : Business Law and Policy Max.Marks:40

Q.N	*Question and Answers*	*Marks*
1 a.	An agent, in legal terminology, is a person who has been legally empowered to act on behalf of another person or an entity. An agent may be employed to represent a client in negotiations and other dealings with third parties.	2 marks
b.	**Various Methods Of Creation Of Agency:** Agency can be created in various methods, following are the various methods of creation of agency **1)Agency by Express Agreement.** **2)Agency by Implied Agreement.** • Agency by Estoppel. • Agency by Holding out. **3)Agency by Necessity.** • Agency by Ratification. • Agency by Operation of law. • Agency in Husband-and-Wife relationship. **Agency by Express Agreement** Section 186 of The Indian Contract, 1872 defines that the authority of an agent may be expressed or implied.[9] Therefore, an express contract of agency can be made orally or in writing. In this context, an authority is said to be express when it is given by words spoken or written.	6marks Listing: 2m Explan ation" 4m
C	Types of an Agency **1.** Express Agency: 2. Implied Agency:Implied agency arises when there is any conduct, the situation of parties or is necessary for the case. a. Agency by Estoppel (Section 237): b. Wife as Agent c. Agency of Necessity (Sections 188 and 189): d. Agency by Ratification (Sections 169-200):	2+6=8
2a	A prospectus is an essential disclosure document that a company has to issue at the time of issuing investment securities to the public. These formal documents provide detailed information to prospective investors about mutual funds, bonds, stocks, and other investment offerings to the public.	2 marks
B	Clause of MOA **(a)** The name clause: (b) Registered-office clause: Objects clause: (i) The main objects: (ii) Other objects: (d) Liability clause: (e) Capital clause: (f) Association clause:	6marks Listing: 2m Explan a4tion" 4m
C	**Category** / **Public Limited Company** / **Private Limited Company** Meaning: A public limited company is a joint stock company, that is not a private / A private company is a closely held company that	2+6=8

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		company, and the shares of which are listed on a stock exchange.	does not have its shares listed on any stock exchange and cannot be openly traded.	
	Number of members	The minimum number of members to start a public limited company is 7 and there are no restrictions on the maximum number of members in a public limited company.	The minimum number of members needed to start a private limited company is 2 and the maximum number of members cannot exceed 200.	
	Paid-capital	The minimum paid-up capital needed for a public limited company is Rs. 5,00,000	The minimum paid-up capital for a private company is Rs 1,00,000	
	Transferability of shares	Shares of a public company are available in the open market and can be traded easily subject to the rules and regulations laid down by SEBI	Shares of a private limited company cannot be listed on any stock exchange and cannot be traded in the open market.	
	Issue of prospectus	A public limited company mandatorily needs to issue a prospectus and duly file it as per the guidelines of the Companies Act, 2013.	a private company cannot issue a prospectus and a statement in lieu of a prospectus is issued.	
	Subscription from the public	A public limited company is entitled to accept subscriptions from the general public and issue shares or debentures to raise capital.	A private limited company is not allowed to have a subscription of its shares by the general public. This implies that such a company cannot issue any shares or debentures to the general public for raising capital at any point	
	Allotment subject to minimum subscription	A public company is restricted to allot shares until the minimum subscription required as per its prospectus is achieved	A private company has no such restrictions and are free to allot their shares as per their articles of association.	
	Directors	The minimum number of Directors in a public limited company is 3	The minimum number of Directors in a private limited company is 2	
	Appointment of Directors	In a public limited company the appointment of only one Director can be done through a single resolution.	In a private limited company, two or more Directors can be appointed through a single resolution	
3a	**The major steps in formation of a company are as follows:** 1. Promotion stage 2. Registration stage 3. Incorporation stage 4. Commencement of Business stage			2+6=8

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An ISO 9001:2015 Certified Institution

Department of MBA
II Semester Preparatory Examination, May 2018
Subject: Business Law and Policy (17MBA24)

Time: 3 Hours **Max. Marks: 80**

Note: 1. Answer any four full questions from Q.No 1 to Q.No 7.
2. Q. No 8 is Compulsory.

1. a. Define a Contract. **(02 Marks)**
   b. Elucidate "No Consideration No Contract". **(06 Marks)**
   c. Explain the modes of termination of Agency. **(08 Marks)**

2. a. Distinguish between Bailment and Pledge. **(02 Marks)**
   b. Explain the rights and duties of Bailor. **(06 Marks)**
   c. how does the strategic leadership help the implementation of strategy **(08 Marks)**

3. a. Who are stakeholders and share holders of a company? **(02 Marks)**
   b. Differentiate between a private and a public company. **(06 Marks)**
   c. Explain the various types of company. **(08 Marks)**

4. a. Define Partnership. **(02 Marks)**
   b. Explain the different types of partnership in a partnership firm. **(06 Marks)**
   c. Explain the procedure for registering a partnership firm. What are the advantages of registering the partnership firm **(08 Marks)**

5. a. What is Intellectual Property Right? **(02 Marks)**
   b. Explain the reasons for environment pollution. **(06 Marks)**
   c. Explain the rights of a consumer under Consumer Protection Act 1986. **(08 Marks)**

6. a. Define Corporate Governance. **(02 Marks)**
   b. Explain the benefits of a good corporate governance. **(06 Marks)**
   c. Discuss the various obligation of corporate governance. **(08 Marks)**

7. a. Give the meaning of corporate social responsibility. **(02 Marks)**
   b. Explain new model of CSR **(06 Marks)**
   c. State and explain the arguments for and against the CSR. **(08 Marks)**

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8. Case Study

The Bhopal disaster, also referred to as the Bhopal gas tragedy, was a gas leak incident in India, considered the world's worst industrial disaster. It occurred on the night of 2nd and 3rd December 1984 at the union carbide India limited (UCIC) pesticide plant in Bhopal Madhya Pradesh.

Over 5, 00, 000 were exposed to Methyl Isocyanate gas and other chemicals. 'The toxic substance made its way in and around shanty forms located near the plant.' The official immediate death toll was 2, 259. The Madhya Pradesh government conferred a total of 3,787 deaths related to the gas release, others estimate 8,000 died within two weeks and 8,000 or more have died from gas and other related diseases. A government affidavit in 2006 stated the leak caused 5,58,125 injuries including 38,478 temporary partial injuries and approximately 3,900 severely and permanently disabling injuries.

Answers the following questions : **4X4 =16marks**

a. Write a note on the Bhopal gas tragedy.

b. What do you think is the role of government in preventing industrial disasters?

c. What is the role of the business in preventing industrial accidents?

d. What you think is the role of society in the above Situations?

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Department of MBA

Scheme of Evaluation Preparatory Examination

IISem **17MBA24 :Business Law and Policy** **Max.Marks:80**

Q.No	Question and Answers	Marks
1a	A contract is an agreement that specifies certain legally enforceable rights and obligations pertaining to two or more mutually agreeing parties. A contract typically involves the transfer of goods, services, money, or a promise to transfer any of those at a future date. In the event of a breach of contract, the injured party may seek judicial remedies such as damages or rescission.	2m
B	The principle "**no consideration, no contract"** means that for a contract to be valid and enforceable, there must be an exchange of something of value between the parties involved. This exchange is known as "consideration." Consideration is an essential element of a contract, and it can take many forms. It can be money, goods, services, or a promise to do or not do something. Essentially, consideration is something that one party gives or promises to the other party in exchange for something else. Without consideration, there is no contract. For example, if a person promises to paint a house for free without receiving anything in return, there is no contract because there is no consideration. However, if the same person agrees to paint the house in exchange for payment, a contract is formed because there is a consideration (the payment) exchanged between the parties.	2+4=6 m
C	Termination of agency is when the relationship between principle and agent comes to an end. An agreed relationship between the principle and the agent by agreement or law by a third party known as the agency in the contract. The agent deals with third parties on behalf of the principal.Section- 182 of the Indian contract act defines the agent and principal. Any person whose behalf or under control agent works is called principle. Example- Your boss at work. **Agent:** A person who, under the control of the principal, agrees to take action on behalf of him or her principal is known as agent . Termination of Agency By the act of parties: Revocation by mutual agreement: Revocation by the principal: Revocation by the Agent: By operation of law: By the completion of agency – By the end of time- Death or insanity of principle or agent: Insolvency of principle:	2+6=8
2a	**Bailments** may be created by contracts, either express or implied, which require agreement, and the agreement may also be express or implied. Contracts for the lease of a car, for sale of goods on consignment, and for the transport of goods are examples of bailments. A **pledge** is a bailment that conveys possessory title to property owned by a debtor (the *pledgor*) to a creditor (the *pledgee*) to secure repayment for some debt or obligation and to the mutual benefit of both parties. The term is also used to denote the property which constitutes the security. The pledge is a type of security interest.	2m
B	**Rights of Bailor**	

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	1. Right to get his goods back. **2.** Right to get the increase or profit from the goods bailed. **3.** Right to get compensation. **4.** Right to terminate the contract. **Duties of Bailor** **1.** It is the duty of bailor to disclose faults in goods bailed: It is the paramount duty of the bailor to express the fault of the goods to the bailee. **2.** Duty of the bailor to give compensation to the bailee. **3.** Duty to give expenses. 4. It is the duty of the bailor to accept the goods after the purpose for which such goods were bailed is accomplished. 5.It is the duty of the bailor to indemnify the bailee for the cost incurred due to the defective title of goods bailed to the bailee.	2+4=6 m
C	Leadership is a set of behavior that enforces the people to formulate the organizational goals and then motivate them to jointly contribute in order to achieve organization's goals. Basically leader plays a vital role in the decision making to ensure efficacy (effectiveness) and success of the organization. A leader should be supportive in order to guide subordinates. He should treat everyone equally without any discrimination. He should appreciate every one's involvement. **Defining Roles** Transition Team Lay Out the Plan Get Input Finalize the Plan Clear the Path Milestones	2+6=8
3a	A shareholder is someone who owns stock in your company, while a stakeholder is someone who is impacted by (or has a "stake" in) a project you're working on. **stakeholders are:** investors employees customers suppliers communities governments trade associations.	2m
B		2+4=6 m

Category	Public Limited Company	Private Limited Company
Meaning	A public limited company is a joint stock company, that is not a private company, and the shares of which are listed on a stock exchange.	A private company is a closely held company that does not have its shares listed on any stock exchange and cannot be openly traded.
Number of members	The minimum number of members to start a public limited company is 7 and there are no restrictions on the maximum number of members in a public limited company.	The minimum number of members needed to start a private limited company is 2 and the maximum number of

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	Directors	The minimum number of Directors in a public limited company is 3	The minimum number of Directors in a private limited company is 2	

C	**Types of Company Under Companies Act, 2013** Entrepreneurs can register different types of companies under the Companies Act, 2013 ('Act') in India to conduct their business and provide a legal structure for the business. The different types of companies are as follows: One Person Company The Act introduced the concept of a One Person Company (OPC). As per the Act, an OPC is a company that has only one member. The member can also be the director of the company. Though the OPC should have only one member, it can have a maximum of fifteen directors. Private Limited Company A private limited company Public Limited Company Section 8 Company (NGO) dividend payments to their members. **Types of Companies Based on Size** The MSME	2+6=8

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	Small Companies Medium Companies **Types of Company Based on Liability** Limited By Shares Limited by Guarantee Unlimited Company **Types of Company Based on Control** Holding Company Subsidiary Company **Types of Company Based on Listing** Listed Company Unlisted Company	
4a	A partnership is an arrangement between two or more people to oversee business operations and share its profits and liabilities. In a general partnership company, all members share both profits and liabilities. Professionals like doctors and lawyers often form a limited liability partnership.	2m
B	Types of Partnerships A partnership is divided into different types depending on the state and where the business operates. Here are some general aspects of the three most common types of partnerships. • General Partnership • Limited Partnership • Limited Liability Partnership • Partnership at Will	2+4=6 m
C	**Procedure of Registration** According to the India Partnership Act 1932, there is no time limit as such for the registration of a firm. The firm can be registered on the date when it is incorporated or any such date after so. The requisite fees and fines must be paid. The procedure for such a registration is as follows, 1] Application to the Registrar of Firms in the prescribed form (Form A). Nowadays this facility is even available online. Such an application must contain certain basic details about the firm such as, • Name of the Partnership Firm • Name and address of all partners • Place of business (address of main and branch offices) • Duration of the partnership • Date of joining of partners • Date of commencement of business 2] The duly signed copy of the Partnership Deed (which contains all the terms and conditions) must be filled with the registrar 3] Deposit/pay the necessary fees and stamp duties 4] Once the registrar approves the application, the firm will be entered into the records. And the registrar will also issue a certificate of incorporation. And this is how the process of registration will be completed and the firm will attain legal recognition. **The advantages of registration of partnership firm are:** Potential to sue the firm or sue the other partners: ... The capacity of the firm to sue third parties: ... Right to use the principle of set-Off: ... Better credibility: ... Ability to convert into an entity: ...	2+6=8

	Partnership deed: ... Execution of partnership deed:	
5a	Intellectual property rights (IPR) refers to the legal rights given to the inventor or creator to protect his invention or creation for a certain period of time. These legal rights confer an exclusive right to the inventor/creator or his assignee to fully utilize his invention/creation for a given period of time.	2m
B	1. Burning of Fossil Fuels – such as coal, oil, gasoline to produce energy for electricity or transportation 2. Automobiles – gases emitted from vehicles 3. Agricultural Activities – the insecticides, pesticides and fertilizers emit harmful chemicals. Burning stubble and farm residue also contribute to pollution. 4. Factories and Industries – emits carbon monoxide, organic compounds, hydrocarbons and chemicals. 5. Mining Activities – dust and chemicals are released while extracting minerals from the earth 6. Domestic Sources – household cleaning products and paints contain toxic chemicals 7. Construction and Demolition – raw materials such as bricks and concrete cause haze and foul air 8. Open burning of Garbage waste 9. Microbial Decaying process – Decaying of the microorganisms present in the surrounding releases methane gas which is highly toxic.	2+4=6 m
c	**Consumer Rights** There are six broad consumer rights defined as per the Consumer Protection Act, 1986. These are: *Right to Safety* *Right to Information* *Right to Choose* Right *to Seek Redressal* Right *to be Heard* *Right to* ConsumerEducation	2+6=8
6a	Corporate governance is the system of rules, practices, and processes by which a firm is directed and controlled. Corporate governance essentially involves balancing the interests of a company's many stakeholders, such as shareholders, senior management executives, customers, suppliers, financiers, the government, and the community.	2m
b	**Benefits of Corporate Governance** • Good corporate governance creates transparent rules and controls, provides guidance to leadership, and aligns the interests of shareholders, directors, management, and employees. • It helps build trust with investors, the community, and public officials. • Corporate governance can provide investors and stakeholders with a clear idea of a company's direction and business integrity. • It promotes long-term financial viability, opportunity, and returns. • It can facilitate the raising of capital. • Good corporate governance can translate to rising share prices. • It can lessen the potential for financial loss, waste, risks, and corruption. • It is a game plan for resilience and long-term success.	2+6=8 m
c	**The Obligation of Corporate Governance** While there can be as many principles as a company believes make sense,	2+6=8

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	some of the more well-known include the following. Fairness Transparency Risk Management Responsibility Accountability	
7a	CSR refers to the voluntary efforts of businesses to contribute to sustainable development by addressing social, environmental, and economic issues. Corporate Social Responsibility (CSR) is a significant aspect of modern business practices, encompassing a wide range of activities focused on creating positive social and environmental impacts.	2m
b	A New Model for CSR The private sector has come a long way with regard to corporate social responsibility (CSR) since Milton Friedman's infamous declaration in *The New York Times* in 1970 that "The social responsibility of a business is to increase its profits." That said, many corporations still default to surface-level actions when it comes to CSR. They pay lip service, donate funds at arm's length to one cause or another, or relegate most CSR activities to a small task-force. That's not enough. What's needed is an exponential increase in the number of businesses that commit to closing the "say-do" gaps between their brand narrative and core business operations. More companies need to broaden their approach to CSR, with the goal of achieving both business outcomes and system-level social change. 1. Purpose 2. Opportunity Assessment 3. Levers for Change 4. Governance 5. Measurement	2+4=6 m
c	***Arguments in favour of CSR:*** **1.** Protect the interests of stakeholders: 2. Long-run survival: 3. Self-enlightenment: 4. Avoids government regulation: 5. Resources: 6. Professionalization: ***Arguments against CSR:*** **1.** Business is an economic activity: 2. Quantification of social benefits: 3. Cost-benefit analysis: 4. Lack of skill and competence:. 5. Transfer of social costs: Costs related to social programmes are adjusted by the business concerns in the following ways: (a) High prices: (b) Low wages: (c) Low profits: 6. Sub-optimal utilisation of resources:	2+6=8
8ab	• Marks to given based on the justification given by students	10*2=20

Shridevi Institute of Engineering & Technology
Department of MBA
I Semester: I Internal Assessment Test, November 2017
Subject: Economics for Managers (16MBA12)

Time: 90 Minutes **Max. Marks: 40**

Answer the following questions

1. a. What is Managerial Economics?	**02 Marks**
b. Explain the scope of Managerial Economics?	**06 Marks**
c. What are objectives of business firm?	**08 Marks**
2. a. Define Demand?	**02 Marks**
b. What is Law of demand? Explain the exceptions to law of demand?	**06 Marks**
c. What is price elasticity of demand? Explain the types of it?	**08 Marks**
3. a. Explain the methods of Demand forecasting?	**08 Marks**

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Department of MBA

Scheme of Evaluation – I Internals

I sem:16MBA12 **16MBA12: Economics for Managers** **Max.Marks:40**

Q.No	*Question and Answers*	*Marks*
1 a.	Managerial economics is a branch of economics involving the application of economic methods in the organizational decision-making process. Economics is the study of the production, distribution, and consumption of goods and services	2 marks
b.	Scope of Managerial Economics • Demand Analysis and Forecasting. A firm relies on converting inputs into outputs and generates revenue from them. ... • Cost and Production Analysis. ... • Pricing Decisions, Policies, and Practices. ... • Capital Management. ... • Profit Management.	6marks Listing: 2m Explanation" 4m
C	Every business must work for national development and growth. The crucial national objectives of business include the creation of employment, promotion of social justice, contribution to the nation, helping self-sufficiency, and increasing exports. • Profit Earning. • Market Share / Creation of Customers. • Innovation & Utilization of Resources. • Increasing Productivity	listing 2m Explanation 6m
2a	Demand is a principle of economics that captures the consumer's desire to buy the product or service. The demand is calculated as the price the consumers are willing to pay for the product or service Demand is a consumer's desire and willingness to buy a product at a given price. For example, if the price increases, the customer might hesitate, and the willingness to buy decreases.	2 marks
B	The law of demand states that other factors being constant (cetris peribus), price and quantity demand of any good and service are inversely related to each other. When the price of a product increases, the demand for the same product will fall. The three exceptions to the law of Demand are Giffen goods, Veblen effect, and income change	6marks Listing: 2m Explanation" 4m
C	A good's price elasticity of demand is a measure of how sensitive the quantity demanded is to its price. When the price rises, quantity demanded falls for almost any good, but it falls more for some than for others Price elasticity of demand is the ratio of the percentage change in quantity demanded of a product to the percentage change in price. There are three main types of price elasticity of demand: elastic, unit elastic, and inelastic.	8marks listing 2m Explanation 6m

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3a	The five most popular demand forecasting methods are: trend projection, market research, sales force composite, Delphi method, and the econometric method.	8marks listing 2m Explanation 6m

Shridevi Institute of Engineering & Technology
Department of MBA
I Semester: II Internal Assessment Test, December 2017
Subject: Economics for Managers (16MBA12)

Time: 90 Minutes **Max. Marks: 40**

Answer the following questions

1. a. What is Economies of Scale? **02 Marks**
   b. What is Isoquant? Explain the properties of Isoquant? **06 Marks**
   c. Discuss law of variable proportion with diagram? **08 Marks**

2. a. What is Production function? **02 Marks**
   b. Explain the various cost concepts? **06 Marks**
   c. Explain in details the Break even analysis (BEA)? **08 Marks**

3. a. The following information is obtained from A ltd for the year 2016

Sales	Rs.60,000
Variable cost	Rs.30,000
Fixed cost	Rs.15,000.

You are required to calculate a) P/V ratio b) BEP(Value)
c) Margin of safety at this level? **08 Marks**

Shridevi Institute of Engineering & Technology
Department of MBA
I Semester: II Internal Assessment Test, December 2017
Subject: Economics for Managers (16MBA12)

Time: 90 Minutes **Max. Marks: 40**

Answer the following questions

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Department of MBA

Scheme of Evaluation – II Internals

I Sem **16MBA12: Economics for Managers** **Max.Marks:40**

Q.No	*Question and Answers*	*Marks*
1 a.	economies of scale can be achieved in two ways. First, a company can realize internal economies of scale by reorganizing the way their resources—such as equipment and personnel—are distributed and used within the company. Second, a company can realize external economies of scale by growing in size relative to their competitors using that increased scale to engage in competitive practices such as negotiating discounts for bulk purchases.	2 marks
b.	• An isoquant is a concave-shaped curve on a graph that measures output, and the trade-off between two factors needed to keep that output constant. Among the properties of isoquants: An isoquant slopes downward from left to right. • properties of isoquants: An isoquant slopes downward from left to right. The higher and more to the right an isoquant is on a graph, the higher the level of output it represents. Two isoquants can not intersect each other. An isoquant is convex to its origin point. An isoquant is oval-shaped.	6marks Listing: 2m Explanation" 4m
C	• Law of Variable Proportion is regarded as an important theory in Economics. It is referred to as the law which states that when the quantity of one factor of production is increased, while keeping all other factors constant, it will result in the decline of the marginal product of that factor. • Neat diagram	listing 2m Explanation 6m
2 a	production function, in economics, equation that expresses the relationship between the quantities of productive factors (such as labour and capital) used and the amount of product obtained.	2 marks

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B	The meaning of the cost differs from one discipline to another. An accountant has a different point of view than that an economist. A sociologist thinks in different ways and his point of view is different from those of accountants and economists. Hence the concept of cost is used in different forms. The Cost Concepts is used in different ways in decision-making by business managers. Following are some important concepts of cost and types of costs: • Money Cost • Real Cost or Social Cost • Opportunity Cost • Direct and Indirect Cost • Incremental Costs and Sunk Costs • Replacement Costs and Historical Costs • Fixed Costs and Variable Costs • Short Run Costs and Long-Run Costs • Controllable and Uncontrollable Cost • Urgent and Postponable costs	6marks Listing: 2m Explanation" 4m
C	• A break-even analysis is a financial calculation that weighs the costs of a new business, service or product against the unit sell price to determine the point at which you will break even. In other words, it reveals the point at which you will have sold enough units to cover all of your costs • To calculate the break-even point in units use the formula: Break-Even point (units) = Fixed Costs ÷ (Sales price per unit – Variable costs per unit) or in sales dollars using the formula: Break-Even point (sales dollars) = Fixed Costs ÷ Contribution Margin. • The break-even point (B.E.P.) of a firm can be found out in two ways. It may be determined in terms of physical units, i.e., volume of output or it may be determined in terms of money value, i.e., value of sales. • Put simply, break-even analysis helps you to determine at what point your business – or a new product or service – will become profitable, while investors also use it to determine the point at which they'll recoup their investment and start making money.	listing 2m Explanation 6m
3a	• **P/V ratio = Contribution/ Sales** • **Break-Even point (units) = Fixed Costs ÷ (Sales price per unit – Variable costs per unit) or in sales dollars using the formula: Break-Even point (sales dollars) = Fixed Costs ÷ Contribution Margin** • **The margin of safety formula is equal to current sales minus the breakeven point, divided by current sales**	listing 2m Explanation 6m

Shridevi Institute of Engineering & Technology
Department of MBA
I Semester: II Internal Assessment Test, December 2017
Subject: Accounting for Managers (16MBA13)

Time: 90 Minutes **Max. Marks: 40**

Answer the following questions

1. a. What do you mean by Depreciation? **02 Marks**

b. From the following ledger balances prepare trial balance as on 31/ 12/2014 **06 Marks**

Particulars	Amount
Cash in hand	1,700
Capital	23,000
Furniture	13,000
Telephone charges	1,800
Sales	15,500
Advertisement	6,800
Purchases	10,000
Office equipment	1,500
Creditors	34,600
Drawings	1,450
Discount	100
Salaries	1,200
Rent	3,600
Discount allowed	50
Commission earned	300
Sundry debtors	33,400
Interest on investment	1,000

c. Prepare three-column cash book of Mr.Mohan from the following **08 Marks**

2016 Jan 1st balance of cash in hand Rs.3000 & at bank 12,000
4th Bought goods for cash Rs.800 & for cheque Rs.2,250
6th drew cash for office use Rs.2000
10th paid wages in cash Rs.2000
15th paid Rajesh Rs.800 by cheque
18th sold goods for cash Rs.4,000
22nd paid into bank Rs.3,500
25th paid Murthy Rs.1,450 in full settlement of his account Rs.1,500

2. a. Journalize the following transaction& post them to the Ledger **08Marks**

2016 January
1st Ramya Started business with a capital Rs.50,000
2nd she purchased furniture for Rs.5,000
3rd She bought goods on credit from Vinod for Rs.8000
14th She sold goods to Suresh for Rs.5, 000
15th She received cash from Suresh Rs.3, 000
18th She purchased goods for cash Rs.12, 000
25th She sold goods for cash Rs.8000
31st She paid Vinod Rs.3,000 on account

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b. Mr.Vishal purchased an asset for 85000. The life of that asset is 6 years & depreciated at 10% according to Written Down Value method. You are required to prepare machinery account for 3 years **08 Marks**

3. a. From the following Trial balances of Sri Manoj Prepare Final accounts for the year ending 31-12-2017.

Trial balance

Particulars	**Debit**	**Credit**
Capital	----	20,000
Drawings	5,000	---
Machinery	20,000	---
Furniture	5,000	---
Debtors	16,000	---
Creditors	-----	35,000
Insurance	3,000	---
Salaries	5,000	---
Land & Buildings	15,000	---
Stock on 1/1/2017	7,000	---
Purchases	30,000	---
Sales	----	50,000
Discount received	----	1,000
Rent	2,000	---
Bills payable	----	5,000
Cash in hand	5,000	---
Bank overdraft	----	2,000
Total	**1,13,000**	**1,13,000**

Adjustments:

a) Closing Stock Rs.8,000
b) Insurance prepaid Rs.500
c) Rent outstanding Rs.1,000
d) Reserve for doubtful debts at 5% on debtors
e) Depreciated Land & Buildings at 10%

Department of MBA

Scheme of Evaluation – II Internals

IISem **16MBA22:ACCOUNTING FOR MANAGERS** **Max.Marks:40**

<table>
<tr><th>Q.No</th><th>Question and Answers</th><th>Marks</th></tr>
<tr><td>1 a.</td><td>Depreciation is an accounting method used to allocate the cost of a tangible asset over its useful life. It is a process of gradually reducing the value of an asset on the balance sheet over time. Depreciation is used to account for the wear and tear, obsolescence, or decline in value of an asset due to its usage.
Depreciation is calculated by dividing the cost of the asset by its estimated useful life. The resulting amount is the depreciation expense that is recognized each year. There are several methods of calculating depreciation, including straight-line depreciation, declining balance depreciation, and units of production depreciation.</td><td>2m</td></tr>
<tr><td>b.</td><td>
<table>
<tr><td>Particulars</td><td>Debit</td><td>Credit</td></tr>
<tr><td>Cash</td><td>1700</td><td></td></tr>
<tr><td>Capital</td><td>23000</td><td></td></tr>
<tr><td>Furniture</td><td>13000</td><td></td></tr>
<tr><td>Telephone charges</td><td>1800</td><td></td></tr>
<tr><td>Sales</td><td></td><td>15500</td></tr>
<tr><td>Advertisement</td><td>6800</td><td></td></tr>
<tr><td>Purchase</td><td>10,000</td><td></td></tr>
<tr><td>Office equipment's</td><td>1500</td><td></td></tr>
<tr><td>Creditors</td><td>34600</td><td></td></tr>
<tr><td>Drawings</td><td>1450</td><td></td></tr>
<tr><td>Discount</td><td>100</td><td></td></tr>
<tr><td>Salaries</td><td>1200</td><td></td></tr>
<tr><td>Rent</td><td>3600</td><td></td></tr>
<tr><td>Discount allowed</td><td>50</td><td></td></tr>
<tr><td>Commission earned</td><td></td><td>300</td></tr>
<tr><td>Debtors</td><td>33400</td><td></td></tr>
<tr><td>Interest on investment</td><td>1000</td><td></td></tr>
<tr><td>Total</td><td>99700</td><td>99700</td></tr>
</table>
in a trial balance, the total of all debit balances should be equal to the total of all credit balances. If the trial balance balances, it indicates that all accounting entries have been properly recorded in the ledger accounts.</td><td>6m</td></tr>
<tr><td>C</td><td>Cash book
<table>
<tr><td>Date</td><td>Particulars</td><td>Cash received</td><td>Cash paid</td><td>Cash balance</td></tr>
<tr><td>JAN1</td><td>TO PURCHASE</td><td>3050,000</td><td></td><td>9,950.00</td></tr>
<tr><td>JAN 4</td><td>TO OFFIVE USE</td><td>200,000</td><td></td><td>7.950.00</td></tr>
<tr><td>JAN6</td><td>TO WAGES</td><td>200,000</td><td></td><td>7,150.00</td></tr>
<tr><td>JAN 10</td><td>TO RAJESH</td><td>800.00</td><td></td><td>11,150.00</td></tr>
<tr><td>JAN 15</td><td>TO SALES</td><td>400,000</td><td></td><td>14,650.00</td></tr>
<tr><td>JAN 18</td><td>TO BANK DEPOSIT</td><td>350,000</td><td>1450.00</td><td>13,200.00</td></tr>
<tr><td>JAN 25</td><td>TO MURTHY</td><td></td><td></td><td></td></tr>
</table></td><td>8m</td></tr>
</table>

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		TO BALANCE C/D			13,550.00	
			25,350.00	1,450.00		
2B	Assuming that the asset was purchased at the beginning of the year and depreciation is charged annually, the machinery account for 3 years will be as follows: Year 1: Machinery Account Particulars | Amount (Rs.) | Particulars | Amount (Rs.) To Bank/Cash (Purchase) | 85,000 | By Depreciation (10%) | 8,500 To Balance c/d | 76,500 | | Total | 85,000 | Total | 85,000 Year 2: Machinery Account Particulars | Amount (Rs.) | Particulars | Amount (Rs.) To Balance b/d | 76,500 | By Depreciation (10%) | 7,650 To Depreciation (10%) | 7,650 | By Balance c/d | 68,850 Total | 84,150 | Total | 84,150 Year 3: Machinery Account Particulars | Amount (Rs.) | Particulars | Amount (Rs.) To Balance b/d | 68,850 | By Depreciation (10%) | 6,885 To Depreciation (10%) | 6,885 | By Balance c/d | 61,965 Total | 75,735 | Total | 75,735 Note: The balance carried down in each year becomes the balance brought down for the following year. After 3 years, the written down value of the asset will be Rs.61,965.				6m
c						8m

PARTICULARS	DEBIT	CREDIT
CAPITAL A/C TO CASH A/C	50,000	 50,000
FURNITURE A/C TO CASH A/C	5000	 5000
PURCHASES A/C TO VINOD A/C TO CASH A/C	20,000	 8,000 12,000
SALES A/C TO SURESH A/C TO CASH A/C	13,000	 5000 8000
SURESH A/C TO SALES A/C TO CASH A/C	8000	 3000
CASH A/C TO CAPITAL A/C TO FURNITURE A/C TO SURESH A/C TO PURCHASES A/C TO VINOD A/C	50,000	 5,000 3,000 12,000 8,000 3,000

3a	To prepare the final accounts of Sri Manoj, we will need to prepare the Trading Account, Profit and Loss Account, and the Balance Sheet. Here are the steps to prepare each of these: 1. Trading Account:	8m

	Particulars | Amount (Rs.) | Particulars | Amount (Rs.) Opening Stock | 7,000 | Sales | 50,000 Add: Purchases | 30,000 | | Less: Closing Stock | 8,000 | Gross Profit | 29,000 Total | 29,000 | Total | 29,000 2. Profit and Loss Account: Particulars | Amount (Rs.) | Particulars | Amount (Rs.) Gross Profit | 29,000 | Discount Received | 1,000 Less: Salaries | 5,000 | Rent | 2,000 Less: Insurance | 2,500* | | Less: Rent Outstanding | 1,000 | Net Profit | 20,500 Less: Reserve for Doubtful Debts | 800** | Total | 20,700 | Total | 20,700 *Insurance expense (Rs.3,000 - Rs.500 = Rs.2,500) **Reserve for doubtful debts (Rs.16,000 x 5% = Rs.800) 3. Balance Sheet: Liabilities | Amount (Rs.) | Assets | Amount (Rs.) Creditors | 35,000 | Debtors | 16,000 Bills Payable | 5,000 | Less: Reserve for Doubtful Debts | 800 Less: Rent Outstanding | 1,000 | Stock | 8,000 Capital | 20,000 | Add: Furniture | 5,000 Add: Net Profit | 20,500 | Add: Machinery | 20,000 Add: Insurance Prepaid | 500 | Add: Land & Buildings | 13,500*** Less: Drawings | 5,000 | Cash in hand | 5,000 Bank Overdraft | 2,000 | Bank Balance | 0 Total | 76,000 | Total | 76,000 ***Land & Buildings (Rs.15,000 - Rs.1,500 depreciation = Rs.13,500) Therefore, the final accounts of Sri Manoj for the year ending December 31, 2017, will consist of a Trading Account with a gross profit of Rs.29,000, a Profit and Loss Account with a net profit of Rs.20,500, and a Balance Sheet with a total capital of Rs.40,500 and total liabilities and assets of Rs.76,000.	

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Shridevi Institute of Engineering & Technology
Department of MBA
I Semester: Preparatory Examination, January 2018
Subject: Accounting For Managers (16MBA13)

Time: 3 Hours **Max. Marks: 80**

Note: 1. Answer any four full questions from Q.No 1 to Q.No 7.
2. Q.No 8 is Compulsory.

1 a. Define Accounting? **(02 Marks)**
b. What are the concepts of accounting? Explain them in brief. **(06 Marks)**
c Give Accounting Equation for the following transaction of Hitesh for the year 2017 **(08 Marks)**

Started business with cash Rs.18,000
Paid rent in advance Rs.400
Purchased goods for cash Rs.5,000 & on credit Rs.2,000.
Sold goods for cash Rs.4,000 (costing Rs.2,400)
Rent paid Rs.1,000 & rent outstanding Rs.200
Bought motor cycle for personal use Rs.8,000
Purchased equipments for cash Rs.500

2 a. What is purchase book? Explain purchase book with imaginary transaction **(02 Marks)**
b. Differentiate between Trial balance and balance sheet? **(06 Marks)**
c. Prepare three-column cash book of Mr.Mohan from the following **(08 Marks)**

April 1st 2017 balance of cash in hand Rs.4000 & at bank 15,000
4th Bought goods for cash Rs.800 & for cheque Rs.2,000
6th drew cash for office use Rs.1500
10th paid wages in cash Rs.1200
15th paid Raju Rs.800 by cheque
18th sold goods for cash Rs.4,000
22nd paid into bank Rs.4,500
25th paid Mahesh Rs.1,400 in full settlement of his account Rs.1,500

3 a. Define depreciation? **(02 Marks)**
b. i) Mr.Vikram purchased an asset for 60000. The life of that asset is 6 years & depreciated at 10% according to Written Down Value method. **(03 Marks)**
ii) Mr.Rohan is planning to purchase a machinery costing of 80,000 its estimated life of the asset is 4 years and its scrap value is of 10,000. Suggest him the rate of depreciation he is to charge under his books of accounts **(03 Marks)**

c. From the following information regarding current assets & current liabilities of a firm calculate the liquidity ratios of a concern **(08 Marks)**

Current assets	**Rs.**	**Current liabilities**	**Rs**
Cash	100000	Trade creditors	75,000
Drs	50000	Bills payable	25,000
Marketable securities	50,000	outstanding expenses	15,000
Stock	70, 000	Bank overdraft	15,000
		Provision for tax	20,000

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4 **a.** What do you mean by Liquid ratio? **(02 Marks)**

b. What do you mean by IFRS? State the objectives? **(06 Marks)**

c. Following is the trial balances of Ram Lal on March 31, 2017: **(08 Marks)**

Debit Balances:

Bank	7,500	Bills Receivable	7,500
Purchases (Adjusted)	34,96,000	Stock (31st March 2017)	3,06,250
Salaries	21,000	**Credit Balances:**	
Carriages on sales	2,500	Capital	2,00,000
Carriage on purchases	2,000	Bills payable	50,000
Lighting	1,500	Loan	1,00,000
Buildings	1,35,000	Sales	36,00,000
Rates & Taxes	2,000	Discount	2,000
Sundry debtors	40,000	Commission	500
Furniture	30,000	Sundry creditors	1,00,000
Cash in hand	1,250		

Rates have been prepaid to the extent of Rs.600. During the year, bad debts amounted to Rs. 2,500. A provision at 5% has to be made debtors. Buildings have to be depreciated at 2% & Furniture at 10%. Prepare Trading & profit & loss account & Balance sheet as on 31st march 2017

5 **a.** What is Corporate Governance **(02 Marks)**

b. What is window dressing? Enumerate the reasons for window dressing **(06 Marks)**

c. The following details of Zinc corporation are available for the year ending 31-3-2017 **(08 Marks)**

Gross profit on sales = 40% Stock turnover ratio is 12 times, Average stock is Rs.9000 Income tax is 55% Net income after tax as a % of sales = 10%Prepare Profit & Loss account of the company

6 **a.** What is Forensic accounting **(02 Marks)**

b. From the following ledger balances prepare Income statement in the vertical from for the year ending 31st March 2017 **(06 Marks)**

stock on 1st April 2016	2,60,000	Sales	9,00,000
Sales Returns	50,000	Purchases	5,40,000
Carriage inwards	24,000	Purchase returns	40,000
Carriage outwards	10,000	salaries & wages	31,000
Bank interest paid	8,000	Printing & stationery	25,000
Discount allowed	1,500	Discount Received	5,000
Audit Fees	7,000	Insurance Premium	5,000

Stock on 31st March 2017 was valued at Rs 62,400

c. From the following Trial balances of Sri Manoj Prepare Final accounts for the year ending 31-12-2017. **(08 Marks)**

Trial balance

Particulars	Debit	Credit
Capital	----	20,000
Drawings	5,000	---
Machinery	20,000	---
Furniture	5,000	---
Debtors	16,000	---
Creditors	-----	35,000

Insurance	3,000	---
Salaries	5,000	---
Land & Buildings	15,000	---
Stock on 1/1/2017	7,000	---
Purchases	30,000	---
Sales	----	50,000
Discount received	----	1,000
Rent	2,000	---
Bills payable	----	5,000
Cash in hand	5,000	---
Bank overdraft	----	2,000
Total	**1,13,000**	**1,13,000**

Adjustments:

a) Closing Stock Rs.8,000
b) Insurance prepaid Rs.500
c) Rent outstanding Rs.1,000
d) Reserve for doubtful debts at 5% on debtors
e) Depreciated Land & Buildings at 10%

7 a. What is deduction? Explain the deduction available to individual under 80C **(06 Marks)**
b. Following are the balances of NSK Ltd., as at 31-3-2013 . you are required to prepare final accounts of the company after taking additional information into consideration : **(10 Marks)**

Debit	**Rs.**	**Credit**	**Rs.**
Premises	30,72,000	Share capital	40,00,000
Plant	33,00,000	12% Debentures	30,00,000
Stock on 1- 4 – 2010	7,50,000	Plant and Loss A/c	2,62,500
Debtors	8,70,000	Creditors	7,70,000
Goodwill	2,50,000	Sales	41,50,000
Cash & Bank	4,06,500	General Reserve	2,50,000
Calls-in-arrears	75,000	Reserve for doubtful debt	35,000
Interim dividend paid	3,92,500		
Purchases	18,50,000		
Preliminary Expenses	50,000		
Wages	9,79,800		
General Expenses	68,350		
Salaries	2,02,250		
Bad debts	21,100		
Debenture interest paid	1,80,000		
	1,24,67,500		**1,24,67,500**

Additional information :

a) Closing stock is valued at Rs.10,50,000
b) Depreciate plant at 15%
c) Write off Rs.5,000 from preliminary expenses
d) Half year debentures interest is due
e) Write of Rs. 20,000 further bad debts & create new reserve for bad debts at 5% on debtors
f) Transfer Rs. 25,000 to general reserve.

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8. CASE STUDY: **(16 Marks)**

From the following particulars prepare the balance sheet of Sri Mohan Ram & Co.Ltd.:

Current ratio = 2.5

Liquidity ratio =1.5

Stock turnover ratio = 6

Fixed assets to Net worth = 1:1

Reserves to share capital = 05:1

Net working capital = Rs.300000

Gross profit ratio = 20%

Fixed asset turnover ratio =2

Average debt collection = 2 months

SHRIDEVI EDUCATION

Shridevi Institute of Engineering & Technology
Department of MBA
I Semester Preparatory Examination, January 2018
Subject: Management & Organizational Behaviour (16MBA11)

Time: 3 Hours **Max. Marks: 80**

Note: 1. Answer any four full questions from Q.No 1 to Q.No 7.
2. Q. No 8 is Compulsory.

1	a. What is Management?	(02 Marks)
	b. Explain the importance of Planning?	(06 Marks)
	c. Explain the Fayols14 Principles of Management?	(08 Marks)
2	a. What do you mean by Planning?	(02 Marks)
	b. Explain Hertzberg Two Factor Theory of Motivation	(06 Marks)
	c. Explain Blake and Mouton's Managerial Grid	(08 Marks)
3.	a. What is OB?	(02 Marks)
	b. Discuss the determinants of Personality	(06 Marks)
	c. Explain MBTI.	(08 Marks)
4.	a. What is MBO?	(02 Marks)
	b. Explain the Leadership Styles	(06 Marks)
	c. Explain Big Five Model of Personality	(08 Marks)
5.	a. What is Motivation	(02 Marks)
	b. Explain the factors influencing Perception.	(06 Marks)
	c. Elucidate the Challenges and Opportunities of OB	(08 Marks)
6.	a. what are the skills of Managers	(02 Marks)
	b. Explain Maslow's Need Hierarchy Theory	(06 Marks)
	c. Explain the functions of Management	(08 Marks)
7.	a. What is Decision Making?	(02 Marks)
	b. Discuss the components of Attitude	(06 Marks)
	c. Explain the Factors influencing Control Effectiveness	(08 Marks)

8. Case Study (Compulsory)

The shopping center branch of a well known marketing company housed in a modern, air – conditioned building situated in a prime location in the city. It has its full complements of staff, who are well trained but contrary to the expectation, it seems to have been losing business to other competitions and failing to meet targets. When it was reported to the regional manager that two staff had asked for transfers, he called in on manager.

At the interview it was revealed that friction had arisen between the manager and his senior assistant Hemanth and between staff. According to the manager, Hemanth had an abrasive

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personality which showed through his management style. He was authoritarian and domineering in his dealings with the staff and contemptuous of their intellect.

The manager admitted that he found the strain of working with Hemanth very wearing himself. Inspite of several 'Quite words' with him. Hemanth had not changed his behavior and the manager had been forced into the role of peace maker to ensure a resemblance of good relation in the organization.

He added that the staffs no longer seem to want to do things when asked. They display a rigid attitude towards customers and they are no longer prepared to work beyond the normal hours, except under extreme pressure. This pressure usually takes the form of threatening behavior from Hemanth, who says that the only important thing is to get the work out by the end of the day. It is established that the branch problems usually began nine months ago when Hemanth arrived.

The regional manager decided to talk to Hemanth himself. It so transpired that Hemanth had been brought up and had also been first employed in an economically disadvantaged and tough area of the city. He had a weak boss who never gave the staff any direction, which resulted in an easy going attitude and an unacceptable slackness which Hemanth wanted never to repeat when he was promoted to a managerial post.

For this reason, Hemanth supervises the work very closely. He doesn't listen to suggestions; he prefers the staff simply to do the work his way. He likes them to stick to their technical tasks and leave the managerial work to him. He has been known to struggle with a problem for days, when, if he asked one of his clerks, it could be solved in minutes.

Questions:

1. Explain and discuss Hemanth's Management style. (8 Marks)
2. Make suggestions as to how the situation at shopping center branch could be improved. (8 Marks)

Department of MBA

Scheme of Evaluation Preparatory Examination

I Sem **16MBA22 : ACCOUNTING FOR MANAGERS** **Max.Marks:80**

Q.No	Question and Answers	Marks
1a	Accounting is a systematic process of recording, classifying, summarizing, and interpreting financial transactions to provide information that is useful in making business decisions. It involves the process of identifying, measuring, recording, and communicating financial information about economic entities such as businesses, non-profit organizations, and individuals.	2m
B	Accounting is based on a few fundamental concepts that provide a framework for recording, summarizing, and interpreting financial transactions. Some of the key concepts of accounting are: 1. Entity concept: This concept states that a business entity should be considered separate from its owner. This means that the personal transactions of the owner should not be mixed with the business transactions. 2. Money measurement concept: This concept states that only those transactions which can be expressed in monetary terms are recorded in accounting. Transactions that cannot be expressed in monetary terms are not recorded. 3. Going concern concept: This concept assumes that the business will continue to operate for an indefinite period. It assumes that the business will not be liquidated in the foreseeable future. 4. Cost concept: This concept states that assets should be recorded at their historical cost. It means that the cost of an asset at the time of acquisition should be recorded in the books of accounts. 5. Dual aspect concept: This concept states that every transaction has two aspects - debit and credit. It means that for every debit entry, there must be a corresponding credit entry and vice versa.	6m
C	The accounting equation is: Assets = Liabilities + Owner's Equity The transactions of Hitesh for the year 2017 can be represented in the accounting equation as follows: 1. Started business with cash Rs.18,000 Assets (Cash) = Rs.18,000 Owner's Equity (Capital) = Rs.18,000 2. Paid rent in advance Rs.400 Assets (Prepaid Rent) = Rs.400 Cash or Bank = Rs.400 3. Purchased goods for cash Rs.5,000 & on credit Rs.2,000. Assets (Inventory) = Rs.7,000 Liabilities (Creditors) = Rs.2,000 Cash or Bank = Rs.5,000 4. Sold goods for cash Rs.4,000 (costing Rs.2,400) Assets (Cash) = Rs.4,000 Cost of Goods Sold = Rs.2,400 Inventory = Rs.1,600 5. Rent paid Rs.1,000 & rent outstanding Rs.200 Assets (Rent paid) = Rs.1,000 Liabilities (Rent outstanding) = Rs.200 Cash or Bank = Rs.800 6. Bought a motorcycle for personal use Rs.8,000 Assets (Motorcycle) = Rs.8,000 7. Purchased equipment for cash Rs.500 Assets (Equipment) = Rs.500	8m

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	Cash or Bank = Rs.500	
2a	A purchase book, also known as a purchases journal or purchase daybook, is a book of prime entry used to record all credit purchases of goods made by a business during a particular period. It is one of the main subsidiary books of accounting that is used to record transactions related to purchases. In the purchase book, all purchases are recorded in chronological order, and it typically contains information such as the date of purchase, name of the supplier, invoice number, details of the items purchased, amount paid, and any taxes paid.	2m
B	Trial balance and balance sheet are both important financial statements used in accounting. However, there are some key differences between them. Here are some of the main differences: 1. Definition: Trial balance is a statement that lists all the ledger balances to ensure that the total of all the debit balances equals the total of all the credit balances. Whereas, a balance sheet is a statement that reports the financial position of an organization at a specific point in time by summarizing its assets, liabilities, and equity. 2. Purpose: The purpose of a trial balance is to check the arithmetical accuracy of the accounts and to ensure that the total debits equal the total credits. The purpose of a balance sheet is to provide a snapshot of a company's financial position at a specific point in time. 3. Contents: The trial balance contains a list of all the ledger accounts with their respective debit or credit balances. The balance sheet includes all the assets, liabilities, and equity of the organization	6m
C	Three-Column Cash Book of Mr. Mohan for April 2017 | DATE | PARTICULARS | CASH | BANK | | --- | --- | --- | --- | | Apr 1 | Balance b/d | 4000 | 15000 | | Apr 4 | Goods purchased | 800 | 2000 | | Apr 6 | Cash drawn for office use | 1500 | - | | Apr 10 | Wages paid | 1200 | - | | Apr 15 | Paid to Raju | 800 | 800 | | Apr 18 | Goods sold | 4000 | - | | Apr 22 | Paid into bank | - | 4500 | | Apr 25 | Paid to Mahesh | 1400 | - | | --- | Total | 14000 | 21800 |	8m
3a	Depreciation is the reduction in the value of a tangible asset due to its wear and tear, obsolescence, or use over time. It is an accounting method that allows businesses to allocate the cost of a tangible asset over its useful life. By recognizing depreciation as an expense over time, businesses can match the cost of an asset to the revenue it generates, which helps to provide a more accurate representation of a company's financial performance.	2m
B	For Mr. Vikram's asset: Annual Depreciation = (Cost of Asset x Rate of Depreciation) / 100 Depreciation Rate = 10% using Written Down Value method Depreciation for 1st year = (60000 x 10%) = 6000 Value of asset after 1st year = 60000 - 6000 = 54000 Depreciation for 2nd year = (54000 x 10%) = 5400 Value of asset after 2nd year = 54000 - 5400 = 48600 Depreciation for 3rd year = (48600 x 10%) = 4860 Therefore, the machinery account for 3 years will be as follows: | Date | Particulars | Debit (Rs.) | Credit (Rs.) | | ---------- | ----------| ---------- | ---------- | | Year 1 | Depreciation | 6000 | | | | To Machinery | | 6000 | | Year 2 | Depreciation | 5400 | |	6m

	| | To Machinery | | 5400 | | Year 3 | Depreciation | 4860 | | | To Machinery | | 4860 | For Mr. Rohan's asset: Depreciation = (Cost of Asset - Scrap Value) / Estimated Life of Asset Depreciation = (80000 - 10000) / 4 = 17500 Therefore, the rate of depreciation he is to charge under his books of accounts is 21.875% (17500/80000*100).	
C	To calculate the liquidity ratios, we need to use the following formulas: Current Ratio = Current Assets / Current Liabilities Quick Ratio = (Current Assets - Stock - Prepaid Expenses) / Current Liabilities Using the given information, we can calculate the ratios as follows: Current Ratio = (100000 + 50000 + 70000) / (75000 + 25000 + 15000 + 20000 + 50000) = 320000 / 185000 = 1.73 Quick Ratio = (100000 + 50000) / (75000 + 25000 + 15000 + 20000 + 50000) = 150000 / 185000 = 0.81 Therefore, the current ratio of the firm is 1.73 and the quick ratio is 0.81. These ratios indicate that the firm has sufficient current assets to cover its current liabilities, but its quick assets are not sufficient to cover its current liabilities. The firm may need to take steps to increase its cash flow or reduce its current liabilities to improve its liquidity position.	8m
4a	Liquidity ratios are financial ratios that measure a company's ability to meet its short-term obligations. These ratios evaluate the company's ability to convert its assets into cash to pay off its current liabilities. The higher the liquidity ratios, the better the company's ability to meet its short-term obligations. The most commonly used liquidity ratios are the current ratio and the quick ratio.	2m
B	IFRS stands for International Financial Reporting Standards. It is a set of accounting standards developed by the International Accounting Standards Board (IASB) for companies and organizations to use as a global standard for preparing and presenting their financial statements. The main objective of IFRS is to provide a common language for business affairs so that company accounts are understandable and comparable across international boundaries. This helps investors, creditors, and other stakeholders make informed decisions based on the financial information provided by the companies. The use of IFRS promotes transparency, accountability, and consistency in financial reporting, making it easier for companies to attract investors and financing from around the world.	6m
C	**First, we need to prepare the adjustments for bad debts and provision for** doubtful debts, depreciation of buildings and furniture, and prepaid expenses: Adjustments: Bad debts: Rs. 2,500 Provision for doubtful debts: 5% of Rs. 40,000 = Rs. 2,000 Depreciation on Buildings: 2% of Rs. 1,35,000 = Rs. 2,700 Depreciation on Furniture: 10% of Rs. 30,000 = Rs. 3,000 Prepaid expenses: Rs. 600 Trading and Profit & Loss Account for the year ended 31st March 2017**:** | Particulars | Amount (Rs.) | Particulars | Amount (Rs.) | | To Opening Stock | - | By Sales | 36,00,000 | | To Purchases | 34,96,000 | By Closing Stock | 30,60,250 | | To Carriage on Purchases | 2,000 | | | | **Total** | **34,98,000** | **Total** | **66,60,250** | | By Gross Profit | 31,62,250 | To Salaries | 21,000 | | To Carriage on Sales | 2,500 | | To Lighting | 1,500	8m

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			To Rates and Taxes	2,000		
			To Bad Debts	2,500		
			To Provision for Doubtful	2,000		
			To Depreciation on			
			Buildings	2,700		
			To Depreciation on			
			Furniture	3,000		
			To Discount	2,000		
			To Commission	500		
			To Interest on Loan	10,000		
			To Net Profit	4,050		
	Total	**31,62,250**	**Total**		**66,60,250**	

Balance Sheet as on 31st March 2017:

Particulars	**Amount (Rs.)**	**Particulars**	**Amount (Rs.)**
Fixed Assets		Current Liabilities	
Buildings	1,32,300	Sundry Creditors	1,00,000
Furniture	27,000	Bills Payable	50,000
		Bank Overdraft	15,000
Total Fixed Assets	1,59,300	Total Current Liabilities	1,65,000
Current Assets			
Cash in Hand	1,250		
Bank	7,500		
Sundry Debtors	37,500		
Stock	30,60,250		

5a	Corporate governance refers to the system of rules, practices, and processes by which a company is directed and controlled. It involves balancing the interests of a company's many stakeholders, such as shareholders, management, customers, suppliers, financiers, government, and the community. The main aim of corporate governance is to ensure that the company operates in an ethical and responsible manner, with transparency, accountability, and fairness to all its stakeholders. I	2m
B	Window dressing is a technique used by companies to manipulate their financial statements to make their performance look better than it actually is. It involves making adjustments to financial statements such as income statement, balance sheet, and cash flow statement, to improve the appearance of a company's financial position and performance. Reasons for window dressing may include: 1. Attracting investors: By making the company's financial position look better, it may attract investors and increase the stock price. 2. Obtaining credit: A company may want to obtain credit from lenders, and a better-looking financial position may increase the likelihood of obtaining credit on favorable terms. 3. Meeting analyst expectations: Companies may use window dressing to meet the expectations of financial analysts who may be forecasting the company's performance. 4. Bonuses and compensation: Executives and managers may use window dressing to improve the financial performance of the company to increase their bonuses and compensation. 5. Compliance with covenants: A company may use window dressing to comply with the covenants of debt agreements.	6m
C	To prepare the Profit and Loss account of Zinc Corporation, we need to first calculate the cost of goods sold (COGS) and then use the given information to calculate the gross profit, net income before tax, income tax, and net income after tax. Cost of Goods Sold = (Opening Stock + Purchases - Closing Stock)	8m

	Given that the stock turnover ratio is 12 times, we can calculate the purchases as follows: Cost of Goods Sold = (9000/12) x 40 + 9000 = 12000 + 9000 = Rs. 21000 We can now use the given information to prepare the Profit and Loss account: | Particulars | Amount (Rs.) | | ----------| ---------- | | Gross Sales | | | (-) COGS | 21,000 | | Gross Profit | Gross Profit x 100 / Gross Sales | | Net Income Before Tax | Gross Profit x 10 / 100 | | (-) Income Tax | Net Income Before Tax x 55 / 100 | | Net Income After Tax | Net Income Before Tax - Income Tax | Since we don't have the exact value for Gross Sales, we cannot calculate the Gross Profit directly. However, we can calculate the other values using the given information. Net Income Before Tax = Gross Profit x 10 / 100 = (Gross Sales - COGS) x 10 / 100 Substituting the value of COGS, we get: Net Income Before Tax = (Gross Sales - 21000) x 10 / 100 Income Tax = Net Income Before Tax x 55 / 100 = [(Gross Sales - 21000) x 10 / 100] x 55 / 100 Net Income After Tax = Net Income Before Tax - Income Tax = [(Gross Sales - 21000) x 10 / 100] - [(Gross Sales - 21000) x 10 / 100] x 55 / 100 Simplifying the above equation, we get: Net Income After Tax = (Gross Sales - 21000) x 45 / 100 Hence, the Profit and Loss account for Zinc Corporation for the year ending 31-3-2017 would be as follows: | Particulars | Amount (Rs.) | | ----------| ---------- | | Gross Sales | | | (-) COGS | 21,000 | | Gross Profit | Gross Profit x 100 / Gross Sales | | Net Income Before Tax | Gross Profit x 10 / 100 | | (-) Income Tax | Net Income Before Tax x 55 / 100 | | Net Income After Tax | Net Income Before Tax - Income Tax |	
6a	Forensic accounting is a specialized field of accounting that combines accounting, auditing, and investigative skills to investigate financial transactions in legal disputes. It involves the application of accounting principles and techniques to analyze financial information and provide evidence in legal proceedings. Forensic accountants are trained to detect financial fraud, embezzlement, and other financial crimes. They work with law enforcement agencies, lawyers, and other professionals to uncover evidence of financial wrongdoing and present it in a manner that is admissible in court.	2m
b	Income Statement for the year ended 31st March 2017: | **Particulars** | **Amount (Rs.)** | | ----------| ----------| | Sales | 9,00,000 | | Less: Sales Returns | 50,000 | | Net Sales | 8,50,000 | | Cost of Goods Sold | | | Opening Stock | 2,60,000 | | Add: Purchases | 5,40,000 | | Less: Purchase Returns | 5,40,000 | | Net Purchases | | | Add: Carriage Inwards | 24,000 | | Less: Closing Stock | 62,400 | | Cost of Goods Sold | | | Gross Profit | |	6m

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	| Operating Expenses: | | | Carriage Outwards | 10,000 | | Salaries and Wages | 31,000 | | Printing and Stationery | 25,000 | | Bank Interest Paid | 8,000 | | Insurance Premium | 5,000 | | Discount Allowed | 1,500 | | Audit Fees | 7,000 | | Total Operating Expenses | | | Net Profit before Taxes | | | Less: Income Tax | | | Net Profit after Taxes | | Calculation of Cost of Goods Sold: Opening Stock = Rs. 2,60,000 Add: Purchases = Rs. 5,40,000 Less: Purchase Returns = Rs. 5,400 Add: Carriage Inwards = Rs. 24,000 Less: Closing Stock = Rs. 62,400 Cost of Goods Sold = Rs. 7,56,200 **Calculation of Gross Profit:** Net Sales = Rs. 8,50,000 Cost of Goods Sold = Rs. 7,56,200 Gross Profit = Rs. 93,800 Calculation of Total Operating Expenses: Carriage Outwards = Rs. 10,000 Salaries and Wages = Rs. 31,000 Printing and Stationery = Rs. 25,000 Bank Interest Paid = Rs. 8,000 Insurance Premium = Rs. 5,000 Discount Allowed = Rs. 1,500 Audit Fees = Rs. 7,000 Total Operating Expenses = Rs. 87,500 Calculation of Net Profit before Taxes: Gross Profit = Rs. 93,800 Less: Operating Expenses = Rs. 87,500 Net Profit before Taxes = Rs. 6,300 Calculation of Net Profit after Taxes: Net Profit before Taxes = Rs. 6,300 Less: Income Tax (55% of Net Profit before Taxes) = Rs. 3,465 Net Profit after Taxes = Rs. 2,835 Therefore, the Income Statement for the year ended 31st March 2017 is as follows: | **Particulars** | **Amount (Rs.)** | | ----------| ----------| | Sales | 9,00,000 | | Less: Sales Returns | 50,000 | | Net Sales | 8,50,000 | | Cost of Goods Sold | 7,56,200 | | Gross Profit | 93,800 | | Operating Expenses: | | | Carriage Outwards | 10,000 | | Salaries and Wages | 31,000 | | Printing and Stationery | 25,	
c	Account, Profit and Loss Account, and the Balance Sheet. Here are the steps to prepare each of these: 1. Trading Account: Particulars | Amount (Rs.) | Particulars | Amount (Rs.) Opening Stock | 7,000 | Sales | 50,000 Add: Purchases | 30,000 | | Less: Closing Stock | 8,000 | Gross Profit | 29,000	8m

	Total | 29,000 | Total | 29,000 2. Profit and Loss Account: Particulars | Amount (Rs.) | Particulars | Amount (Rs.) Gross Profit | 29,000 | Discount Received | 1,000 Less: Salaries | 5,000 | Rent | 2,000 Less: Insurance | 2,500* | | Less: Rent Outstanding | 1,000 | Net Profit | 20,500 Less: Reserve for Doubtful Debts | 800** | Total | 20,700 | Total | 20,700 *Insurance expense (Rs.3,000 - Rs.500 = Rs.2,500) **Reserve for doubtful debts (Rs.16,000 x 5% = Rs.800) 3. Balance Sheet: Liabilities | Amount (Rs.) | Assets | Amount (Rs.) Creditors | 35,000 | Debtors | 16,000 Bills Payable | 5,000 | Less: Reserve for Doubtful Debts | 800 Less: Rent Outstanding | 1,000 | Stock | 8,000 Capital | 20,000 | Add: Furniture | 5,000 Add: Net Profit | 20,500 | Add: Machinery | 20,000 Add: Insurance Prepaid | 500 | Add: Land & Buildings | 13,500 Less: Drawings | 5,000 | Cash in hand | 5,000 Bank Overdraft | 2,000 | Bank Balance | 0 Total | 76,000 | Total | 76,000 ***Land & Buildings (Rs.15,000 - Rs.1,500 depreciation = Rs.13,500) Therefore, the final accounts of Sri Manoj for the year ending December 31, 2017, will consist of a Trading Account with a gross profit of Rs.29,000, a Profit and Loss Account with a net profit of Rs.20,500, and a Balance Sheet with a total capital of Rs.40,500 and total liabilities and assets of Rs.76,000	
7a	Deductions are certain expenses or investments that can be subtracted from an individual's total income before the calculation of taxes. By reducing the taxable income, deductions can help reduce the amount of tax an individual owes to the government. One of the most popular deductions in India is under Section 80C of the Income Tax Act, which allows individuals to claim deductions for investments and expenses up to Rs. 1.5 lakhs in a financial year. The following are some of the investments and expenses that are eligible for deductions under Section 80C: 1. Life Insurance Premium: Premium paid towards life insurance policies for self, spouse, or children can be claimed as a deduction under Section 80C. 2. Public Provident Fund (PPF): Contributions made to PPF accounts are eligible for deductions under Section 80C. 3. Employee Provident Fund (EPF): Contributions made by employees towards EPF accounts can be claimed as a deduction under Section 80C. 4. Equity-Linked Savings Scheme (ELSS): Investments made in ELSS mutual funds are eligible for deductions under Section 80C. 5. National Savings Certificate (NSC): Investments made in NSC are eligible for deductions under Section 80C. 6. Tuition fees: Tuition fees paid towards education for children can be claimed as a deduction under Section 80C.	2m
b	NSK Ltd. Final Accounts for the year ended 31st March 2013 Income Statement: Sales 41,50,000 Less: Cost of goods sold: Opening Stock 7,50,000 Purchases 18,50,000 Less: Closing Stock (10,50,000) 15,50,000 Gross Profit 26,00,000 Less: Operating Expenses:	6m

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Wages		9,79,800	
Salaries		202,250	
General Expenses		68,350	
Depreciation on Plant		4,95,000	
Bad debts		21,100	
Preliminary Expenses (net of write-off)		45,000	
		(15,12,500)	
Operating Profit		10,87,500	
Add: Other Income:			
Interest on Bank Deposit		2,500	
Profit before Interest and Taxation		10,90,000	
Less: Debenture Interest		9,00,000	
Net Profit before Taxation		1,90,000	
Less: Income Tax		57,000	
Net Profit after Taxation		1,33,000	
Add: General Reserve transferred from P&L A/c		25,000	
Net Profit available for appropriation		1,58,000	
Appropriations:			
Proposed Dividend		1,56,000	
Dividend Distribution Tax		26,520	
Transfer to General Reserve		25,000	
Balance carried to Balance Sheet		2,480	
Total Appropriations		2,10,000	
Balance Sheet as at 31st March 2013:			
Assets:			
Non-Current Assets:			
Premises	30,72,000		
Plant	33,00,000		
	63,72,000		
Current Assets:			
Stock	10,50,000		
Debtors	8,70,000		
Cash and Bank	4,06,500		
	23,26,500		
Less: Reserve for Doubtful Debts		35,000	
	22,91,500		
Total Assets		86,63,500	
Liabilities and Equity:			
Equity:			
Share Capital	40,00,000		
Reserves	28,15,000		
	68,15,000		

	Non-Current Liabilities: Debentures 30,00,000 Total Equity and Liabilities 98,15,000 Current Liabilities: Creditors 7,70,000 Proposed Dividend 1,56,000 Dividend Distribution Tax 26,520 9,52,520 Less: Calls-in-arrears 75,000 8,77,520 Total Equity and Liabilities 86,63,500	
8 A	To prepare the balance sheet of Sri Mohan Ram &Co. Ltd, we need more information about the assets, liabilities, and capital of the company. However, using the given ratios, we can make some estimates and assumptions to arrive at a probable balance sheet. Here's a possible balance sheet of Sri Mohan Ram &Co. Ltd based on the given information: BALANCE SHEET OF SRI MOHAN RAM & CO.LTD AS OF [DATE] Assets: Fixed assets [?] [Assumed to be Rs. 10,00,000, based on the fixed asset turnover ratio of 2] Current assets: Stock 1,50,000 [Calculated as 6 times the cost of sales (80% of revenue)] Debtors [?] [Assumed to be Rs. 6,25,000, based on average debt collection of 2 months] Cash and bank balances [?] [Assumed to be Rs. 1,25,000, based on the liquidity ratio of 1.5] Total assets [?] Liabilities: Current liabilities: Trade payables [?] [Cannot be estimated without more information] Long-term liabilities: Loans [?] [Cannot be estimated without more information] Shareholders' equity: Share capital [?] [Cannot be estimated without more information] Reserves [?] [Assumed to be Rs. 2,50,000, based on the reserves to share capital ratio of 0.5] Total liabilities and equity [?] Net working capital Rs. 3,00,000 (given) Note: The figures in square brackets are estimates and assumptions based on the given ratios and information. To prepare a more accurate balance sheet, we need additional information about the company's assets, liabilities, and capital.	8m

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2017-18

SHRIDEVI EDUCATION

SHRIDEVI INSTITUTE OF ENGINEERING AND TECHONOLOGY, TUMKUR-572106
DEPARTMENT OF COMPUTER SCIENCE & ENGG

SEM: VIII SEM
SUB: System Modeling and Simulation
SUBCODE:10CS82

MARKS: 25
DURATION: 75 MINS
DATE:09/03/2018

I INTERNALS

NOTE:

i) Question No. 1 is compulsory.
ii)Answer any **two** from Question No. 2,3&4

1 a) Define simulation. **1M[CO1]**

2 a) List any two situations when simulation is appropriate tool and not appropriate tool. **4M[CO1]**

b) A paper seller buys the papers for 33 cents each and sells them for 50 Cents each. Newspapers not sold at the end of the day are sold as scrap for 5 cents each. Newspapers can be Purchased in bundles of 10.There are 3 types of news days "good","fair",and "poor" with probabilities 0.35,0.45 and .20 respectively. The distribution of papers demanded on each paper for these days given in table

Demand	Demand distribution probability		
	good	fair	poor
40	0.03	0.10	0.44
50	0.05	0.18	0.22
60	0.15	0.40	0.16
70	0.20	0.20	0.12
80	0.35	0.08	0.06
90	0.15	0.04	0.00
100	0.07	0.00	0.00

The paper seller buys 70 newspapers each day. simulate demand for papers over a 10 daytime and find total profit.RD for type of news day:94,77,49,45,43,32,49,00,16,24 RD for demand:80,20,15,88,98,65,86,73,24,60 **8M[CO1]**

3. a) Suppose the maximum inventory level M is 11 units & the review period N is 5 days. Estimate by simulating the problem for 12 days the average ending inventory & average number of days when a shortage condition occurs. The number of units demanded per day is given by the following probability distribution. Assume that orders are placed at the close of business & are received for inventory at the beginning of business as determined by the lead time. Initially simulation has started with inventory level of 3 units & an order of 8 units scheduled to arrive in two days time.

Demand	0	1	2	3	4
Probability	0.10	0.25	0.35	0.21	0.09

Lead time is a random variable, with the following probability distribution.

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Lead time (days)	1	2	3
Probability	0.6	0.3	0.1

The sequences of random digits for demand and random digits for lead time shall be taken from the following table. **8M [CO1]**

RD for demand	26, 68, 33, 39, 86, 18, 64, 79, 55, 74, 21, 43
RD for lead time	8, 7, 2

b) Define the fallowing terms i) Discrete system ii)Continuous system **4M[CO1]**

4 a) With a neat flow diagram explain steps in simulation study. **5M [CO1]**

b) In an Able-Baker carhop problem, Able is more experienced and can provide a better service than Baker. Inter arrival distribution of customer is given in below table

Time b/n arrivals	probability
1	0.25
2	0.40
3	0.20
4	0.15

Service distribution of able

Service time	probability
2	0.30
3	0.28
4	0.25
5	0.17

Service distribution of baker

Service time	probability
3	0.35
4	0.25
5	0.20
6	0.20

Simulate for 6 customers and find average service time of able, baker and probability the customer has to wait.

RD for interarrival time: 96, 75,56,03,20

RD for service time: 75, 45, 34,56,90,33 **7M[CO1]**

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Shridevi Institute of Engineering and Technology.

Department of Computer Science & Engineering.

I - Internals - Scheme & Solutions

1.

a. Definition - 1M

A simulation is the imitation of operation of real world process or systems

b.

Demand	Cummulative Distribution			Random Digit Assignment		
	Good	Fair	Poor	Good	Fair	Poor
40	0.03	0.10	0.44	01-03	1-10	1-44
50	0.08	0.28	0.66	04-08	11-28	45-66
60	0.23	0.68	0.82	09-23	29-68	67-82
70	0.43	0.88	0.94	24-43	69-88	83-94
80	0.78	0.96	1.00	44-78	89-96	95-00
90	0.93	1.00	1.00	79-93	97-00	
100	1.00	1.00	1.00	94-00		

RDA Assignment - 3M

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Day	RDA Type of Newsday	RDA	Demand	Revenue from Sales	Salvage of scrap	Daily Profit
1	94 poor	80	60	30 $	–	$ 7.40
2	77 Fair	20	50	25 $	–	$ 2.90
3	49 Fair	15	50	25 $	–	$ 2.90
4	45 Fair	88	70	35 $	–	$ 11.90

Total Profit = 645 – 462 – 13.6 + 5.5

= 174.90 $ — 5M

2.a. Appropriate tool – Any two – 2M

In Appropriate tool – Any two – 2M

Appropriate

1. Simulation enable Study of & Experimentation with internal interactions
2. Simulation can be used as a pedagogical device to reinforce analytical solution

In Appropriate.

1. Not be used if problem can be Solved analytically
2. Not be used if it is easier to perform direct Experiments.

3.

a) RDA for Daily Demand.

Demand	Probability	C.P	RDA
0	0.10	0.10	01-10
1	0.25	0.35	11-35
2	0.35	0.70	36-70
3	0.21	0.91	71-91
4	0.09	1.00	92-00

→ 2M

RDA for Lead Time

Lead Time	Probability	C.P	RDA
1	0.6	0.6	1-6
2	0.3	0.9	7-6
3	0.1	1.0	0

– 2 M

Cycle	Day	Begining Inventory	RDA Demand.	Demand	Ending Inventory	Shortage	Days until order Arrives
1	1	3	24	1	2	0	1
	2	2	35	1	1	0	0
	3	2	65	2	7	0	–
	4	7	81	3	4	0	1
	5	4	54	2	2	0	0
2	1	2	03	0	2	0	–
	2	1	87	3	8	0	–
	3	8	27	1	7	0	–
	4	7	73	3	4	0	–
	5	4	70	2	2	0	3

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Based on five cycles of simulation.

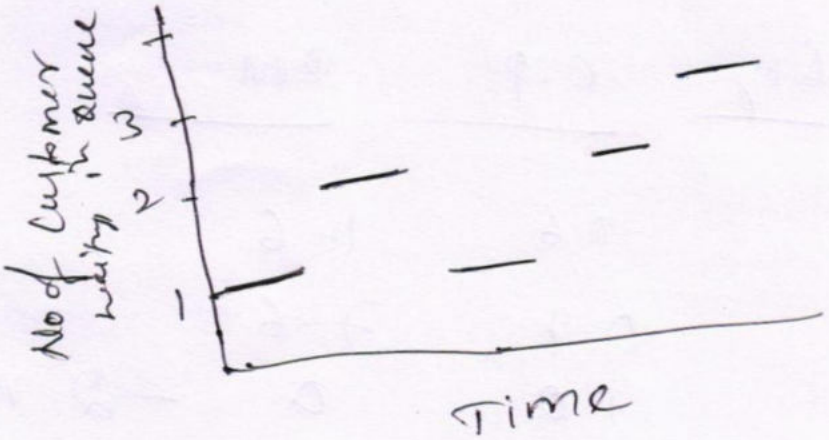
average ending inventory $88/25 = 3.5$ → 4M

3b) Discrete System - Definition — 1M

- Diagram & Explanation — 1M

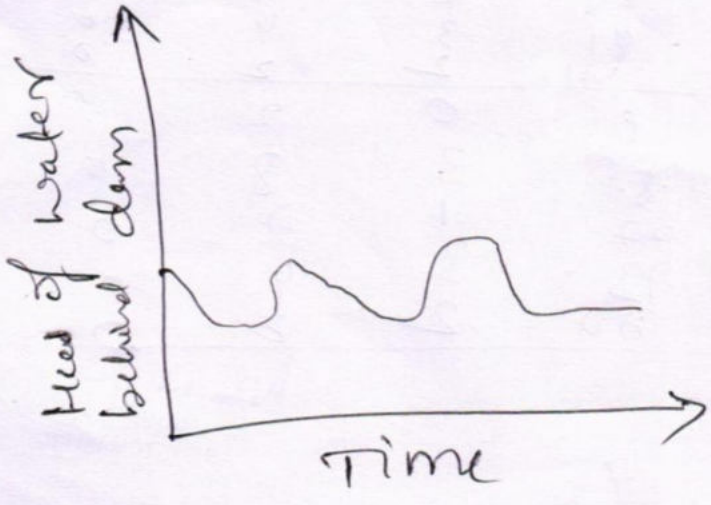
~~A Continuous System is one.~~

A discrete system is one which state variables change only at discrete set of points in time



Continuous System - Definition — 1M

- Diagram & Explanation — 1M



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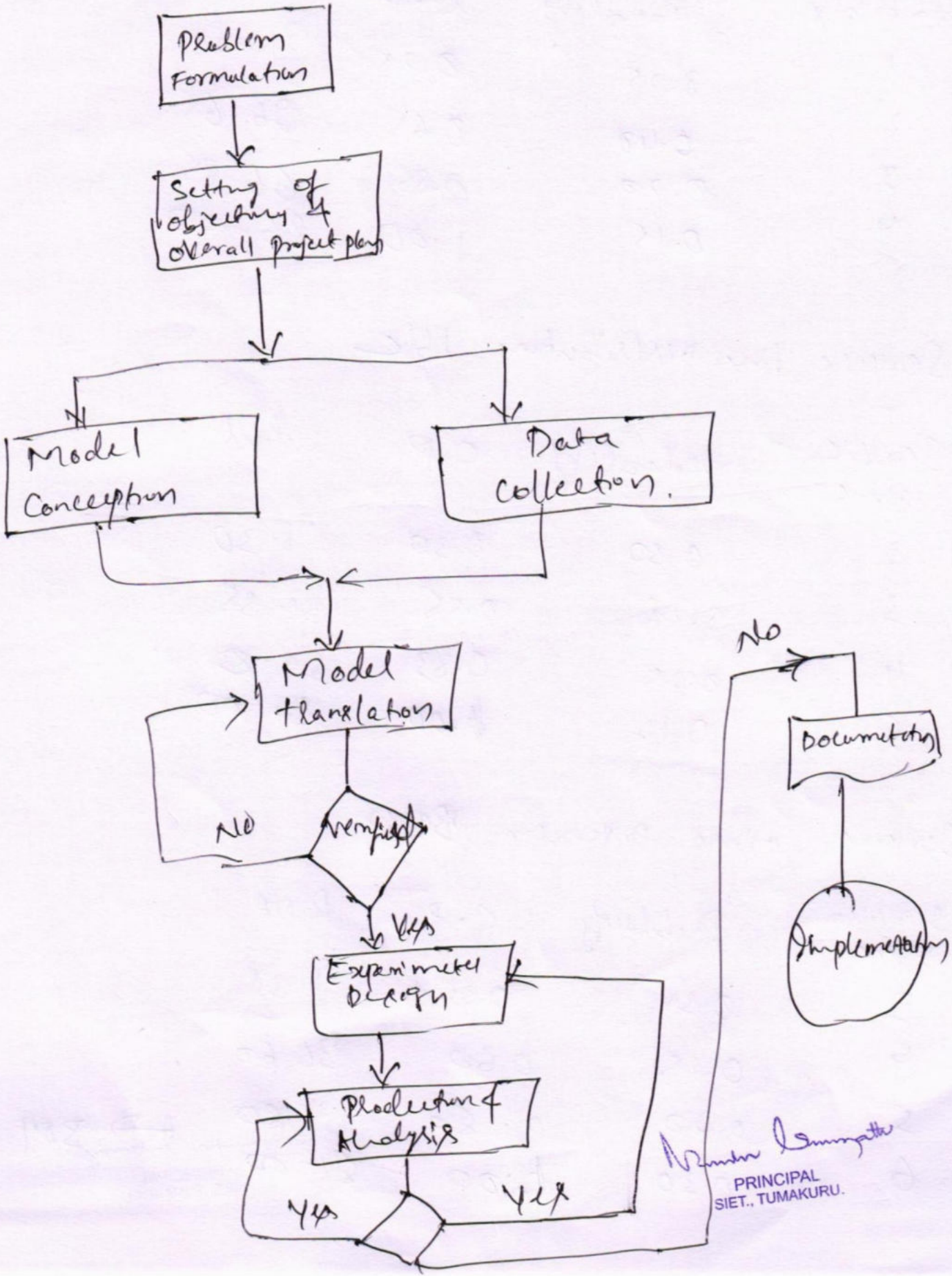
4.

a) Diagram — 3M

Explanation — 2M.



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4b) Able-baker Problem.

Inter arrival Distribution

Arrivals	probability	C.P	RDA
1	0.25	0.25	1-25
2	0.40	0.65	26-65
3	0.20	0.85	66-85
4	0.15	1.00	86-00

Service time Distribution Able

Service time	probability	cp	RDA
2	0.30	0.30	1-30
3	0.28	0.58	31-58
4	0.25	0.83	59-83
5	0.17	1.00	84-00

Service time Distribution Baker

service time.	Probability	C.P	RDA
3	0.35	0.35	1-35
4	0.25	0.60	36-60
5	0.20	0.80	61-80
6	0.30	1.00	81-00

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2017-18

SHRIDEVI INSTITUTE OF ENGINEERING & TECHNOLOGY
TUMKUR-572106
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
INTERNAL ASSESMENT TEST: I

COURSE: Programming the web-10CS73 **MAX MARKS**: 25
SEM: VII (PB) **DATE&TIME**: 22/09/18, 75 min

NOTE: First question is compulsory and Answer any **TWO** full questions from remaining.

1. Define Web Server. **1M**
2. a How does domain name conversion happens on the web? Describe the concept, with a figure, by taking a suitable example. **6M**
   b.Give syntax and an example to each of the following tags:
   i) <pre> ii) <a> iii) <img> iv) <sub> v) <p> **6M**
3. a. Create, test and valodate a XHTML document that has a form with
   (I) Three text boxes to collect user name and address.
   (II) Table with the headings product name, price and quantity and the values are
   i) 100-watts light bulb, $2.39, 4
   ii) 200-watts light bulb, $4.29, 8
   iii) 100-watts long life light bulbs, $3.95, 4
   iv) 200-watts long life light bulbs, $7.49, 8
   (III) A collection of 4 radio buttons that are labled as
   i) Visa ii) Master card iii) Discover iv) Check
   (IV) A submit and a reset button. **6M**

   b. Write an XHTML document to describe an ordered list of your five favorite movies. Each element of the list must have a nested list of at least two actors in your favorite movies **6M**
4. a. What are the selector forms? Explain with example, different types of selector forms, with syntax. **6M**

   b. Explain the box model (margin and padding property) with respect to CSS. **6M**

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Internal Assesment Test - 1

Programming the web - 10CS73

1. Web servers are programs that provide documents to requesting browsers. ex: Apache. — 1M.

2. a) DNS servers convert URLs and domain names into IP addresses that Computers can understand & use.

b) i) <pre> → preformatted text
ii) <a> → hyperlink
iii) <img> → image
iv) <sub> → Subscript
v) <p> → paragraph

→ 6M

3. a) XHTML

<! DOCTYPE html>
<html>
<head>
<meta charset = "UTF-8">
<meta name = "viewport" content = "width = device-width, initial-scale = 1.0">
</head>
<body>
<form method = "post">

→ 6M

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username: <input type = "text" name = " " value = " "/>

<input type = "checkbox" name = " " value = ON " />

Four 100-watt light bulbs for $2.39.

_____ for $4.29

_____ for 3.95 & 7.49.

<input type = "radio name = " gbs" value = "Visa"/>

Visa.

— " — Master card

— " — Discover

<input type = "Submit" value = "Submit"/>

</form>

</body>

</html>

3. b) use the HTML <ol> element to define an ordered list. Creat five list. — 6m

A nested list is a list with a list.

1. Car
2. Bike
   - Blue
   - Green
   - Yellow.

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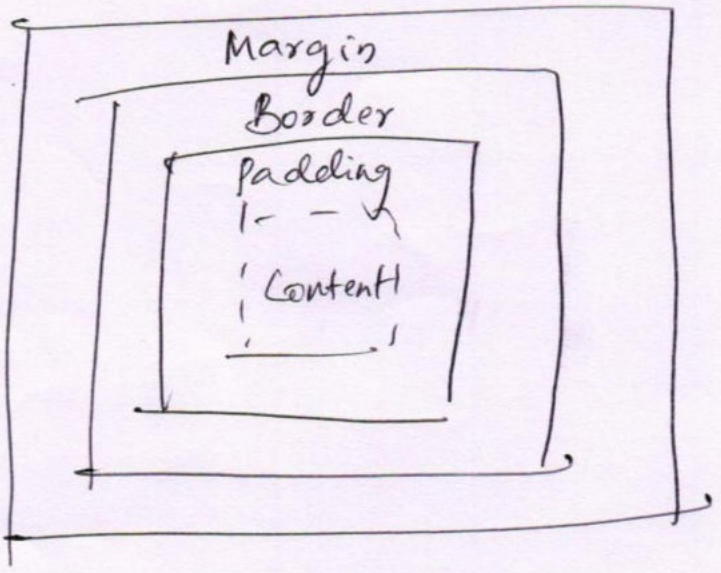
4. a) CSS selectors.

1) Simple selectors
2) Combinator Selectors
3) pseudo-class Selectors ⟷ 6M.
4) Pseudo-element selectors

b) box model → 6M



→ diag (2M)

explaination → 4M.

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
INTERNAL ASSESMENT TEST: II

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COURSE: Programming the web-10CS73 **MAX MARKS**: 25
SEM: VII (PB) **DATE&TIME**: 29/10/18, 75 min

NOTE: First question is compulsory and Answer any **TWO** full questions from remaining.

1. Define XML. **1M**
2. a Explain with example the screen output and keyboard input methods **6M**
   b. Write a note on a) Character classes b) Object creation and modification **6M**
3. a Write a JavaScript that contains a function named tst_phone_num which test the phone number of the format ddd-dddd-ddddddd (091-1985-1234567) and display whether given number is valid or not using alert. **6M**

   b. What is document type definition (DTD). Describe the approach to declare elements, entities and attributes. **6M**
4. a. Design an XML document to store information about a student in an engineering college affiliated to VTU. The information must include USN, Name, and Name of the college, branch, Year of Joining, and e-mail id. Make up sample data for 3 students. Create a **XSLT** style sheet and use it to display the document. **6M**

   b. Explain briefly a) XML name spaces b) XML schema **6M**

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Internal Assessment Test - II

Programming the web - 10CS73

1. XML → Extensible Markup Language ⟶ 1M.

2. a) The JavaScript model for the HTML document is the document object.
The model for the browser display window is the window object. The window object has two properties, document & window, which refers to the document & window objects, respectively - 3M.

2 b) a) Character classes ⟶ 3M
→ distinguish kinds of characters such as between letters & digits

b) Object creation & modification.
There are 2 ways to construct an object in Javascript. The object literal, which uses curly brackets: {}

3. a)
```
<script type = "text/Javascript">
    function validateform() {
        return checkphone();
    }
```
— 6M

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```
function checkphone(){
    var phone = document.forms["myform"]["phone"].
                                        value;
var phoneNum = /^\(?([0-9]{3})\)?[-.]?
                ([0-9]{3})[-.]?;
if (phone.value.match(phoneNum)){
        return true;
}
else{
    document.getElementById("phone").
        ClassName = document
    return false;
}
}
</script>
```

3. b. A DTD is a set of markup declarations that define a document type for an SML.
A DTD defines the valid building blocks of an XML documents ⟶ 2M.

declare elements ⟶ 2M.

~~Element~~

attributes ⟶ 2M

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4. a) program must include, ~~Ata~~ USN, name & name of college ⟶ 6M.

4 b) a) XML name spaces provide a method to avoid element name conflicts ⟶ 3M

b) XML Schema ⟹ describes the structure of an XML document with correct syntax ⟶ 3M.

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INTERNAL ASSESMENT TEST: III
Course : Programming the Web (10CS73)
SEM : VII

Date :18/11/2017
MAX MARKS : 25
TIME : 75 min

NOTE: Q.No 1 is Compulsory. Answer any 2 questions from Q.No 2 to Q.No 4.

1	In what two ways do single-quoted string literals differ from double quoted string literals?	1M
2 a.	Briefly explain list literals, arrays and foreach statement in perl.	6M
b.	Briefly explain the control statements in perl.	6M
3 a.	With examples explain the pattern matching in perl.	6M
b.	Explain the communications and computation using CGI	6M
4 a.	Explain the query string format in perl	6M
b.	Explain the cookies in perl	6M

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SEM : VII

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3 a) Pattern matching

m operator in perl is used to match a pattern. Syntax:

m/string/ → (3M)

Write program → (3M)

3 b) with CGI, the web server can call up a program, while passing user-specific data to the program. → -(1M)

Communication diagram → (2M)

Computation using CGI → (3M)

explain different arithmetic operators.

4. a) A quering string is the part of a URL which is attached to the end, after the file name.

ex: $query_string =~ s/%([\dA-Fa-f][\dA-Fa-f])/pack("c", hex($1))/ → 6M.

4 b) cookies are a plain text data record of 5 variable-length fields → (2M)

ex and program → (4M)

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Internal Assessment - III

Programming the Web (10CS73)

1. A single-quoted string does not have variables within it interpreted.
   A double-quoted string can contain apostrophes without backslashes. ⟶ (1M)

2. a) A list literal → the way you represent a list value within your program, is a list of commas separated values enclosed in parentheses. ⟶ (3M)
   with example.
   (1, 2, 3)

   b) An array is a variable that stores an ordered list of scalar values ⟶ (3M)
   write example

2 b) Control statements change the execution from its normal sequence.
   ex: continue
   goto
   last, next, redo
   ⟶ Explanation (6M)

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INTERNAL ASSESMENT TEST: I
SUB : Computer Networks (15CS52)
SEM : V 'A' &'B'

Date :16/09/2017
MAX MARKS : 25
TIME : 75 min

NOTE: Q.No 1 is Compulsory. Answer any 2 questions from Q.No 2 to Q.No 4.

1.	What is a socket.	1M	(CO1)
2.	a.Explain Network Applications Architectures with a neat diagram.	6M	(CO1)
	b.Briefly explain the transport services provided by the internet.	6M	(CO1)
3.	a. With a neat diagram explain the HTTP response message format.	6M	(CO2)
	b.What is cookies? Explain with diagram how cookies stores user state information.	6M	(CO2)
4.	a. Briefly explain the FTP protocol? Explain its commands and replies.	7M	(CO2)
	b.With neat diagram explain the high level view of the internet mail system.	5M	(CO2)

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Computer Networks (15CS52)

IA - 1 Scheme of Evaluation

1. A socket is one endpoint of a two-way commun^n link between two programs running on the network. — 1m

2 a) Two approaches for developing an appl^n:
   i) client-server architecture diagram & Expl^n — 3m
   ii) P2P architecture diagram & Expl^n — 3m.

b) The Internet makes 2 transport-protocols available to appl^{n}s UDP & TCP

TCP services — 3m —

* Before the start of comm^n, client and server need to exchange control-information This phase is called hand shaking.
* The 2 processes can send messages to each other over the connection
* After the end of comm^n, the appl^{n}s must tear down the connection, It is a Reliable data transfer service.

UDP services — 3m —

* It is a lightweight transport-protocol, providing minimal services
* It is connectionless, so there is no handshaking before the 2 processes start to communicate
* It is unreliable data transfer service.

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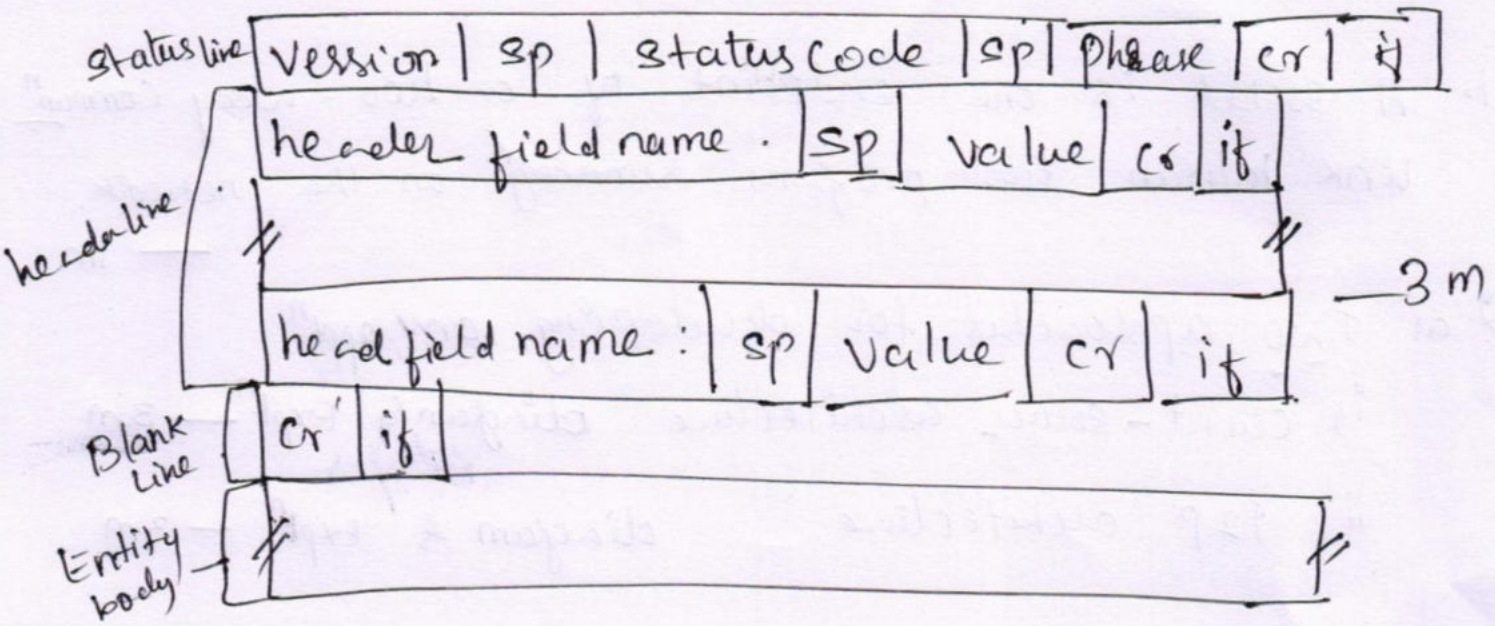
3) a) HTTP Response message.

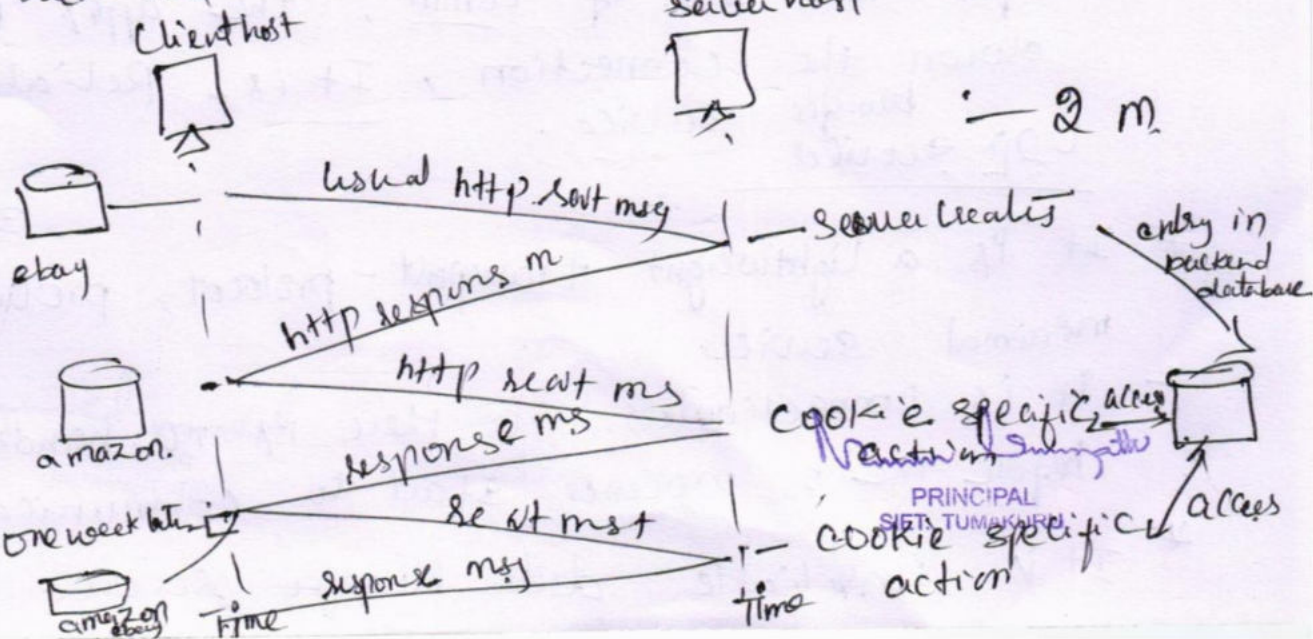


Expl^n of each lines — 3m

b) cookies refer to a small text file created by a web-site that is stored on the user's computer — 1m

Cookies technology has 4 components:

1) A cookie header-line in the HTTP response msg.
2) A cookie header-line in the HTTP request-msg
3) A cookie file kept on the user's end-system & managed by the user's browser — 2m
4) A back-end database at the website



4) a) FTP

* commands are sent from client to server. 3m
* Replies are sent from server to client.
* commands and replies are sent across the control connection in 7bit ASCII format, each command consists of 4 - uppercase ASCII characters followed by optional arguments

Ex ① USER username.

② PASS password

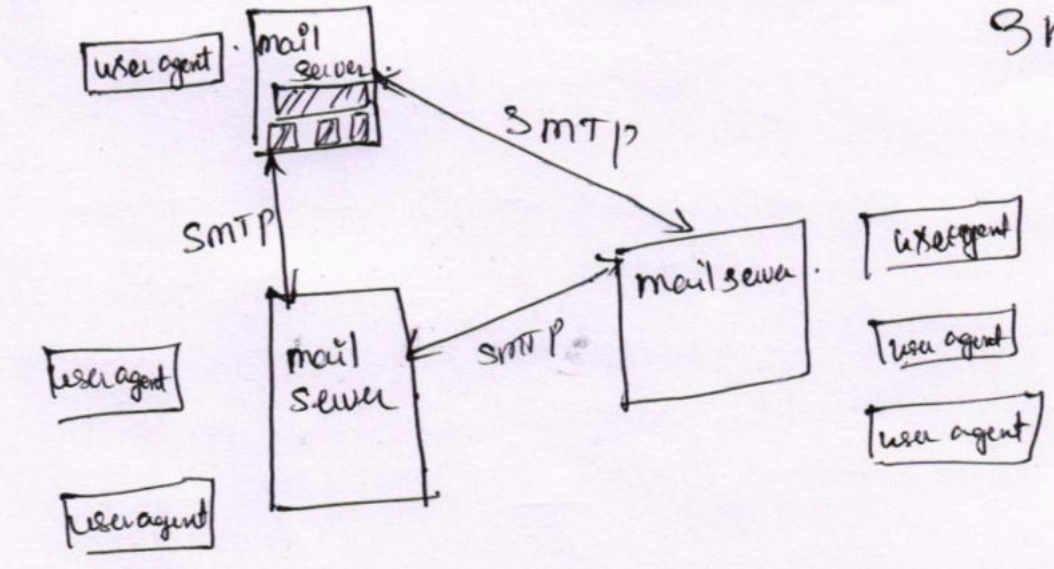
③ LIST

④ RETR

⑤ STOR filename.

3m

b)



3m

Expln of figure 3m.

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INTERNAL ASSESMENT TEST: II
SUB : Computer Networks (15CS52)
SEM : V 'A' &'B'

Date: 28/09/2017
MAX MARKS : 25
TIME : 75 min

NOTE: Q.No 1 is Compulsory. Answer any 2 questions from Q.No 2 to Q.No 4.

1.	What is a congestion control?	1M	(CO3)
2.	a. With neat diagram explain the structure of UDP segment and also explain how checksum is Calculated.	8M	(CO3)
	b.Explain the approaches of congestion control.	4M	(CO3)
3.	Explain briefly the two pipelined protocols with neat FSM diagrams.	12M	(CO4)
4.	a. Explain three major components of TCP Congestion control algorithms.	7M	(CO4)
	b.Explain the case study ATM ABR for congestion control with neat diagram .	5M	(CO4)

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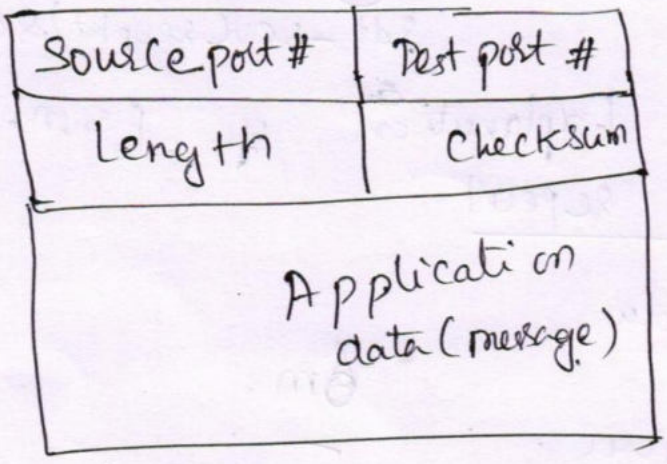
Computer Networks (15CS52)

IA - II Scheme & Evaluation

1) Congestion control is a mechanism that controls the entry of data packets into the network, enabling a better use of a shared network — 1m

2) a)



· 2m

Expln. of field of UDP segment · 3m.

Checksum.

- It is used for error-detection. 3m.
- is used to determine whether bits within segment has been altered

Calculation of checksum.

b) (1) Congestion-control approaches can be classified based on whether the N/w-layer provides an explicit assistance to the transport layer. 2m.

(2) N/w assisted congestion control · 2 m

N/w layer components provide explicit feedback to the sender regarding congestion. feedback may be a single bit indicating congestion at a link.

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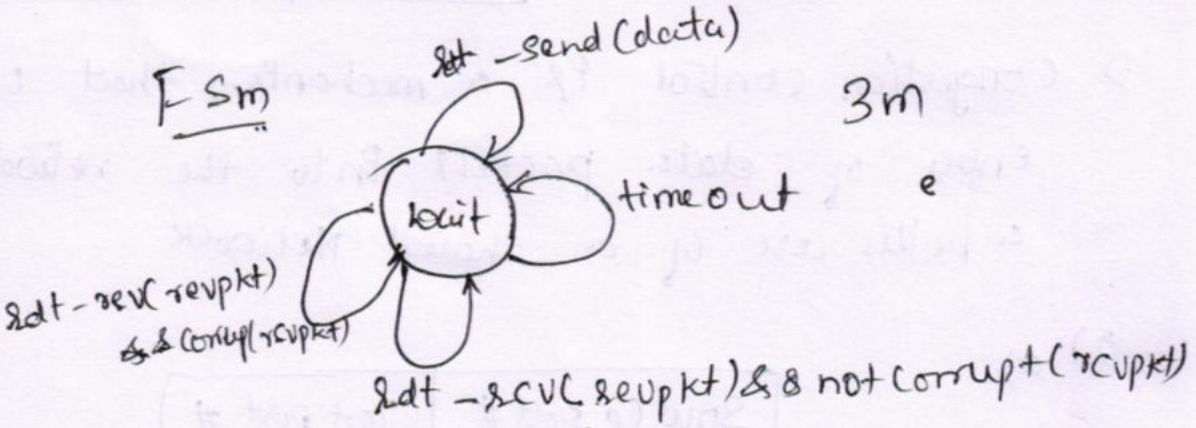
3) a) Two basic approaches are.

i) Go-Back-N. 6

FSM 3m



Explanation of FSM. 3m.

ii) Selective repeat

SR Sender

SR Reciver. 6m.

4. a) Congestion-control alg has 3 major components.

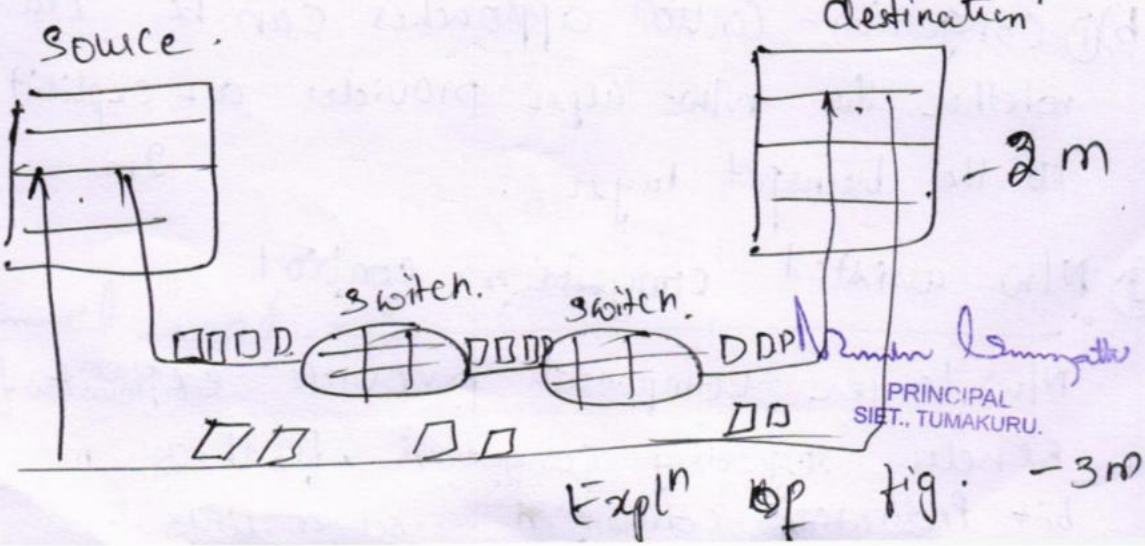
1) slow start

2) congestion avoidance 1m

3 Fast recovery

Explanation of each 3x2 = 6m

b)



-2m

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Expln of fig. -3m

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INTERNAL ASSESMENT TEST: III
SUB : Computer Networks (15CS52)
SEM : V 'A' & 'B'

Date :21/11/2017
MAX MARKS : 25
TIME : 75 min

NOTE: Q.No 1 is Compulsory. Answer any 2 questions from Q.No 2 to Q.No 4.

1.	What is Routing?	1M	(CO4)
2.	a. Explain Input processing, Switching and Output Processing.	6M	(CO4)
	b.Explain Inter AS routing algorithm BGP with neat diagram.	6M	(CO4)
3.	a. Explain Multicast routing algorithm.	6M	(CO5)
	b.Explain Broadcast routing algorithm with all the types.	6M	(CO5)
4.	a. Explain How addressing and routing to mobile nodes takes place.	7M	(CO5)
	b.Explain about managing mobility in cellular networks.	5M	(CO5)

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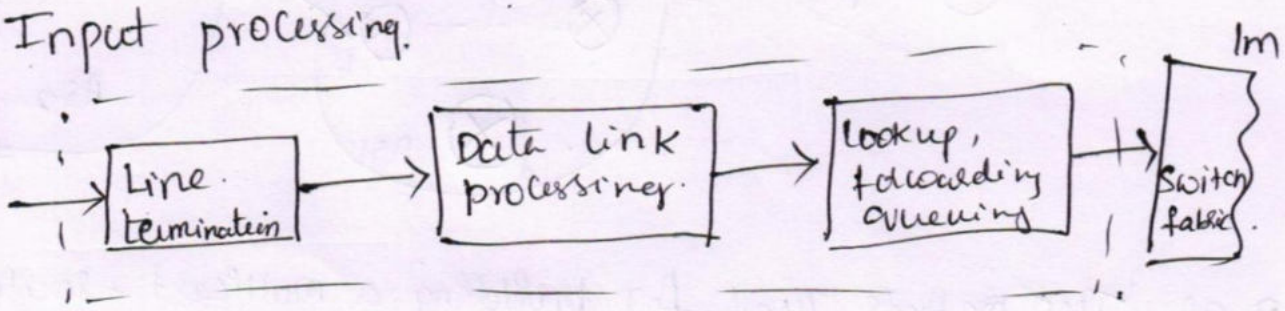
Computer Networks (15CS52)

IA - III : Scheme of Evaluation

1) Routing - means Network layer must determine the route or path taken by packets as they flow from a sender to a reciver. 1m

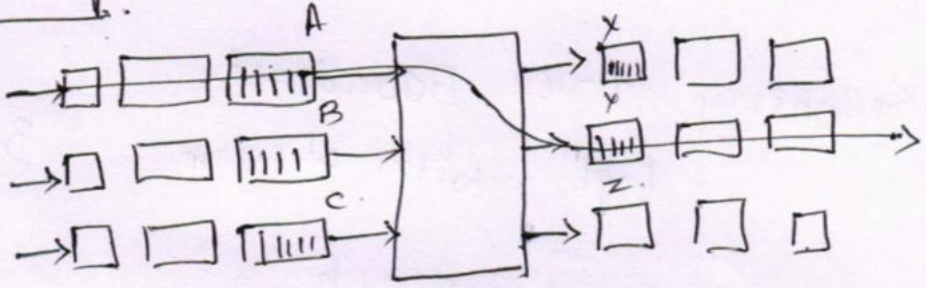
2) a) Input processing.



1m

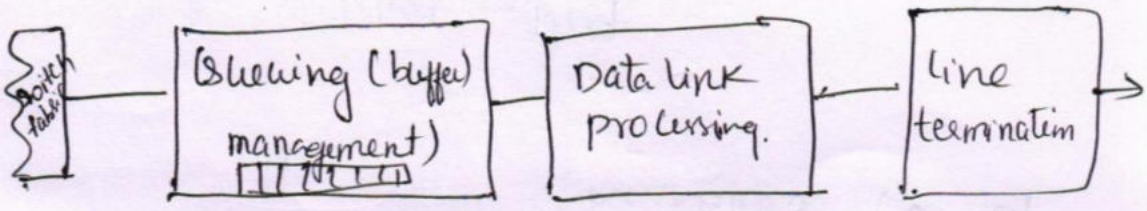
Explⁿ of figure - 1m.

Switching memory



2m.

Output processing. 2m.



b) Inter-As Routing: BGP

* BGP is widely used for Inter-AS routing on the Internet
* using BGP, each AS can
  1) Obtain Subnet reachability - information from neighboring ASs

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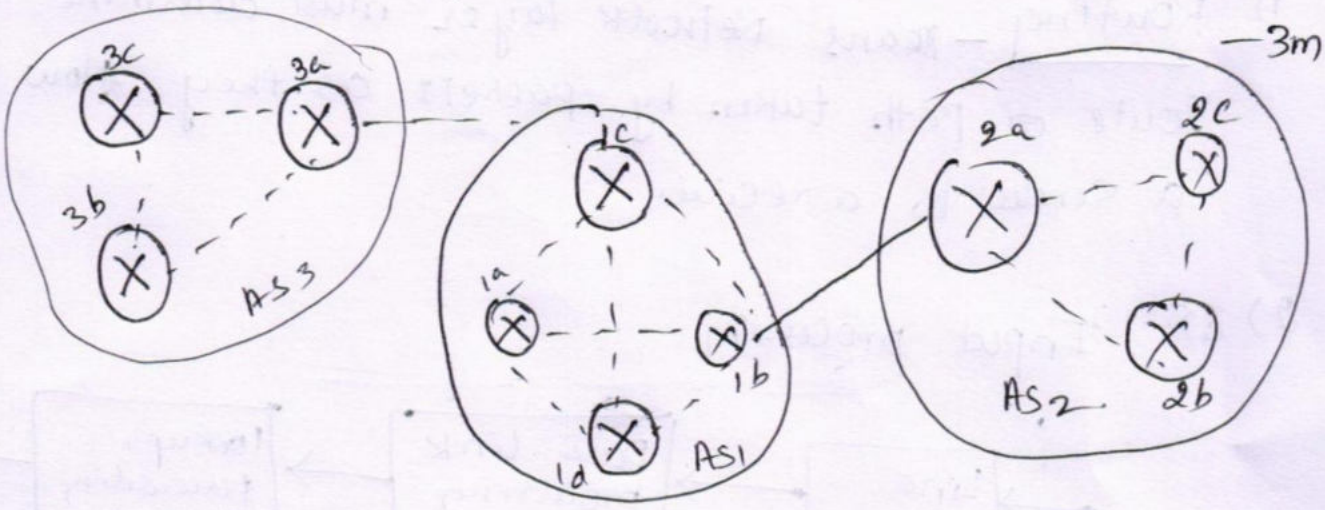
2) propagate the reachability-info to all routers internal to the AS. — 3m.

3) Determine good route to subnets based on i) reachability-info & ii) AS policy



— 3m

3 a) Two methods used for building a multicast-routing.

1) single group-shared tree — 3m

2) source-specific routing tree — 3m.

b) i) Spanning Tree Broadcast

Expln with dicgram. 3m

ii) Center Based approach.

Expln with dicgram. 3m.

4) a) Addressing 3m.

* When a mobile-node moves from one N/w to another, the mobile-node must keep its address
* Thus, user-mobility will be transparent to N/w appl^n
* When a mobile-node is in a foreign-N/w, the N/Mobile node's traffic is routed to foreign N/w

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Routing. 3m.

Two approaches are
1) Indirect routing & 2) direct routing.

Expln. with diagram.

4 b) Managing mobility in Cellular Networks

→ Two approaches for managing mobility

① Routing calls to a mobile user. 3m

Expln with Neat diagram

② Handoffs in GSM. - 3m

Expln with neat diagram

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2017-18

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INTERNAL ASSESMENT TEST: I | **year: 17-18 even**
SUB : CN&S [15CS61] | **MAX MARKS** :25
SEM : VI | **TIME** : 75 min

Note: Q No 1 compulsory. Answer any Two full Que (2 to 4)

1	a	What is Cyber Attacks?	1M	CO1
2	a	Explain Defence Strategies and Techniques?	6M	CO1
	b	Explain Guiding Principles, Mathematical Background for Cryptography?	6M	CO1
3	a	Explain - Modulo Arithmetic's, The Greatest Comma Divisor?	6M	CO1
	b	Explain Useful Algebraic Structures and Chinese Remainder Theorem?	6M	CO1
4	a	Explain Public Key Cryptography and RSA – RSA Operations?	6M	CO2
	b	Explain Public Key Cryptography Standard (PKCS)?	6M	CO2

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INTERNAL ASSESMENT TEST: I
SUB : CN&S [15CS61]
SEM : VI

year: 17-18 even
MAX MARKS :25
TIME : 75 min

Scheme and solutions

1	a	Explanation of Cyber Attacks 1M	1M	CO1
2	a	Explnation of Defence Strategies -3M and Techniques-3M	6M	CO1
	b	Explanation of Guiding Principles-3M Mathematical Background for Cryptography-3M	6M	CO1
3	a	Explanation of Modulo Arithmetic's-3M The Greatest Comma Divisor-3M	6M	CO1
	b	Explanation of Useful Algebraic Structures and Chinese Remainder Theorem-3M	6M	CO1
4	a	Explanation of Public Key Cryptography -3M and RSA – RSA Operations-3M	6M	CO2
	b	Explanation of Public Key-3M Cryptography Standard (PKCS)-3M	6M	CO2

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INTERNAL ASSESMENT TEST: II
SUB : CN&S [15CS61]
SEM : VI

year: 17-18 even
MAX MARKS :25
TIME : 75 min

Scheme and solution

1	a	Explanation of RSA- 1M	1M	CO2
2	a	Explanation of Public Key-3M Cryptography Standard (PKCS)-3M	6M	CO2
	b	Explanation of Cryptographic Hash-1M Introduction-1M Properties-1MConstruction-1M Applications-1M and Performance-1M	6M	CO2
3	a	Explanation of One way Authentication-3M Mutual Authentication-3M	6M	CO3
	b	Explanation of Security at Different layers: Pros-3M and Cons-3M	6M	CO3
4	a	Explanation of Key Management – Introduction-2M Digital Certificates-2M Public Key Infrastructure-2M	6M	CO3
	b	Explanation of Internet Key Exchange (IKE) Protocol-2M Security Policy-2M and IPSEC-2M	6M	CO3

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SUB : CN&S [15CS61] | **MAX MARKS** :25
SEM : VI | **TIME** : 75 min

Note: Q No 1 compulsory. Answer any Two full Que (2 to 4)

1	a	Why Does RSA Work?	1M	CO2
2	a	Explain Public Key Cryptography Standard (PKCS)?	6M	CO2
	b	Explain Cryptographic Hash - Introduction, Properties, Construction, Applications and Performance?	6M	CO2
3	a	Explain One way Authentication, Mutual Authentication?	6M	CO3
	b	Explain Security at Different layers: Pros and Cons?	6M	CO3
4	a	Explain Key Management - Introduction, Digital Certificates, Public Key Infrastructure?	6M	CO3
	b	Explain Internet Key Exchange (IKE) Protocol, Security Policy and IPSEC?	6M	CO3

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INTERNAL ASSESMENT TEST: III | **year: 17-18 even**
SUB : CN&S [15CS61] | **MAX MARKS** :25
SEM : VI | **TIME** : 75 min

Scheme and solution

1	a	Explanation of Wireless LAN Security-1M	1M	CO4
2	a	Explanation of Authentication-2M Confidentiality -2Mand Integrity-2M	6M	CO4
	b	Explanation of Viruses,-2MWorms-2M and Other Malware-2M	6M	CO4
3	a	Explanation - Secure electronic records-3M and secure digital signatures-3M	6M	CO5
	b	Explanation of Regulation of certifying authorities-3M?	6M	CO5
4	a	Explanation of IT act aim and objectives-3M Scope of the act-3M	6M	CO5
	b	Explanation of Major Concepts-2M Important provisions-3M Attribution, acknowledgement-3M	6M	CO5

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Note: Q No 1 compulsory. Answer any Two full Que (2 to 4)

1	a	What Wireless LAN Security?	1M	CO4
2	a	Explain Authentication, Confidentiality and Integrity?	6M	CO4
	b	Explain Viruses, Worms, and Other Malware?	6M	CO4
3	a	Explain - Secure electronic records and secure digital signatures?	6M	CO5
	b	Explain Regulation of certifying authorities?	6M	CO5
4	a	Explain IT act aim and objectives, Scope of the act?	6M	CO5
	b	Explain Major Concepts, Important provisions, Attribution, acknowledgement?	6M	CO5

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INTERNAL ASSESMENT TEST: I
SUB : OS [15CS64]
SEM : VI

year: 17-18 even
MAX MARKS :25
TIME : 75 min

Scheme and solutions

1	a	What is operating system-1M	1M	CO1
2	a	Explaination Computer System architecture-3M and Operating System structure-3M	6M	CO1
	b	Explain Memory management-3M and Storage management-3M	6M	CO1
3	a	Explaination Types of system calls-3M and also System programs-3M	6M	CO1
	b	Listing-3M and explaination Operations on processes-3M	6M	CO1
4	a	Overview of Multithreading models-3M and Threading issues-3M	6M	CO2
	b	Explain The critical section problem-3M and Peterson's solution-3M	6M	CO2

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INTERNAL ASSESMENT TEST: III
SUB : OS [15CS64]
SEM : VI

year: 17-18 even
MAX MARKS :25
TIME : 75 min

Note: Q No 1 compulsory. Answer any Two full Que (2 to 4)

1	a	Explain Virtual Memory Management.	1M	CO4
2	a	Explain Demand paging and Copy-on-write.	6M	CO4
	b	List and Explain Page replacement, Allocation of frames and Thrashing.	6M	CO4
3	a	Explain Mass storage structures and Disk structure?	6M	CO5
	b	Explain Disk scheduling and Disk management.	6M	CO5
4	a	Explain Kernel modules and Process management.	6M	CO5
	b	Explain File systems and Inter-process communication.	6M	CO5

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INTERNAL ASSESMENT TEST: I
SUB : OS [15CS64]
SEM : VI

year: 17-18 even
MAX MARKS :25
TIME : 75 min

Note: Q No 1 compulsory. Answer any Two full Que (2 to 4)

1	a	What is operating system?	1M	CO1
2	a	Explain Computer System architecture and Operating System structure.	6M	CO1
	b	Explain Memory management and Storage management?	6M	CO1
3	a	Briefly Explain Types of system calls and also System programs.	6M	CO1
	b	List and explain Operations on processes.	6M	CO1
4	a	Give the Overview of Multithreading models and Threading issues.	6M	CO2
	b	Explain The critical section problem and Peterson's solution?	6M	CO2

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INTERNAL ASSESMENT TEST: II
SUB : OS [15CS64]
SEM : VI

year: 17-18 even
MAX MARKS :25
TIME : 75 min

Schema and Solutions

1	a	Multithreading models-1M	1M	CO2
2	a	Give the Overview of Multithreading models-3M and Threading issues.-3M	6M	CO2
	b	Explaination Threading issues-6M	6M	CO2
3	a	Listing-3M and Explaination Methods for handling deadlocks-3M	6M	CO3
	b	Explaination Deadlock prevention-3M and Deadlock avoidance-3M	6M	CO3
4	a	Explaination Deadlock detection-3M and recovery from deadlock-3M	6M	CO3
	b	Listing-3M and Explaination Swapping, Contiguous memory allocation and Paging-3M	6M	CO3

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INTERNAL ASSESMENT TEST: III | **year: 17-18 even**
SUB : OS [15CS64] | **MAX MARKS** :25
SEM : VI | **TIME** : 75 min

Scheme and Solution

1	a	Explaination Virtual Memory Management-1M	1M	CO4
2	a	Explaination Demand paging-3M and Copy-on-write-3M	6M	CO4
	b	Listing-3M and Explaination Page replacement, Allocation of frames and Thrashing-3M	6M	CO4
3	a	Explaination Mass storage structures-3M and Disk structure-3M	6M	CO5
	b	Explaination Disk scheduling-3M and Disk management-3M	6M	CO5
4	a	Explaination Kernel modules-3M and Process management-3M	6M	CO5
	b	Explain File systems and Inter-process communication-3M fig-3M	6M	CO5

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INTERNAL ASSESMENT TEST: II | **Year: 17-18 Odd**
SUB: AUTOMATA THEORY AND COMPUTABILITY [15CS54] | **MAX MARKS** :25
SEM : V | **TIME** : 75 min

Scheme and Solutions

1		Construct FSM for ab. **-1M**	1M	CO2
2	a	Define Regular expression. Obtain a regular expression for the following languages: (i) L={w : |w| is even } **-2M** (ii) L={w : in w the 5th character from right is a and either character is b} **-2M** (iii) L={w : w contains both aa and aba as sub string} **-2M**	6M	CO2
	b	Construct FSM for the following RE. (i) (b + (ab))* **-2M** (ii) (babb* + a)* **-2M** (iii) (b + ϵ) (ab)* (a + ϵ) **-2M**	6M	CO2
		OR		
3	a	What is CNF? Obtain the following grammar in CNF S ⟶ ASB|ε **-2M** A ⟶ aAS|a **-2M** B ⟶ SbS| A | bb **-2M**	6M	CO3
	b	Let G be the grammer, S ⟶ aB|bA A ⟶ a| aS| bAA B ⟶ b| bS| aBB For the string aaabbabbba find a (i) Left most derivation **-2M** (ii) Right most derivation **-2M** (iii) Parse tree **-2M**	6M	CO3
		OR		
4	a	Convert the following CFG to PDA S ⟶ aABB|aAA **-2M** A ⟶ aBB| a **-2M** B ⟶ bBB| A **-1M** C ⟶ a **-1M**	6M	CO3
	b	Explain the following terms: (i) Pushdown Automata(PDA) **-2M** (ii) Languages of a PDA **-2M** (iii) Instantaneous description of PDA. **-2M**	6M	CO3

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INTERNAL ASSESMENT TEST: III | **Year: 17-18 Odd**
SUB: AUTOMATA THEORY AND COMPUTABILITY [15CS54] | **MAX MARKS** :25
SEM : V | **TIME** : 75 min

Scheme and Solutions

1		Explain Turing Machine. **-1M**	**1M**	**CO4**
2	a	State and prove pumping Lemma for context free languages. **-6M**	**6M**	**CO4**
	b	Design a TM to accept the following language L={0n 1n 2n | n >= 1 }**-6M**	**6M**	**CO4**
		OR		
3	a	Write short notes on: (i) Multi-tape turing machine **-3M** (ii) Linear Bounded automata **-3M**	**6M**	**CO5**
	b	Write short notes on: (i) Undecidable languages **-3M** (ii) Halting problem of turing machines **-3M**	**6M**	**CO5**
		OR		
4	a	Prove that every Language accepted by a multitape TM is accepted by standard TM with single tape. **-6M**	**6M**	**CO5**
	b	Write notes on: (i) Recursive Language **-3M** (ii) Post Correspondence Problem **-3M**	**6M**	**CO5**

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INTERNAL ASSESMENT TEST: III | **Year: 17-18 Odd**
SUB: AUTOMATA THEORY AND COMPUTABILITY [15CS54] | **MAX MARKS** :25
SEM : V | **TIME** : 75 min

Note: Compulsory Question

1		Explain Turing Machine.	**1M**	**CO4**

Note: Answer Any Two full Questions

2	**a**	State and prove pumping Lemma for context free languages.	**6M**	**CO4**
	b	Design a TM to accept the following language L={0n 1n 2n | n >= 1 }	**6M**	**CO4**
		OR		
3	**a**	Write short notes on: (i) Multi-tape turing machine (ii) Linear Bounded automata	**6M**	**CO5**
	b	Write short notes on: (i) Undecidable languages (ii) Halting problem of turing machines	**6M**	**CO5**
		OR		
4	**a**	Prove that every Language accepted by a multitape TM is accepted by standard TM with single tape.	**6M**	**CO5**
	b	Write notes on: (i) Recursive Language (ii) Post Correspondence Problem	**6M**	**CO5**

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INTERNAL ASSESMENT TEST: II | **year: 17-18 ODD**
SUB : ACA [10CS74] | **MAX MARKS** :25
SEM : VII | **TIME** : 75 min

Note: Q No 1 compulsory. Answer any Two full Que (2 to 4)

1	a	Define ARITHMETIC OPERATIONS?	1M	CO2
2	a	Illustrate Full Adder, Binary adder, Subtraction, Binary subtractor.	6M	CO2
	b	Explain represent the fractional binary numbers?	6M	CO2
3	a	Briefly Explain PROCESSOR AND CONTROL UNIT.	6M	CO3
	b	List and explain Basic MIPS implementation, BUILDING A DATA-PATH.	6M	CO3
4	a	Give the designing characters of parallelism, microscopic vs macroscopic.	6M	CO4
	b	Explain symmetric vs asymmetric, rain grain vs coarse grain?	6M	CO4

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INTERNAL ASSESMENT TEST: III
SUB : ACA [10CS74]
SEM : VII

year: 17-18 ODD
MAX MARKS :25
TIME : 75 min

Note: Q No 1 compulsory. Answer any Two full Que (2 to 4)

1	a	Define Parallelism?	1M	CO4
2	a	Illustrate characters of parallelism, microscopic vs macroscopic.	6M	CO4
	b	Explain introduction of level parallelism, ex-plotting the parallelism in pipeline?	6M	CO4
3	a	Briefly Explain Accessing Main Memory, Disk Storage.	6M	CO5
	b	List and explain Move Flexible Placement of Blocks.	6M	CO5
4	a	Give the Choosing Which Block to Replace, VIRTUAL MEMORY, TLBS – INPUT/OUTPUT SYSTEM.	6M	CO5
	b	Explain Peripherals and the System Bus?	6M	CO5

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INTERNAL ASSESMENT TEST: II
SUB : ACA [10CS74]
SEM : VII

year: 17-18 ODD
MAX MARKS :25
TIME : 75 min

SCHEME AND SOLUTION

1	a	Define ARITHMETIC OPERATIONS-1M	1M	CO2
2	a	Illustrate Full Adder, Binary adder,-3M Subtraction, Binary subtractor-3M	6M	CO2
	b	Explain represent-3M the fractional binary numbers-3M	6M	CO2
3	a	Briefly Explain PROCESSOR -3M AND CONTROL UNIT-3M.	6M	CO3
	b	List and explain Basic MIPS implementation-3M BUILDING A DATA-PATH-3M	6M	CO3
4	a	Give the designing characters of parallelism-3M microscopic vs macroscopic-3M.	6M	CO4
	b	Explain symmetric vs asymmetric-3M rain grain vs coarse grain-3M	6M	CO4

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INTERNAL ASSESMENT TEST: III **year: 17-18 ODD**
SUB : ACA [10CS74] **MAX MARKS** :25
SEM : VII **TIME** : 75 min

SCGHEME AND SOLUTION

1	a	Define Parallelism-1M	1M	CO4
2	a	Illustrate characters of parallelism-3M microscopic vs macroscopic-3M	6M	CO4
	b	Explain introduction of level parallelism-3M, ex-plotting the parallelism in pipeline-3M	6M	CO4
3	a	Briefly Explain Accessing Main Memory-3M Disk Storage-3M	6M	CO5
	b	List-3M and explain Move Flexible Placement of Blocks-3M	6M	CO5
4	a	Give the Choosing Which Block to Replace-2M VIRTUAL MEMORY-2M TLBS – INPUT/OUTPUT SYSTEM-2M	6M	CO5
	b	Explain Peripherals -3M and the System Bus-3M	6M	CO5

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INTERNAL ASSESMENT TEST: I | **year: 17-18 ODD**
SUB : ACA [10CS74] | **MAX MARKS :25**
SEM : VII | **TIME** : 75 min

Note: Q No 1 compulsory. Answer any Two full Que (2 to 4)

1	a	Define Computer Architecture?	1M	CO1
2	a	Illustrate Binary Adder, Binary multiplier.	6M	CO1
	b	Explain Need for using arithmetic circuits in designing combinational circuits?	6M	CO1
3	a	Briefly Explain Multiplication Basics, Speedup techniques.	6M	CO1
	b	List and explain To represent the fractional binary numbers.	6M	CO1
4	a	Give the designing the main control unit, finalizing control.	6M	CO2
	b	Explain fetch instruction from memory, BUILDING A DATA-PATH?	6M	CO2

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INTERNAL ASSESMENT TEST: I | **year: 17-18 ODD**
SUB : ACA [10CS74] | **MAX MARKS** :25
SEM : VII | **TIME** : 75 min

SCHEME AND SOLUTION

1	a	Define Computer Architecture-1M	1M	CO1
2	a	Illustrate Binary Adder-3M Binary multiplier-3M	6M	CO1
	b	Explain Need for using arithmetic circuits-3M in designing combinational circuits-3M	6M	CO1
3	a	Briefly Explain Multiplication Basics-3M Speedup techniques-3M	6M	CO1
	b	List-3M and explain To represent the fractional binary numbers-3M	6M	CO1
4	a	Give the designing the main control unit-3M, finalizing control-3M	6M	CO2
	b	Explain fetch instruction from memory-3M BUILDING A DATA-PATH-3M	6M	CO2

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INTERNAL ASSESMENT TEST: II **year: 17-18 odd**
SUB : .NET [10CS761] **MAX MARKS** :25
SEM : VII **TIME** : 75 min

Note: Q No 1 compulsory. Answer any Two full Que (2 to 4)

1	a	Explain The Role of the Command Line Complier?	1M	CO2
2	a	Explain Generating Bug Reports, Remaining g C# Complier Options?	6M	CO2
	b	Explain C# Preprocessor and Directives?	6M	CO2
3	a	Explain The Anatomy of Basic C# Class and Creating objects?	6M	CO3
	b	Explain The System Data Types (and C# Aliases), Converting Between Value Types and Reference?	6M	CO3
4	a	Explain The Complete Set of C# Operators and Defining Custom Class Methods?	6M	CO3
	b	Explain Array Manipulation in C# and String Manipulation in C#?	6M	CO3

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INTERNAL ASSESMENT TEST: II
SUB : .NET [10CS761]
SEM : VII

year: 17-18 odd
MAX MARKS :25
TIME : 75 min

Scheme and solution

1	a	Explain The Role of the Command Line Complier-7M fig-3M?	1M	CO2
2	a	Explain Generating Bug Reports-6M and Remaining g C# Complier Options-4M?	6M	CO2
	b	Explain C# Preprocessor-5M and Directives-5M?	6M	CO2
3	a	Explain The Anatomy of Basic C# Class-6M and Creating objects-4M?	6M	CO3
	b	Explain The System Data Types (and C# Aliases), Converting Between Value Types-6M and Reference-4M?	6M	CO3
4	a	Explain The Complete Set of C# Operators-5M and Defining Custom Class Methods-5M?	6M	CO3
	b	Explain Array Manipulation in C#-6M and String Manipulation in C#-4M?	6M	CO3

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INTERNAL ASSESMENT TEST: III | **year: 17-18 ODD**
SUB : .NET [10CS761] | **MAX MARKS** :25
SEM : VII | **TIME** : 75 min

Note: Q No 1 compulsory. Answer any Two full Que (2 to 4)

1	a	How you will Defining of the C# Class-1M	1M	CO4
2	a	Define the "Default Public Interface" of a Type,-1M and Recapping the Pillars of OOP-3M	6M	CO4
	b	Explain C#'s Inheritance Supports-4M and keeping Family Secrets: The " Protected" Keyword, Nested Type Definitions-2M	6M	CO4
3	a	Explain the Ode to Errors-4M Bugs, and Exceptions-2M	6M	CO5
	b	The Role of .NET Exception Handing-6M	6M	CO5
4	a	Explain The Basics of Garbage Collection-4M Finalization a Type, The Finalization Process-2M	6M	CO5
	b	How to Handle Multiple Exception, The Family Block-6M	6M	CO5

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INTERNAL ASSESMENT TEST: III | **year: 17-18 ODD**
SUB : .NET [10CS761] | **MAX MARKS** :25
SEM : VII | **TIME** : 75 min

Note: Q No 1 compulsory. Answer any Two full Que (2 to 4)

1	a	How you will Defining of the C# Class.	1M	CO4
2	a	Define the "Default Public Interface" of a Type, Recapping the Pillars of OOP.	6M	CO4
	b	Explain C#'s Inheritance Supports, keeping Family Secrets: The " Protected" Keyword, Nested Type Definitions.	6M	CO4
3	a	Explain the Ode to Errors, Bugs, and Exceptions.	6M	CO5
	b	The Role of .NET Exception Handing.	6M	CO5
4	a	Explain The Basics of Garbage Collection,, Finalization a Type, The Finalization Process.	6M	CO5
	b	How to Handle Multiple Exception, The Family Block.	6M	CO5

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INTERNAL ASSESMENT TEST: I | **year: 17-18 ODD**
SUB : .NET [10CS761] | **MAX MARKS** :25
SEM : VII | **TIME** : 75 min

Scheme and Solution

1	a	What is the Philosophy of .NET-1M	1M	CO1
2	a	The Building Block of the .NET Platform-4M fig-2M	6M	CO1
	b	Explaination The Role of the .NET Base Class Libraries-3M fig-3M	6M	CO1
3	a	Explaination The Role of .NET Type Metadata-3M and The Role of the assembly Manifast-3M	6M	CO1
	b	Increasing Your Namespace Nomenclature-3M Deploying the .NET Runtime-3M	6M	CO1
4	a	Explain The Role of the Command Line Complier (csc.exe)-6M	6M	CO2
	b	Build a C# Application using csc.exe Working with csc.exe Response Files-6M	6M	CO2

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INTERNAL ASSESMENT TEST: I | **year: 17-18 ODD**
SUB : .NET [10CS761] | **MAX MARKS** :25
SEM : VII | **TIME** : 75 min

Note: Q No 1 compulsory. Answer any Two full Que (2 to 4)

1	a	What is the Philosophy of .NET?	1M	CO1
2	a	The Building Block of the .NET Platform	6M	CO1
	b	Explain The Role of the .NET Base Class Libraries.	6M	CO1
3	a	Explain The Role of .NET Type Metadata and The Role of the assembly Manifast?	6M	CO1
	b	How to Increasing Your Namespace Nomenclature, Deploying the .NET Runtime.	6M	CO1
4	a	Explain The Role of the Command Line Complier (csc.exe).	6M	CO2
	b	Build a C# Application using csc.exe Working with csc.exe Response Files	6M	CO2

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INTERNAL ASSESMENT TEST: I | **Year: 17-18 Odd**
SUB: OOMD [15CS551] | **MAX MARKS** :25
SEM : V | **TIME** : 75 min

Note: Compulsory Question

1		Define model.	1M	CO1

Note: Answer Any Two full Questions

2	a	What is OO development? What are OO themes explain?	6M	CO1
	b	Explain multiplicity with class model.	6M	CO1
		OR		
3	a	Explain generalization and inheritance with example.	6M	CO1
	b	Write a class model of windowing system.	6M	CO1
		OR		
4	a	Define state chart. Explain simple state chart for a printer.	6M	CO2
	b	Define use case and actor. Explain use case diagram for order process and scenarios.	6M	CO2

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INTERNAL ASSESMENT TEST: I **Year: 17-18 Odd**
SUB: OOMD [15CS551] **MAX MARKS** :25
SEM : V **TIME** : 75 min

Scheme and Solutions

1		Define model. **-1M**	1M	CO1
2	a	What is OO development? **-3M** What are OO themes explain? **-3M**	6M	CO1
	b	Explain multiplicity with class model. **-6M**	6M	CO1
		OR		
3	a	Explain generalization **-3M** and inheritance with example. **-3M**	6M	CO1
	b	Write a class model of windowing system. **-6M**	6M	CO1
		OR		
4	a	Define state chart. **-2M** Explain simple state chart for a printer. **-4M**	6M	CO2
	b	Define use case and actor. **-2M** Explain use case diagram for order process and scenarios. **-4M**	6M	CO2

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INTERNAL ASSESMENT TEST: II
SUB: OOMD [15CS551]
SEM : V

Year: 17-18 Odd
MAX MARKS :25
TIME : 75 min

Note: Compulsory Question

1		Define the System Sequence Diagram (SSD).	1M	CO2

Note: Answer Any Two full Questions

2	a	Write simplified activity diagram of the telephone order scenario.	6M	CO2
	b	Explain nested states and concurrency.	6M	CO2
		OR		
3	a	Define process overview and explain software development process.	6M	CO3
	b	Describe data dictionaries for an ATM.	6M	CO3
		OR		
4	a	Describe the states for domain class model of an ATM system.	6M	CO3
	b	Explain system conception and elaborate with ATM example.	6M	CO3

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TUMKUR-572106
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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INTERNAL ASSESMENT TEST: II | **Year: 17-18 Odd**
SUB: AUTOMATA THEORY AND COMPUTABILITY [15CS551] | **MAX MARKS** :25
SEM : V | **TIME** : 75 min

Scheme and Solutions

1		Define the System Sequence Diagram (SSD). **-1M**	**1M**	**CO2**
2	**a**	Write simplified activity diagram of the telephone order scenario. **-6M**	**6M**	**CO2**
	b	Explain nested states **-3M** and concurrency. **-3M**	**6M**	**CO2**
		OR		
3	**a**	Define process overview **-3M** and explain software development process. **-3M**	**6M**	**CO3**
	b	Describe data dictionaries for an ATM. **-6M**	**6M**	**CO3**
		OR		
4	**a**	Describe the states for domain class model of an ATM system. **-6M**	**6M**	**CO3**
	b	Explain system conception and elaborate with ATM example. **-6M**	**6M**	**CO3**

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INTERNAL ASSESMENT TEST: III | **Year: 17-18 Odd**
SUB: OOMD [15CS551] | **MAX MARKS** :25
SEM : V | **TIME** : 75 min

Note: Compulsory Question

1		Describe class notation.	1M	CO4

Note: Answer Any Two full Questions

2	a	Describe Fundamental design principles.	6M	CO4
	b	Explain developing the first-cut RMO design class diagram for order item.	6M	CO4
		OR		
3	a	What is design pattern? Describe design Patterns.	6M	CO5
	b	How design patterns solve design problems? Explain.	6M	CO5
		OR		
4	a	Write a note on Prototype and singleton.	6M	CO5
	b	Write a note on Adaptor and proxy.	6M	CO5

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INTERNAL ASSESMENT TEST: III | **Year: 17-18 Odd**
SUB: OOMD [15CS551] | **MAX MARKS** :25
SEM : V | **TIME** : 75 min

Scheme and Solutions

1		Describe class notation. **-1M**	1M	CO4
2	a	Describe Fundamental design principles. **-6M**	6M	CO4
	b	Explain developing the first-cut RMO design class diagram for order item. **-6M**	6M	CO4
		OR		
3	a	What is design pattern? **-2M** Describe design Patterns. **-4M**	6M	CO5
	b	How design patterns solve design problems? **-2M** Explain. **-4M**	6M	CO5
		OR		
4	a	Write a note on Prototype **-3M** and singleton. **-3M**	6M	CO5
	b	Write a note on Adaptor **-3M** and proxy. **-3M**	6M	CO5

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2017-18

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INTERNAL ASSESMENT TEST: I

COURSE: JAVA and J2EE-10CS753
SEM: VII

MAX MARKS: 25
TIME: 90 min
DATE: 20/09/17

NOTE: First question is compulsory and Answer any **TWO** full questions from remaining.

1. Define Constructor. **1M**
2. a. List java buzzwords. How java is robust and architecture neutral? **4M**
   b. Define variable? Explain with example scope and Lifetime of a variable. **6M**
   c. Differentiate between for and for-each? **2M**
3. a. Explain the two uses of 'final' keyword. **4M**
   b. Explain two uses of 'super' with example program for each. **6M**
   c. Briefly explain JVM **2M**
4. a. What is exception? Explain with an example program the multiple catch clauses. **4M**
   b. Write differences between throw and throws with syntax and write a java program to illustrate throw. **6M**
   c. Bring the differences between overloading and overriding. **2M**

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Internal Assesment Test : 1

20/09/17

Course : Java & J2EE Scheme of Evaluation

Code : 10CS753

1) Constructor is a block of codes similar to the method. It is called when an instance of the class is created. → 1M.

→ 1M.

2) a) List java buzzwords

1) simple 2) secure 3) portable

4) object-oriented 5) Robust 6) Arch.-neutral or platform independent

7) multithreaded 8) Interpreted

Write points about how java is robust & arch. neutral → 3M.

b) Variable defn → variables are containers for storing data values → 1M.

Explanation of scope of variable & Lifetime of a variable with example → 5M

c) List any two diff. blw for & for-each → 2M.

1) for loop var. always int only 1) for-each loop var. same as type of values under array.

2) for loops faster 2) slower.

→ 2×2 = 4M.

3) a) Two uses of 'final' keyword.

1) stop inheritance.

2) stop method overriding

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b) Two uses of super

1) super can be used to refer immediate Parent class instance var. → 2M

2) super can be used to invoke immediate parent class method. → 4M.

Example program for each → 2M.

c) JVM → Java Virtual M/C → byte code

4. a) exception

it is an unwanted or unexpected event which occurs during the execution of a program → 1M.

example program to illustrate Multiple catch clause → 3M.

b) Diff. b/w throw & throws → 3M

Example program to illustrate throw → 3M } 6M.

c) overloading & overriding diff any two → 2M.

1) It occurs with in the same class

2) Inheritance is not invoked

1) It occurs b/w two classes.

2) Inheritance is involved.

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INTERNAL ASSESMENT TEST: II

COURSE: JAVA and J2EE-10CS753
SEM: VII

MAX MARKS: 25
TIME: 90 min
DATE: 27/10/17

NOTE: First question is compulsory and Answer any **TWO** full questions from remaining.

1. Define Status Window. **1M**
2. a. Define applet? Explain briefly repaint() by illustrating a simple banner applet program. **6M**
   b. Define Swing? Write a program to illustrate a simple swing based applet. **6M**
3. a. Briefly explain swing buttons and write a program to create JRadiobuttons. **6M**
   b. Explain briefly JTabbedpane with an example program. **6M**
4. a. Explain steps to create JTree and write a program to create JTree. **6M**
   b. Define Servlet? Explain briefly with a program to build and test a simple servlet. **6M**

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Internal Assessment Test - II

Sub: Java & J2EE

: 10CS753

Scheme of Valuation

1. Status window is the area at which it display text. → 1M.

2. a) Applet is a small, portable Java prog. Embedded in HTML pages. which run on the browser → 1M.

Explanation of repaint() method by illustrating a simple banner applet prog. → 5M.

b) Swing defn → is the collection of use interface components for java programs → 1M.

program to illustrate Swing based applet → 5M,

3. a) Swing button is a component in java that is usually used to register some action from a use → 1M.

program to create J radio buttons → 5M.

b) Jtabbed Pane explanation → 2M.

program to illustrate → 4M.

4 a) Steps to create Jtree.

Root → Directory → sub dir → nodes → 2M

program to create Jtree → 4M

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b) Servlet is a java prog. lang class that used to extend capabilities of servers that host application accessed by means of a req-resp. prog model. → 2M

Prog. to build & test servlet → 4M.

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INTERNAL ASSESMENT TEST: III

COURSE: JAVA and J2EE-10CS753
SEM: VII

MAX MARKS: 25
TIME: 90 min
DATE: 20/11/17

NOTE: First question is compulsory and Answer any **TWO** full questions from remaining.

1.	What is cookies?	**1M**
2.	a. Write a program to handling HTTP Post request.	**6M**
	b. List out method defined by cookies. Write a program to add a cookie.	**6M**
3.	a. What is JSP? Explain different types of JSP Tags.	**6M**
	b. What is RMI? Describe code snippet RMI at server side.	**6M**
4.	a. Describe the various steps of JDBC process with code snippet.	**6M**
	b. Briefly explain different types of statement object give example.	**6M**

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Internal Assesment Test - III

Sub: Java & J2EE

Code: 10CS753

Scheme of Evaluation

1. Cookies is a small piece of data stored on the client-side which servers use when communicating with clients. → 1M.

2. a) Program to handle HTTP post request → 6M

b) Method defined by cookies.

1) Public string getValue()
2) -"- void setName(String name) etc. → 2M.

Program to add a cookie → 4M.

3. a) Java Server Pages (JSP) is a technology for developing webpages that support dynamic content → 1M.

Types of JSP tags.

1) Directive
2) Declaration
3) Scriptlet
4) Expression
5) Action
6) comment

→ 5M.

Explanation of any above 5 tags.

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b) RMI (Remote method invocation) is an API that provides a mechanism to create distributed appln in Java → 1M.

code snipped RMI at saver side → 5M

4 a) various STEPS of JDBC procss → 2M
with code snippet → 4M.

b) Different types of statement object → 2M
example with explanation → 4M.

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INTERNAL ASSESMENT TEST: I

COURSE: Cloud Computing-15CS565
SEM: V

MAX MARKS: 25
TIME: 90 min
DATE: 20/09/17

NOTE: First question is compulsory and Answer any **TWO** full questions from remaining.

1. Define Cloud computing. **1M**
2. a. Explain cloud computing reference model? **4M**
   b. What are the major distributed computing technology that led to cloud computing. **6M**
   c. Explain 2 advantages of cloud computing? **2M**
3. a. Explain with a neat diagram a bird eye view of cloud computing. **4M**
   b. Discuss classification on taxonomy for virtualization at different levels with a neat diagram. **6M**
   c. Explain programming level virtualization. **2M**
4. a. What is Xen ? Discuss its benefits of virtualization. **4M**
   b. List and explain hardware virtualization techniques. **6M**
   c. What are 2 cons of virtualization? **2M**

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Cloud computing — IA Test - 1

Scheme of Evaluation — 20/9/17

1. a) Cloud computing is the on-demand availability of computer system resources, especially data storage & computing power → 1M.

2. a) Cloud computing reference Model. Diagram → 2M.
Explanation of PaaS, IaaS, SaaS, Web 2.0 → 3M } 5M.

b) Major distributed computing tech explanation → 6M.
Mainframes, clusters, Grids. etc

c) List any 2 advantages of cloud computing → 2M.

3. a) Bird eye view of cloud computing → 1M
Explanation of the above → 3M

b) Classification on taxonomy for virtualization at diff. levels with neat diagram. → 2M. } 6M.
Explanation of the virtualization → 4M

c) Programming level virtualization → 2M

4 a) Xen defn → 1M.

benefits of virtualization → 3M.

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b) List h/w virtualization tech → 1M.
Explanation → 3M } 4M.

c) 2 cons of virtualization (Any2) → 2M.

1) Performance degradation
2) Inefficiency & degraded user Exp.
3) Security holes & new threats

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INTERNAL ASSESMENT TEST: II

COURSE: Cloud Computing -15CS565 **MAX MARKS**: 25
SEM: V **TIME**: 90 min
DATE: 27/10/17

NOTE: First question is compulsory and Answer any **TWO** full questions from remaining.

1. Define Data-Intensive Computing. **1M**
2. a. Explain with neat diagram which are basic components of an IaaS-reference model? **6M**
   b. With a neat diagram briefly explain hybrid and community clouds. **6M**
3. a. With a neat diagram explain briefly Aneka Framework and services it provides. **6M**
   b. Explain briefly (a) Accounting, Billing and Resource Pricing
   (b) Resource Reservation. **6M**
4. a. What are the characteristics and new challenges of data grids? Explain with example data grids applied areas. **6M**
   b. Explain briefly with a neat diagram Service Life Cycle Model. **6M**

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INTERNAL ASSESMENT TEST: II

COURSE: Cloud Computing -15CS565 **MAX MARKS**: 25
SEM: V **TIME**: 90 min
DATE: 27/10/17

NOTE: First question is compulsory and Answer any **TWO** full questions from remaining.

1. Define Data-Intensive Computing. **1M**
2. a. Explain with neat diagram which are basic components of an IaaS-reference model? **6M**
   b. With a neat diagram briefly explain hybrid and community clouds. **6M**
3. a. With a neat diagram explain briefly Aneka Framework and services it provides. **6M**
   b. Explain briefly (a) Accounting, Billing and Resource Pricing
   (b) Resource Reservation. **6M**
4. a. What are the characteristics and new challenges of data grids? Explain with example data grids applied areas. **6M**
   b. Explain briefly with a neat diagram Service Life Cycle Model. **6M**

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Cloud computing 15CS565

Scheme of Solution IA Test-2

1 a) Data-intensive computing

it is class of parallel computing applications which use a data parallel approach to process large volumes of data typically terabytes of petabytes in size.

↳ 1M.

2. a) Diagram of basic components of an IaaS-ref. → 2M.

model

Explanation of each → 4M.

b) Neat Diagram of hybrid Cloud & Expln → 3M
— " — Community Cloud & Expln → 3M } 6M.

3. a) Neat Diagram of Aneka Framework → 2M.

Service it provides with Explanation → 4M.

b) Accounting, Billing & Resource pricing Expln → 3M.

Resource reservation → 3M.

4. a) char. of data grids → 2M

challenges of — " — → 2M.

Examples of data grids → 2M.

b) Neat diagram of SLC → 2M

Explanation of each component → 4M } 6M

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INTERNAL ASSESMENT TEST: III

COURSE: Cloud Computing -15CS565 **MAX MARKS:** 25
SEM: V **TIME:** 90 min
DATE: 20/11/17

NOTE: First question is compulsory and Answer any **TWO** full questions from remaining.

1. Define GFS. **1M**
2. a. Briefly explain Google MapReduce Infrastructure with a neat diagram. **6M**
   b. List some of the variations and extensions of map reduce. **6M**
3. a. With a neat diagram briefly explain Aneka MapReduce Infrastructure. **6M**
   b. With a neat diagram explain Google AppEngine Platform Architecture. **6M**
4. a. With a neat diagram explain briefly online health monitoring ECG analysis in the cloud. **6M**
   b. Briefly explain
      a) DropBox & iCloud
      b) Animato reference Architecture. **6M**

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Internal Asses. Test : III

Cloud Computing - 15CS565

1. a) GFS is a scalable distr. file system (DFS) created by Google Inc. & developed to accommodate Google's expanding data procuring reqs. → 1M.

2. a) Google Map reduce Infrastructure → 2M.
Explanation of the each → 4M.

b) List the variations & Extensions of mapreduce → 2M
Explanation of each. → 4M.

3. a) Diagram of Aneka MapReduce Infrastructure → 2M.
Explanation of the components → 4M.

b) Neat Diagram of Google AppEngine platform Arch → 2M.
Explanation of the components → 4M.

4 a) Neat Diagram of online health monitoring ECG analysis in the cloud → 2M.
Explanation → 4M.

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b) Explanation of

1) DropBox & icloud → 3M. } 6M.

b) Animato ref. Arch → 3M }

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INTERNAL ASSESMENT TEST: I

SUB : Python Application Programming-15CS664
SEM : VI Sem A & B Section

MAX MARKS : 30
TIME : 75 min
DATE: 12/03/18

NOTE : Answer any **TWO** full questions.

1. a) List and explain Python features. **5M**
   b) Define Python Identifiers? Explain naming conventions for python identifiers with example. **5M**
   c) Write a program that uses input to prompt a user for enter their name then welcomes them. **5M**

OR

2. a) Write a program to prompt for a score between 0.0 and 1.0. If the score is out of range, print an error message. If the score is between 0.0 and 1.0, print a grade using the following table:

Score	Grade
>= 0.9	A
>= 0.8	B
>= 0.7	C
>= 0.6	D
< 0.6	F

5M

   b) Briefly explain in python with syntax flowchart and example.
      a) nested-if statement
      b) if-else statement **5M**
   c.) Explain with example Catching Exception in python using try and except. **5M**

3. a) List and explain with example program four types of Formal Arguments to the function call. **5M**
   b) Explain briefly with example Stack Diagram in python. **5M**
   c) Define Iteration? Explain with syntax, flowchart and example program to illustrate while loop statement. **5M**

OR

4.a) Briefly explain with an example loop control statements in python. **5M**
   b) Write a program to find largest and smallest value in a list or sequence. **5M**
   c) Width=17,Height=12.0. Check the following with python interpreter.
      a)width//2 = 8
      b)width//2.0 = 8.0
      c)height/3 = 4.0
      d)1+2*3 = 7 **5M**

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Python Application Programming - 15CS664

First Internal Scheme of Evaluation

(1) a) List of features → 1 M.

① Easy-to-learn ② Easy-to-read ③ A broad std. library
④ Interactive Mode ⑤ Portable ⑥ Extendable
⑦ Databases ⑧ GUI Programming ⑨ Scalable
⑩ Script lang. ⑪ Automatic Garbage collection
⑫ dynamic type checking

Expln of above any 8 features → 4M [1+4 = 5M]

b) Defination of Python Identifiers → 1M
5 Naming conventions → 2½ M
valid & Invalid identifier examples → 1½ M
} 5M

c) inp = input();
Program to illustrate input to prompt a user to enter their name then welcomes them
>>> name = input ('what is your name ? \n')
What is your name ? 3M + 2M → 5M
'Kiran'
>>> print (name)
Kiran.

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(OR)

2. (a) Prog by using Chained condn / ELIF statement
Print a grade using following table → 4M
Prompt to enter score between 0.0 & 1.0 → 1M
} 5M

(b) a) nested - if Statement syntax → ½
— " — flow chart → 1
— " — example → 1

b) if - else statement syntax → ½
— " — flow chart → 1
— " — example → 1

} 5M.

(c) Explanation of catching exception using try & except → 3M
example → 2M } 5M.

3. (a) List ① Required arg ② Keyword arg
③ Default arg ④ variable - length arg → 1M
Explanation of each with example → 4M } 5M

(b) Stack Diagram. with example program (2+3 = 5M)
& Explanation

(c) Iteration defination → 1M.
Syntax, flowchart & example prog → 4M } 5M
to illustrate while loop statement

4. a) Loop Control statements expln with example } 5M.
① break ② continue ③ pass
↓ ↓ ↓
2 2 1

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INTERNAL ASSESMENT TEST: II

SUB : Python Application Programming-15CS664
SEM : VI Sem A & B Section

MAX MARKS : 30
TIME : 75 min
DATE: 13/04/18

NOTE : Answer any **TWO** full questions.

1. a) Briefly explain with example program string methods. **5M**
   b) Take the following Python code that stores a string:' **str = 'X-DSPAM-Confidence:0.8475'.** Use find and string slicing to extract the portion of the string after the colon character and then use the float function to convert the extracted string into a floating point number. **5M**
   c) Define files. Explain briefly opening file with example. **5M**

OR

2. a) Briefly explain with example different types of methods of searching files. **8M**
   b) Briefly explain with example try, except and open in file mechanism. **7M**

3. a) Explain different mechanisms or methods to delete an element in a list. **5M**
   b) Write a program to compute average without a list and with a list. **5M**
   c) Rewrite the program that prompts the user for a list of numbers and prints out the maximum and minimum of the numbers at the end when the user enters "done". Write the program to store the numbers the user enters in a list and use the max() and min() functions to compute the maximum and minimum numbers after the loop completes.

```
Enter a number: 6
Enter a number: 2
Enter a number: 9
Enter a number: 3
Enter a number: 5
Enter a number: done
Maximum: 9.0
Minimum: 2.0
```

5M

OR

4.a) Write a program that categorizes each mail message by which day of the week the commit was done. To do this look for lines that start with "From", then look for the third word and keep a running count of each of the days of the week. At the end of the program print out the contents of your dictionary (order does not matter).

Sample Line:
From stephen.marquard@uct.ac.za Sat Jan 5 09:14:16 2008
Sample Execution:

```
python dow.py
Enter a file name: mbox-short.txt
{'Fri': 20, 'Thu': 6, 'Sat': 1}
```

8M

b) Write a program to find ten most common words in the text Romeo and Juliet Act 2 by using multiple assignment with dictionaries and tuple concept. **7M**

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Internal Assesment Test : II

Python Application programming - 15CS664

Scheme of Evaluation

(1) (a) String methods with explanation & Examples.

① upper ② find ③ strip ④ startswith

⑤ Lower ⑥ capitalize() (Any 5 → 5×1=5M)

(b)
```
colpos = string.find(':')
number = string[colpos+1:]
confidence = float(number)
print(confidence)
```
→ 5 M

(c) file defn → 1M.

opening file with Diagram → 4M.

explanation.

```
fhand = open('stuff.txt')
```

(or)

(2) (a) Explaination of Searching methods with Example.

① startswith & methods 4 types → 4×2 → 8 M.

(b) try, except, & open. Explanation → 2+5 → 7 M.

with Example prog.

(3) (a) ① pop ② del ③ remove listing → 1+4 → 5 M.

④ del with slice index

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(b) Prog to find avg without a list (2+3 → 5M)
Prog to find avg with list

(c)
```
MyList = [ ]
While True:
input_number = input ('enter a no:')
if Input_number == 'done':
    break
try:
number = float (input_number)
except:
print ('invalid i/p')
exit()
MyList.append (i/p_no)
print ('Maximum:', max(myList))
print ('Minimum:', min(myList))
```

(OR)

4.(a)
```
dictionary_days = dict()
fname = input ('enter a file name:')
try:
fhand = open (fname)
except:
print ('File cannot be opened:', fname)
exit()
for line in fhand
words = line.split()
if len(words) == 0 or
len (words) < 2 or
words[0] != 'From':
continue
else:
if words[2] not in dict_days:
dict_days [words[2]] = 1
else dict_days [words[2]] += 1
print (dictionary_days)
```

(b) Prog. to find ten most common words in Romeo & Juliet Act 2 → 7M.
use multiple assign. with dict & tuple concept

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INTERNAL ASSESMENT TEST: III

SUB : Python Application Programming-15CS664
SEM : VI Sem A & B Section

MAX MARKS : 30
TIME : 75 min
DATE: 22/05/18

NOTE : Answer any **TWO** full questions.

1. a) Explain Shallow equality and deep equality with an example program. **8M**
   b) Briefly explain with example program the garbage collection in python. **7M**

OR

2. a) With programming example briefly explain pure functions. **8M**
   b) Explain briefly operator overloading with an example program in python. **7M**

3. a) Explain briefly with an example JSON and Parsing JSON. **8M**
   b) With an example program explain retrieving an image over HTTP. **7M**

OR

4.a) Explain with neat diagram service oriented architecture. **8M**
   b) With neat diagram explain briefly database cursor. **7M**

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INTERNAL ASSESMENT TEST: III

SUB : Python Application Programming-15CS664
SEM : VI Sem A & B Section

MAX MARKS : 30
TIME : 75 min
DATE: 22/05/18

NOTE : Answer any **TWO** full questions.

1. a) Explain Shallow equality and deep equality with an example program. **8M**
   b) Briefly explain with example program the garbage collection in python. **7M**

OR

2. a) With programming example briefly explain pure functions. **8M**
   b) Explain briefly operator overloading with an example program in python. **7M**

3. a) Explain briefly with an example JSON and Parsing JSON. **8M**
   b) With an example program explain retrieving an image over HTTP. **7M**

OR

4.a) Explain with neat diagram service oriented architecture. **8M**
   b) With neat diagram explain briefly database cursor. **7M**

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Python Application Programming - III rd Internals

Scheme of Evaluation - 15CS664

(1) a) Shallow equality defn + example program → 4M
deep equality defn + example program → 4M } 8M.

b) garabage collection concept explanation → 4M
example program → 4M } 7M

(2. a) Pure function explanation → 2M
example prog. with o/p → 6M } 8M.

b) operator overloading concept → 2M
example prog. with explanation → 5M } 7M

(3) (a) JSon explanation with example → 3M
Parsing JSON with example prog → 5M } 8M

(b) Retrieving an image over HTTP explanation → 2M
example prog with expln → 5M } 7M

(4) (a) Diagram servic oriented Architecture → 2M
explanation with example → 6M } 8M

(b) Neat Diagram database cursor → 2M
explanation with prog. example → 5M } 7M

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INTERNAL ASSESMENT TEST: I
SUB :BIG DATA ANALYTICS[15CS82]
SEM :VIII
TIME : 75 min

year: 17-18 even
MAX MARKS :30

Note: Answer Two full Questions

1	a	Explain with neat diagram Hadoop Distributed File System Basics?	7M	CO1
	b	Explain Running Example Programs and Benchmarks of Hadoop Distributed File System?	8M	CO1
		OR		
2	a	Explain with neat diagram Hadoop MapReduce Framework?	7M	CO1
	b	Explain with neat diagram MapReduce Programming?	8M	CO1
3	a	List and Briefly explain Essential Hadoop Tools?	7M	CO1
	b	List and Explain the Hadoop YARN Applications?	8M	CO1
		OR		
4	a	Explain with neat diagram Managing Hadoop with Apache Ambari?	7M	CO2
	b	Explain Managing Hadoop with Apache Ambari?	8M	CO2

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INTERNAL ASSESMENT TEST: I **Scheme and Solutions** **year: 17-18 even**
SUB :BIG DATA ANALYTICS[15CS82] **MAX MARKS :30**
SEM : VIII **TIME** : 75 min

Note: Answer Two full Questions

1	a	• Explanation with neat diagram-2M Hadoop Distributed File System Basics-***Extremely large files***: Here we are talking about the data in range of petabytes(1000 TB). • ***Streaming Data Access Pattern***: HDFS is designed on principle of *write-once and read-many-times*. Once data is written large portions of dataset can be processed any number times. • ***Commodity hardware:*** Hardware that is inexpensive and easily available in the market. This is one of feature which specially distinguishes HDFS from other file system 5M	7M	CO1
	b	Explanation Running Example Programs-3M and Benchmarks of Hadoop Distributed File System-5M	8M	CO1
		OR		
2	a	Explanation with neat diagram-2M Hadoop MapReduce Framework Hadoop MapReduce is a software framework for easily writing applications which process vast amounts of data (multi-terabyte data-sets) in-parallel on large clusters (thousands of nodes) of commodity hardware in a reliable, fault-tolerant manner -5M	7M	CO1
	b	Explanation with neat diagram-3M MapReduce Programming-5M	8M	CO1
3	a	List-2M and Briefly explanation Essential Hadoop Tools Apache Spark: A unified analytics engine can perform data processing functions hundred times faster. ... Map Reduce: ...Apache Impala. ... Apache Hive. ...Apache Mahout. ...Pig. ...HBase. ...Apache Sqoop. -5M	7M	CO1
	b	List-3M and Explanation the Hadoop YARN Applications- YARN helps to open up Hadoop by allowing to process and run data for batch processing, stream processing, interactive processing and graph processing which are stored in HDFS. In this way, It helps to run different types of distributed applications other than MapReduce. -5M	8M	CO1
		OR		
4	a	Explanation with neat diagram-2M Managing Hadoop with Apache Ambari5M	7M	CO2
	b	Explanation Managing Hadoop-3M with Apache Ambari- Ambari provides an intuitive Web UI as well as a robust REST API, which is particularly useful for automating cluster operations. With Ambari, Hadoop operators get the following core benefits: Simplified Installation, Configuration and Management. Easily and efficiently create, manage and monitor clusters at scale. -5M	8M	CO2

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INTERNAL ASSESMENT TEST: II
SUB :BIG DATA ANALYTICS[15CS62]
SEM : VIII

year: 17-18 even
MAX MARKS :30
TIME : 75 min

Note: Answer Two full Questions

1	a	List and Briefly explain Essential Hadoop Tools?	7M	CO2
	b	List and Explain the Hadoop YARN Applications?	8M	CO2
		OR		
2	a	Explain with neat diagram Managing Hadoop with Apache Ambari?	7M	CO2
	b	Explain Managing Hadoop with Apache Ambari?	8M	CO2
3	a	List and Explain Business Intelligence Concepts?	7M	CO3
	b	List and Explain Application of Business Intelligence?	8M	CO3
		OR		
4	a	Explain Data Warehousing and Data Mining?	7M	CO3
	b	Explain Data Mining and Data Visualization?	8M	CO3

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INTERNAL ASSESMENT TEST: II **Scheme and Solutions** **year: 17-18 scheme**
SUB :BIG DATA ANALYTICS[15CS62] **MAX MARKS** :30
SEM : VIII **TIME** : 75 min

Note: Answer Two full Questions

1	a	List-2M and Briefly explanation Essential Hadoop Tools-Apache Spark: A unified analytics engine can perform data processing functions hundred times faster. ... Map Reduce: ...Apache Impala. ... Apache Hive. ...Apache Mahout. ...Pig. ...HBase. ...Apache Sqoop-5M	7M	CO2
	b	List-3M and Explanation the Hadoop YARN Applications- YARN helps to open up Hadoop by allowing to process and run data for batch processing, stream processing, interactive processing and graph processing which are stored in HDFS. In this way, It helps to run different types of distributed applications other than MapReduce.-5M	8M	CO2
		OR		
2	a	Explanation with neat diagram-2M Managing Hadoop with Apache Ambari **Ambari** is a great tool to monitor and **manage** complex distributed systems such as **Hadoop**. It collects information from cluster nodes and offers them to you --5M	7M	CO2
	b	Explain Managing Hadoop-3M with Apache Ambari-5M	8M	CO2
3	a	List-2M and Explain Business Intelligence Concepts BI performs analysis, reporting, data mining, predictive analysis, online analytical processing, and business performance management --5M	7M	CO3
	b	List-3M and Explain Application of Business Intelligence- Business intelligence (BI) uses software to convert reams of information into bite-sized insights to inform decision-making. The software receives data from a company's ERP system and other data sets via a sync tool or API. The BI tool then analyzes the data sets and presents findings in reports and dashboards. -5M	8M	CO3
		OR		
4	a	Explanation Data Warehousing-2M and Data Mining- **Data mining** is the process of sorting through large data sets to identify patterns and relationships that can help solve business problems through data -5M	7M	CO3
	b	Explanation Data Mining-3M and Data Visualization- Data visualization is the representation of data through use of common graphics, such as charts, plots, infographics, and even animations. These visual displays of information communicate complex data relationships and data-driven insights in a way that is easy to understand. -5M	8M	CO3

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INTERNAL ASSESMENT TEST: IIII | **year: 17-18 even**
SUB :BIG DATA ANALYTICS[15CS62] | **MAX MARKS** :30
SEM : VIII | **TIME** : 75 min

Note: Answer Two full Questions

1	a	Explain Decision Trees and Regression?	7M	CO4
	b	Explain Regression and Artificial Neural Networks?	8M	CO4
		OR		
2	a	Explain Artificial Neural Networks and Cluster Analysis?	7M	CO4
	b	Explain Cluster Analysis and Association Rule Mining?	8M	CO4
3	a	Explain Text Mining and Naïve-Bayes Analysis?	7M	CO5
	b	Explain Naïve-Bayes Analysis and Support Vector Machines?	8M	CO5
		OR		
4	a	Explain Support Vector Machines and Web Mining?	7M	CO5
	b	Explain Web Mining and Social Network Analysis?	8M	CO5

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INTERNAL ASSESMENT TEST: III **Scheme and Solutions** **year: 17-18 even**
SUB :BIG DATA ANALYTICS[15CS62] **MAX MARKS** :30
SEM : VIII **TIME** : 75 min

Note: Answer Two full Questions

1	a	Explanation Decision Trees A decision tree is a non-parametric supervised learning algorithm, which is utilized for both classification and regression tasks. It has a hierarchical, tree structure, which consists of a root node, branches, internal nodes and leaf nodes. --2M and Regression-5M	7M	CO4
	b	Explanation Regression-3M and Artificial Neural Networks- A neural network is a method in artificial intelligence that teaches computers to process data in a way that is inspired by the human brain. It is a type of machine learning process, called deep learning, that uses interconnected nodes or neurons in a layered structure that resembles the human brain -5M	8M	CO4
		OR		
2	a	Explanation Artificial Neural Networks-2M and Cluster Analysis-5M	7M	CO4
	b	Explanation Cluster Analysis-3M and Association Rule Mining- Association rule mining finds interesting associations and relationships among large sets of data items. This rule shows how frequently a itemset occurs in a transaction. A typical example is a Market Based Analysis. -5M	8M	CO4
3	a	Explanation Text Mining-2M and Naïve-Bayes Analysis-5M	7M	CO5
	b	Explanation Naïve-Bayes Analysis-3M and Support Vector Machines- **Support Vector Machine** or **SVM** is one of the most popular Supervised Learning algorithms, which is used for Classification as well as Regression problems -5M	8M	CO5
		OR		
4	a	Explanation Support Vector Machines-2M and Web Mining- Web mining can define as the method of utilizing data mining techniques and algorithms to extract useful information directly from the web, such as Web documents and services, hyperlinks, Web content, and server logs. -5M	7M	CO5
	b	Explanation Web Mining-3M and Social Network Analysis Social network analysis (SNA) is the process of investigating social structures through the use of networks and graph theory. It characterizes networked structures in terms of nodes (individual actors, people, or things within the network) and the ties, edges, or links (relationships or interactions) that connect them --5M	8M	CO5

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INTERNAL ASSESMENT TEST: I
SUB :CG&V[15CS62]
SEM :VI

year: 17-18 even
MAX MARKS :30
TIME : 75 min

Note: Answer Two full Questions

1	a	List and explain any 6 applications of computer graphics	7M	CO1
	b	Write the differences between random scan and raster scan displays	8M	CO1
		OR		
2	a	With a neat diagram explain the color CRT monitors and flat panel displays	7M	CO1
	b	Briefly explain the Bresenham's line drawing algorithm. Derive the expression for decision parameter?	8M	CO1
3	a	Briefly explain the DDA line drawing algorithm?	7M	CO1
	b	Explain the Bresenham's midpoint circle drawing algorithm and derive the equation for decision parameter ?	8M	CO1
		OR		
4	a	For the given endpoints (5,10) and (10,20) Find all the (x,y) points using DDA algorithm ?	7M	CO2
	b	What are vertex arrays? Write an Open GL program to draw a color cube and spin it using OpenGL transformation matrices?	8M	CO2

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INTERNAL ASSESMENT TEST: I **Scheme and Solutions** **Year: 17-18 even**
SUB :CG&V[15CS62] **MAX MARKS :30**
SEM :VI
TIME : 75 min

Note: Answer Two full Questions

1	a	6 applications X1.16M=7M Design. Development is associated with fields such as engineering and architecture. ... User Interfaces. ...Machine Drawing. ... Visualization. ... Education. ... Entertainment. ... Presentation Graphics.	7M	CO
	b	Write the differences between random scan and raster scan displays? X1.6M=8	8M	CO4

Random Scan	Raster Scan
The resolution of random scan is higher in comparison raster scan.	The resolution of raster scan is lower in comparison to random scan.
It is expensive in comparison to raster scan.	It is inexpensive in comparison to random scan.
Any alterations can be done easily.	Alterations are difficult to make.
The concept of interweaving is not used.	The concept of interweaving is used.
A mathematical function is used to render an image or a picture.	To render image or picture, pixels are used.
It is suited for applications that require polygon drawings.	It is suitable to create realistic scenes.
An example of random scan is a pen plotter.	A TV set is an example of raster scan.
Random scan has lower refresh rate about 30 to 60 times per second.	Raster scan has higher refresh rate about 60 to 80 times per second.

OR

2	a	Write a neat diagram of the color CRT monitors and flat panel displays-2M explanation the color CRT monitors and flat panel displays-5M	7M	CO4
	b	explanation the Bresenham's line drawing algorithm-3M Derive the expression for decision parameter?-5M	8M	CO4
3	a	explanation of DDA line drawing algorithm-2M DDA Algorithm-5M	7M	CO5
	b	Explanation the Bresenham's midpoint circle drawing algorithm-3M derive the equation for decision parameter ?-5M	8M	CO5

OR

4	a	For the given endpoints (5,10) and (10,20) Find all the (x,y) points using DDA algorithm ?-7M	7M	CO5
	b	What are vertex arrays?-2M Write an Open GL program to draw a color cube and spin it using OpenGL transformation matrices? -6M	8M	CO5

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INTERNAL ASSESMENT TEST: II
SUB :CG&V[15CS62]
SEM :VI

year: 17-18 even
MAX MARKS :30

TIME : 75 min

Note: Answer Two full Questions

1	a	Explain of OpenGL fill-area attribute function and Inverse transformations?	7M	CO2
	b	Explain OpenGL raster transformations and OpenGL geometric transformations function?	8M	CO2
		OR		
2	a	Explain 2D viewing pipeline and OpenGL 2D viewing functions?	7M	CO2
	b	Explain matrix representations and homogeneous coordinates?	8M	CO2
3	a	Explain normalization and viewport transformations?	7M	CO3
	b	Explain clipping algorithms and 2D point clipping?	8M	CO3
		OR		
4	a	Explain 3D translation and its types ?	7M	CO3
	b	Explain Properties of light? and color models?	8M	CO3

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INTERNAL ASSESMENT TEST: II **Scheme and Solutions** **year: 17-18 even**
SUB :CG&V[15CS62] **MAX MARKS :30**
SEM :VI
TIME : 75 min

Note: Answer Two full Questions

1	a	Explanation of OpenGL fill-area attribute functions By default, a polygon interior is displayed in a solid color, determined by the current color settings. Alternatively, we can fill a polygon with a pattern and we can display polygon edges as line borders around the interior fill. Polygon vertices are specified counterclockwise -4M and Inverse transformations-3M	7M	CO2
	b	Explanation OpenGL raster transformations-3M and OpenGL geometric transformations function-5M	8M	CO2
		OR		
2	a	Explanation 2D viewing pipeline--The term Viewing Pipeline describes a series of transformations, which are passed by geometry data to end up as image data being displayed on a device-2M and OpenGL 2D viewing functions GluOrtho2D (xwmin, xwmax, ywmin, ywmax); double-precision numbers. This function specifies an orthogonal projection for mapping the scene to the screen -5M	7M	CO2
	b	Explanation matrix representations-3M and homogeneous coordinates-5M	8M	CO2
3	a	Explanation normalization -Normalization is the process of organizing data in a database. This includes creating tables and establishing relationships between those tables according to rules designed both to protect the data and to make the database more flexible by eliminating redundancy and inconsistent dependency -2M and viewport transformations-5M	7M	CO3
	b	Explanation clipping algorithms-3M and 2D point clipping-5M	8M	CO3
		OR		
4	a	Explanation 3D translation-2M **Translation:** It is the process of changing the relative location of a 3-D object with respect to the original position by changing its coordinates. and its types -5M	7M	CO3
	b	Explanation Properties of light-5M and color models-3M	8M	CO3

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INTERNAL ASSESMENT TEST: IIII
SUB :CG&V[15CS62]
SEM :VI
TIME : 75 min

year: 17-18 even
MAX MARKS :30

Note: Answer Two full Questions

1	a	Explain 3D viewing concepts and 3D viewing pipeline?	7M	CO4
	b	Explain Transformation from world to viewing coordinates AND back face detection?	8M	CO4
		OR		
2	a	Explain Projection transformation and orthogonal projections?	7M	CO4
	b	Explain The viewport transformation and 3D screen coordinates?	8M	CO4
3	a	Explain Input devices and clients and servers?	7M	CO5
	b	Explain Display Lists and Modelling?	8M	CO5
		OR		
4	a	Explain Display processor and Modelling?	7M	CO5
	b	Explain Building Interactive Models and Animating Interactive programs?	8M	CO5

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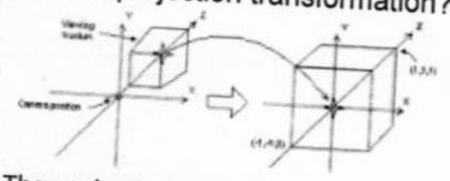
INTERNAL ASSESMENT TEST: III Scheme and Solutions
SUB :CG&V[15CS62]
SEM :VI

year: 17-18 even
MAX MARKS :30
TIME : 75 min

Note: Answer Two full Questions

1	a	Explanation 3D viewing concepts Generating a view of an object in three dimensions is similar to photographing the object. We can walk around and take its picture from any angle, at various distances, and with varying camera orientations. Whatever appears in the viewfinder is projected onto the flat film surface -2M and 3D viewing pipeline?-5M	7M	CO4
	b	Explanation Transformation from world to viewing coordinates-3M AND back face detection?-5M	8M	CO4
		OR		
2	a	Explanation Projection transformation What is projection transformation?  The projection transformation converts the viewing frustum into a cuboid shape. The near end of the viewing frustum is smaller than the far end, which has the effect of expanding objects that are near to the camera. This is how perspective is applied to the scene -2M and orthogonal projections?-5M	7M	CO4
	b	Explanation The viewport transformation-3M and 3D screen coordinates?-5M	8M	CO4
3	a	Explanation Input devices-2M and clients and servers?-5M	7M	CO5
	b	Explanation Display Lists A display list (or display file) is a series of graphics commands that define an output image. The image is created (rendered) by executing the commands to combine various primitives. -3M and Modelling?-5M	8M	CO5
		OR		
4	a	Explanation display processor The Display Processor (DPRO) is responsible for the display of incident status information obtained from Field Observers (FOBS), aerial and ortho photographs, and infrared data -2M and Modelling-5M	7M	CO5
	b	Explanation Building Interactive Models-3M and Animating Interactive programs- These four steps form the backbone of the animation process, but mood boarding, style framing, storyboarding, sound design, voiceover recording, and music all form key aspects of the process as well. -5M	8M	CO5

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INTERNAL ASSESMENT TEST: I | **year: 19-20ODD**
SUB :OOMD[17CS551] | **MAX MARKS** :30
SEM : V | **TIME** : 75 min

Note: Answer Two full Questions

1	a	What is Object orientation? What is OO development?	7M	CO1
	b	Write the OO Themes; Evidence for usefulness of OO development; OO modelling history?	8M	CO1
		OR		
2	a	With a neat diagram explain Modelling as Design technique: Modelling; abstraction	7M	CO1
	b	Briefly explain the The Three models?	8M	CO1
3	a	Briefly explain the DDA line drawing algorithm?	7M	CO1
	b	Explain the Navigation of class models; Advanced Class Modelling, Advanced object and class concepts?	8M	CO1
		OR		
4	a	Explain the UseCase Modelling and Detailed Requirements?	7M	CO2
	b	What are The System sequence diagram; Identifying Object Behaviour-The state chart Diagram?	8M	CO2

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OOMD

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INTERNAL ASSESMENT TEST: I **year: 19-20ODD**
SUB :OOMD[17CS551] **MAX MARKS :30**
SEM : V **TIME** : 75 min

Scheme and solutions

1	a	What is Object orientation-2M What is OO development-5M	7M	CO1
	b	Write the OO Themes-3M; Evidence for usefulness of OO development; OO modelling history-5M	8M	CO1
		OR		
2	a	With a neat diagram explain Modelling as Design technique: Modelling-5M; abstraction-2M	7M	CO1
	b	Briefly explain the The Three models-8M	8M	CO1
3	a	Briefly explain the DDA -2M line drawing algorithm-5M	7M	CO1
	b	Explain the Navigation of class models-3M Advanced Class Modelling, Advanced object and class concepts-5M	8M	CO1
		OR		
4	a	Explain the UseCase-2M Modelling and Detailed Requirements-5M	7M	CO2
	b	What are The System sequence diagram-3M Identifying Object Behaviour-The state chart Diagram-5M	8M	CO2

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INTERNAL ASSESMENT TEST: II **year:19-20odd**
SUB :OOMD[17CS551] **MAX MARKS** :30
SEM : V **TIME** : 75 min

Note: Answer Two full Questions

1	a	Explain System Processes-A use case/Scenario view?	7M	CO2
	b	Explain Identifying Input and outputs-The System sequence diagram?	8M	CO2
		OR		
2	a	Explain UseCase Modelling and Detailed Requirements?	7M	CO2
	b	Explain Identifying Object Behaviour-The state chart Diagram; Integrated Object-oriented Models?	8M	CO2
3	a	Explain Process Overview, System Conception and Domain Analysis?	7M	CO3
	b	Explain Development life Cycle?	8M	CO3
		OR		
4	a	Explain Overview of analysis; Domain Class model?	7M	CO3
	b	Explain Domain interaction model; Iterating the analysis?	8M	CO3

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INTERNAL ASSESMENT TEST: II
SUB :OOMD[17CS551]
SEM : V

year:19-20odd
MAX MARKS :30
TIME : 75 min

SCHEME AND SOLUTION

1	a	Explanation System Processes-2M A use case/Scenario view-5M	7M	CO2
	b	Explain Identifying Input and outputs-3M The System sequence diagram-5M	8M	CO2
		OR		
2	a	Explain UseCase Modelling -2M and Detailed Requirements-5M	7M	CO2
	b	Explain Identifying Object Behaviour-The state chart Diagram-3M Integrated Object-oriented Models-5M	8M	CO2
3	a	Explain Process Overview,-2M System Conception and Domain Analysis-5M	7M	CO3
	b	Explain Development life Cycle-8M	8M	CO3
		OR		
4	a	Explain Overview of analysis-2M Domain Class model-5M	7M	CO3
	b	Explain Domain interaction model-3M Iterating the analysis-5M	8M	CO3

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INTERNAL ASSESMENT TEST: III
SUB :OOMD[17CS551]
SEM : V

year:19-20ODD
MAX MARKS :30
TIME : 75 min

Note: Answer Two full Questions

1	a	Explain Use case Realization :The Design Discipline within up iterations?	7M	CO4
	b	Explain The Bridge between Requirements and Implementation?	8M	CO4
		OR		
2	a	Design Classes and Design within Class Diagrams?	7M	CO4
	b	Explain ; Interaction Diagrams-Realizing Use Case and defining methods?	8M	CO4
3	a	Explain what is a design pattern?, Describing design patterns, the catalogue of design patterns?	7M	CO5
	b	Explain Organizing the catalogue?	8M	CO5
		OR		
4	a	How design patterns solve design problems, how to select a design patterns?	7M	CO5
	b	how to use a design pattern; Creational patterns?	8M	CO5

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INTERNAL ASSESMENT TEST: III **year:19-20ODD**
SUB :OOMD[17CS551] **MAX MARKS** :30
SEM : VII **TIME** : 75 min

SCHEME AND SOLUTION

1	a	Explanation of Use case Realization -2M The Design Discipline within up iterations-5M	7M	CO4
	b	Explanation of The Bridge between Requirements-3M and Implementation-5M	8M	CO4
		OR		
2	a	Design Classes and Design-2M within Class Diagrams-5M	7M	CO4
	b	Explanation of Interaction Diagrams-3M Realizing Use Case and defining methods-5M	8M	CO4
3	a	Explanation of what is a design pattern-2M Describing design patterns, the catalogue of design patterns-5M	7M	CO5
	b	Explanation of Organizing the catalogue-8M	8M	CO5
		OR		
4	a	How design patterns solve design problems-2M how to select a design patterns-5M	7M	CO5
	b	how to use a design pattern-3M Creational patterns-5M	8M	CO5

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INTERNAL ASSESMENT TEST: I
SUB :WEB TECHNOLOGY AND ITS APPLICATIONS[15CS71]
SEM : VII

year: 17-18 odd
MAX MARKS :30
TIME : 75 min

Note: Answer Two full Questions

1	a	What is HTML and Where did it come from and Structure of HTML Document?	7M	CO1
	b	Explain HTML Syntax and Semantic Markup?	8M	CO1
		OR		
2	a	Explain Quick Tour of HTML Elements and HTML5 Semantic Structure Elements?	7M	CO1
	b	Explain CSS Syntax and Location of Styles?	8M	CO1
3	a	Briefly explain the Tables and Styling Tables?	7M	CO1
	b	Explain the Form Control Elements and Table and Form Accessibility?	8M	CO1
		OR		
4	a	Explain Layout and Normal Flow and Positioning Elements?	7M	CO2
	b	Explain Floating Elements and Constructing Multicolumn Layouts?	8M	CO2

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INTERNAL ASSESMENT TEST: I **Scheme and Solutions** **year: 17-18 odd**
SUB :WEB TECHNOLOGY AND ITS APPLICATIONS[15CS71] **MAX MARKS :30**
SEM : VII **TIME** : 75 min

Note: Answer Two full Questions

1	a	What is HTML and Where did it come from-2M and Structure of HTML Document-5M	7M	CO1
	b	Explanation HTML Syntax-3M and Semantic Markup-5M	8M	CO1
		OR		
2	a	Explanation Quick Tour of HTML Elements-2M and HTML5 Semantic Structure Elements-5M	7M	CO1
	b	Explanation CSS Syntax-3M and Location of Styles-5M	8M	CO1
3	a	Briefly explanation the Tables-2M and Styling Tables-5M	7M	CO1
	b	Explanation the Form Control Elements-3M and Table and Form Accessibility-5M	8M	CO1
		OR		
4	a	Explanation Layout and Normal Flow-2M and Positioning Elements-5M	7M	CO2
	b	Explanation Floating Elements-3M and Constructing Multicolumn Layouts-5M	8M	CO2

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INTERNAL ASSESMENT TEST: II **year: 17-18 odd**
SUB :WEB TECHNOLOGY AND ITS APPLICATIONS[15CS71] **MAX MARKS :30**
SEM : VII **TIME : 75 min**

Note: Answer Two full Questions

1	a	Briefly explain the Tables and Styling Tables?	7M	CO2
	b	Explain the Form Control Elements and Table and Form Accessibility?	8M	CO2
		OR		
2	a	Explain Layout and Normal Flow and Positioning Elements?	7M	CO2
	b	Explain Floating Elements and Constructing Multicolumn Layouts?	8M	CO2
3	a	What is JavaScript and What can it do? And JavaScript Design Principles?	7M	CO3
	b	Explain Syntax and JavaScript Objects?	8M	CO3
		OR		
4	a	Explain The Document Object Model (DOM) and JavaScript Events?	7M	CO3
	b	Explain A Web Server's Responsibilities and Quick Tour of PHP?	8M	CO3

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INTERNAL ASSESMENT TEST: II **Scheme and Solutions** **year: 17-18 odd**
SUB :WEB TECHNOLOGY AND ITS APPLICATIONS[15CS71] **MAX MARKS** :30
SEM : VII **TIME** : 75 min

Note: Answer Two full Questions

1	a	Briefly explanation the Tables-2M and Styling Tables-5M	7M	CO2
	b	Explanation the Form Control Elements-3M and Table and Form Accessibility-5M	8M	CO2
		OR		
2	a	Explanation Layout and Normal Flow-2M and Positioning Elements-5M	7M	CO2
	b	Explanation Floating Elements-3M and Constructing Multicolumn Layouts-5M	8M	CO2
3	a	What is JavaScript and What can it do?-2M And JavaScript Design Principles-5M	7M	CO3
	b	Explanation Syntax-3M and JavaScript Objects-5M	8M	CO3
		OR		
4	a	Explanation The Document Object Model (DOM)-2M and JavaScript Events-5M	7M	CO3
	b	Explain A Web Server's Responsibilities-3M and Quick Tour of PHP-5M	8M	CO3

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INTERNAL ASSESMENT TEST: III **year: 17-18 odd**
SUB :WEB TECHNOLOGY AND ITS APPLICATIONS[15CS71] **MAX MARKS** :30
SEM : VII **TIME** : 75 min

Note: Answer Two full Questions

1	a	Explain PHP Arrays and Superglobals and Arrays, $_GET and $_POST Superglobal Arrays?	7M	CO4
	b	Explain $_SERVER Array and $_Files Array?	8M	CO4
		OR		
2	a	Explain Reading/Writing Files and PHP Classes and Objects?	7M	CO4
	b	Explain The Classes and Objects in PHP and Object Oriented Design?	8M	CO4
3	a	Explain The Problem of State in Web Applications and Passing Information via Query Strings?	7M	CO5
	b	Explain Passing Information via the URL Path and Cookies?	8M	CO5
		OR		
4	a	Explain Serialization and Session State?	7M	CO5
	b	Explain HTML5 Web Storage, Caching and Advanced JavaScript and jQuery?	8M	CO5

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INTERNAL ASSESMENT TEST: III Scheme and Solutions **year: 17-18 odd**
SUB :WEB TECHNOLOGY AND ITS APPLICATIONS[15CS71] **MAX MARKS** :30
SEM : VII **TIME** : 75 min

Note: Answer Two full Questions

1	a	Explanation PHP Arrays and Superglobals-2M and Arrays, $_GET and $_POST Superglobal Arrays-5M	7M	CO4
	b	Explanation $_SERVER Array-3M and $_Files Array-5M	8M	CO4
		OR		
2	a	Explanation Reading/Writing Files-2M and PHP Classes and Objects-5M	7M	CO4
	b	Explanation The Classes and Objects in PHP-3M and Object Oriented Design-5M	8M	CO4
3	a	Explanation The Problem of State in Web Applications-2M and Passing Information via Query Strings-5M	7M	CO5
	b	Explanation Passing Information via the URL Path-3M and Cookies-5M	8M	CO5
		OR		
4	a	Explanation Serialization-2M and Session State-5M	7M	CO5
	b	Explanation HTML5 Web Storage, Caching-3M and Advanced JavaScript and jQuery-5M	8M	CO5

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SHRIDEVI INSTITUTE OF ENGINEERING & TECHNOLOGY, TUMKUR-06

Department of Electrical & Electronics Engineering

INTERNAL ASSESSMENT - II, MAY-2017

Semester: **VI** Subject: **DIGITAL SIGNAL PROCESSING** Sub Code: **10EE-64**

Max Marks: 25 Date: 03-05-2017 Duration: **75** Minutes

NOTE: 1. Question No 1 is compulsory

2. Answer any two full questions from question No 2 to question No 4

1. Define Fast Fourier Transformation (FFT) 01 Marks

2 a) Develop an 8-point decimation in time FFT algorithm 08 Marks

b) Compute the 4-point DFT of the sequence x(n) ={4, 3, 2, 1} by invoking decimation in time FFT algorithm. 04 Marks

3 a) Develop an 8-point decimation in time FFT algorithm 08 Marks

b) Find the 4-point DFT of the sequence, $x(n)= \cos(\frac{\pi}{2}n)$ using DIF-FFT algorithm 04 Marks

4 a) Develop an 9-point decimation in time FFT algorithm. 06 Marks

b) Obtain the parallel form realization for the system function given below $H(z)=\frac{(1+0.25Z^{-1})}{(1+0.5Z^{-1})(1+0.5Z^{-1}+0.25Z^{-2})}$ 06 Marks

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Department of Electrical & Electronics Engineering

INTERNAL ASSESSMENT - II, MAY-2017

Semester: **VI** Subject: **DIGITAL SIGNAL PROCESSING** Sub Code: **10EE-64**

Max Marks: 25 Date: 03-05-2017 Duration: **75** Minutes

NOTE: 1. Question No 1 is compulsory

2. Answer any two full questions from question No 2 to question No 4

1. Define Fast Fourier Transformation (FFT) 01 Marks

2 a) Develop an 8-point decimation in time FFT algorithm 08 Marks

b) Compute the 4-point DFT of the sequence x(n) ={4, 3, 2, 1} by invoking decimation in time FFT algorithm. 04 Marks

3 a) Develop an 8-point decimation in time FFT algorithm 08 Marks

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4 a) Develop an 9-point decimation in time FFT algorithm. 06 Marks

b) Obtain the parallel form realization for the system function given below $H(z)=\frac{(1+0.25Z^{-1})}{(1+0.5Z^{-1})(1+0.5Z^{-1}+0.25Z^{-2})}$ 06 Marks

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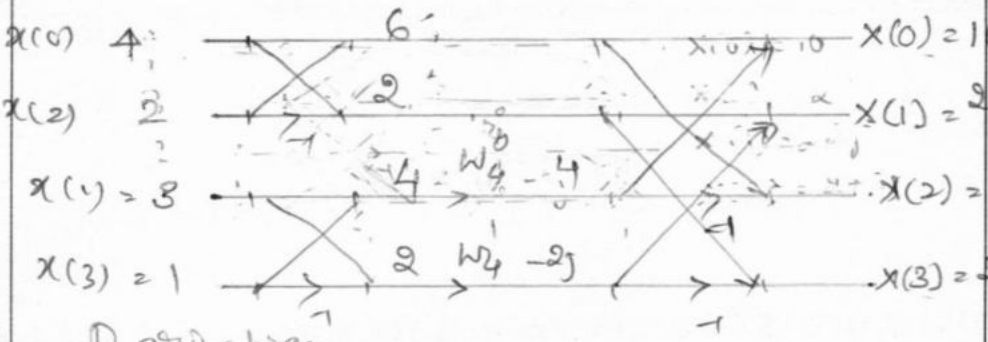
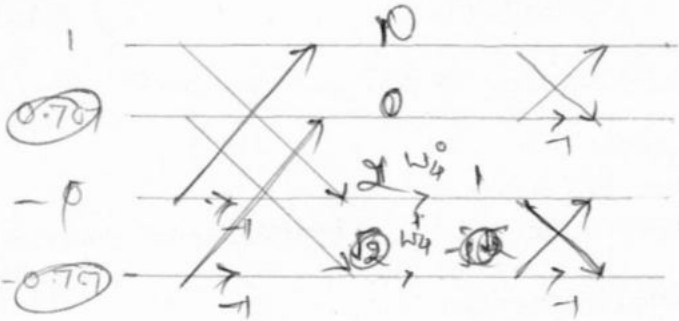
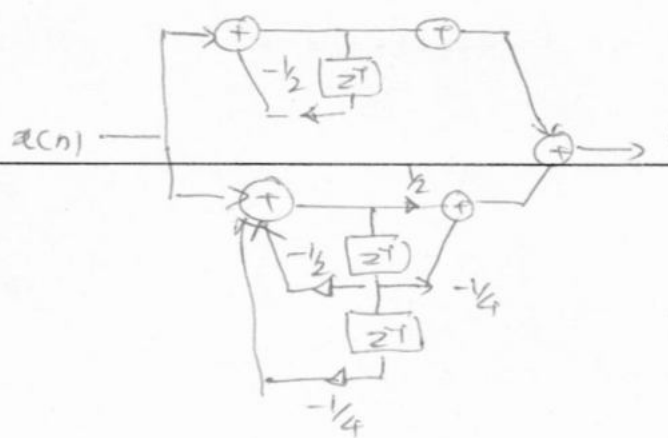
SHRIDEVI INSTITUTE OF ENGINEERING & TECHNOLOGY, TUMKUR -06

Department of Electrical and Electronics Engineering

Subject with Code: Digital Signal Processing 10EE64

Question Number	Scheme & Solution	Marks
1	FFT defn	01
2 a)	Derivation	06
	Flowgraph	02
b)	$X(K) = \{10, 2-2j, 2, 2+j2\}$	
		(2)+(2)
3 a)	Derivation	06
	Flow graph	02
b)		(2)+(2)
	$X(K) = \{2, 2-j\sqrt{2}, 2, 2+j\sqrt{2}\}$ $\{0, 2, 0, 2\}$	(3)+(3)
4 a)	Derivation + Flowgraph	
b)		A = ½, B = -¼, C = ½ (3) (3)

19

SHRIDEVI INSTITUTE OF ENGINEERING & TECHNOLOGY, TUMKUR-06
Department of Electrical & Electronics Engineering
INTERNAL ASSESSMENT - III, MAY-2017

Semester: **VI** Subject: **Digital Signal Processing** Sub Code: **10EE-64**
Max Marks: 40 Date: 30-05-2017 Duration: **75** Minutes

NOTE: 1. Question No 1 is compulsory
2. Answer any two full questions from question No 2 to question No 4

1. Write any one property of Butterworth filter. 01 Marks

2 a) Derive an expression for Impulse Invariant method. 06 Marks
b) Convert the analog filter $H(S) = \frac{1}{(S+1)(S+2)}$ to digital filter using Impulse Invariant method 06 Marks

3 a) Derive an expression for Bilinear transformation method 06 Marks
b) Convert the analog filter $H(S) = \frac{s+1}{(S+2)(S+3)}$ to digital filter using Impulse Invariant method 06 Marks

4 a) Design a digital low pass filter using Bilinear transformation to satisfy the following specifications.
i) Monotonic pass & stop bands
ii) -3.01 dB cut-off frequency of 0.5π
iii) Magnitude down at least by 15dB at $0.75\ \pi$

12 Marks

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SHRIDEVI INSTITUTE OF ENGINEERING & TECHNOLOGY, TUMKUR-06
Department of Electrical & Electronics Engineering
INTERNAL ASSESSMENT - III, MAY-2017

Semester: **VI** Subject: **Digital Signal Processing** Sub Code: **10EE-64**
Max Marks: 40 Date: 30-05-2017 Duration: **75** Minutes

NOTE: 1. Question No 1 is compulsory
2. Answer any two full questions from question No 2 to question No 4

1. Write any one property of Butterworth filter. 01 Marks

3 a) Derive an expression for Impulse Invariant method. 06 Marks
b) Convert the analog filter $H(S) = \frac{1}{(S+1)(S+2)}$ to digital filter using Impulse Invariant method 06 Marks

3 a) Derive an expression for Bilinear transformation method 06 Marks
b) Convert the analog filter $H(S) = \frac{s+1}{(S+2)(S+3)}$ to digital filter using Impulse Invariant method 06 Marks

4 a) Design a digital low pass filter using Bilinear transformation to satisfy the following specifications.
iv)Monotonic pass & stop bands
v) -3.01 dB cut-off frequency of 0.5π
vi)Magnitude down at least by 15dB at $0.75\ \pi$

12 Marks

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SHRIDEVI EDUCATION

SHRIDEVI INSTITUTE OF ENGINEERING & TECNOLOGY
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Sira Road TUMKUR-572106

Sub: Digital Signal Processing **Scheme & Solution** **Sub Code;** 10EE-64

Question Number	Solution	Marks Allocated
1	$\lvert H(j\Omega)\rvert^2_{\Omega=0} = 1$ @ $\lvert H(j\Omega)\rvert^2_{\Omega=\Omega_c} = \frac{1}{2}$	01
2 a)	$\frac{1}{s-P_K} \longrightarrow \frac{1}{1-e^{P_K T} z^{-1}}$	06
b)	$A=1$; $B=-1$ ② $H(z) = \frac{0.2325 z^{-1}}{1-0.5031 z^{-1}+0.04978 z^{-2}}$	04
3 a)	$s = \frac{2}{T}\frac{1-z^{-1}}{1+z^{-1}}$	06
b)	$A=-1$; $B=2$ — ② $H(z) = \frac{1-0.8965 z^{-1}}{1-1.559 z^{-1}+0.6065 z^{-2}}$ — (04)	
4)	$\Omega_1' = \frac{2}{T}\tan\left(\frac{\omega_1}{2}\right) = 2\tan\left(\frac{0.5\pi}{2}\right) = 2$ $\Omega_2' = \frac{2}{T}\tan\left(\frac{\omega_2}{2}\right) = 2\tan\left(\frac{0.75\pi}{2}\right) = 4.8284$	(2)
	$N = \log\left[\frac{10^{\frac{k_1}{10}}-1}{10^{\frac{-k_2}{10}}-1}\right] \Big/ 2\log\left(\frac{\Omega_1'}{\Omega_2'}\right) = 1.9411 \simeq (2)$	(2)
	$\Omega_c = \frac{\Omega_1'}{\left(10^{-k_1/10}-1\right)^{1/2N}} = \frac{2}{\left(10^{0.301}-1\right)^{1/4}} = 2$	(2)
	$H(s) = \frac{1}{s^2+\sqrt{2}s+1}\Big/ s-\frac{s}{2} = \frac{4}{s^2+2\sqrt{2}s+4}$	(4)
	$s = \frac{2}{T}\left(\frac{1-z^{-1}}{1+z^{-1}}\right)$ $H(z) = \frac{1+2z^{-1}+z^{-2}}{3.4142+0.5857 z^{-2}}$	(2)

SHRIDEVI INSTITUTE OF ENGINEERING & TECHNOLOGY, TUMKUR-06

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Department of Electrical & Electronics Engineering

Power system Analysis I

FIRST-INTERNALS

VI Semester | Duration: 75 Minutes

Max Marks: 25 | date: 09.03.18

NOTE: First question is compulsory. Answer any *two* full questions

1. Define per unit quantity. 1M

2. a) What are the advantages of P.U.System. 4M

b) c) A single line diagram of power system is shown in figure. Draw the impedance diagram. Choose a base of 100 MVA, 220kv in the 50 ohm line. The ratings of the generator, motor & transformer are given below:

Generator G1: 40 MVA, 25kv, X" = 20%

Synchronous motor: 50 MVA, 11kv, X'' = 30%

Y-Y Transformer T1: 40 MVA, 33/220 kv, X=15%

Y- Transformer T2: 30 MVA, 11/220 kv, X=15%. 8M

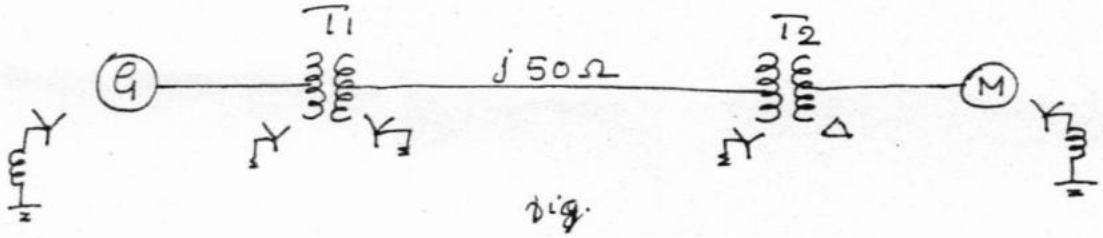


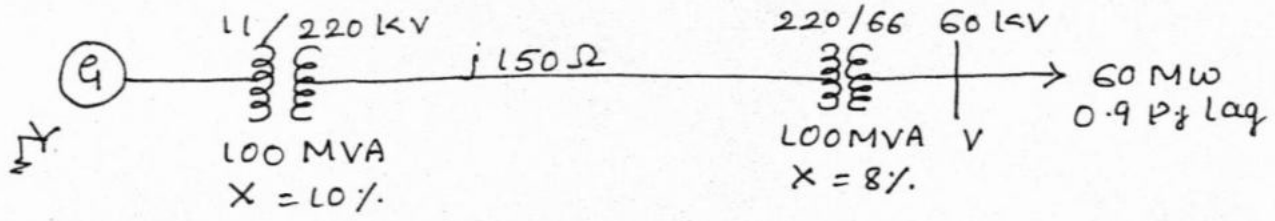
fig.

3.a) Show that per Unit impedance of a two winding transformer on either of its side is equal. 4M

b) Show that a balanced 3 phase generator develops only positive sequence voltages only. 4M

c) Find the symmetrical components for the given three line currents. Ia= $10\angle 0^\circ$ A Ib= $10\angle -90^\circ$ A and Ic=15 $\angle 135^\circ$ A 4M

4. a) c) The one line diagram of a power system is shown in figure. The ratings of the various components are also given. A load of 60MW at 0.9 p.f lagging is tapped from 66kv substation bus which is to be maintained at 60kv. Calculate the terminal voltage of the generator using p.u. method. Select a base of 100 MVA & 220 kv on the transmission line. 12M



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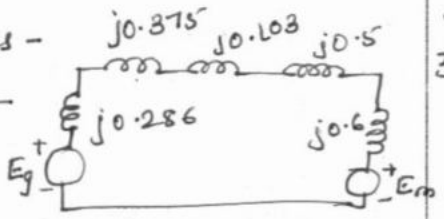
Department of Electrical and Electronics Engineering

Subject with Code: Power System Analysis-I 15EE62

Question Number	Scheme & Solution	Marks
1.	Definition	1M
2.a)	Advantages – 4.	4M
b)	$(kV)_B$ for G slc – 33 kV	1M
	$(kV)_B$ for M slc – 11 kV	1M
	Calculation of Reactances –	3M
	Reactance diagram – 	3M
3.a)	Derivation : $(Z_{eq1})_{pu} = (Z_{eq})_{2pu}$	4M
(b)	Derivation :- $\begin{bmatrix} V_{a0} \\ V_{a1} \\ V_{a2} \end{bmatrix} = \begin{bmatrix} 0 \\ V_a \\ 0 \end{bmatrix}$ $V_{a1} = V_a$	4M
c)	$I_{a0} = \frac{1}{3}(I_a + I_b + I_c) = 0.286 \angle 135° A$	1M
	$I_{a1} = \frac{1}{3}[I_a + a I_b + a^2 I_c] = 11.43 \angle 115° A$	1M
	$I_{a2} = \frac{1}{3}[I_a + a^2 I_b + a I_c] = 9.87 \angle -104.99° A$	1M
	Formula $\cdot \begin{bmatrix} I_{a0} \\ I_{a1} \\ I_{a2} \end{bmatrix} = \frac{1}{3}\begin{bmatrix} 1 & 1 & 1 \\ 1 & a & a^2 \\ 1 & a^2 & a \end{bmatrix}\begin{bmatrix} I_a \\ I_b \\ I_c \end{bmatrix}$ →	1M

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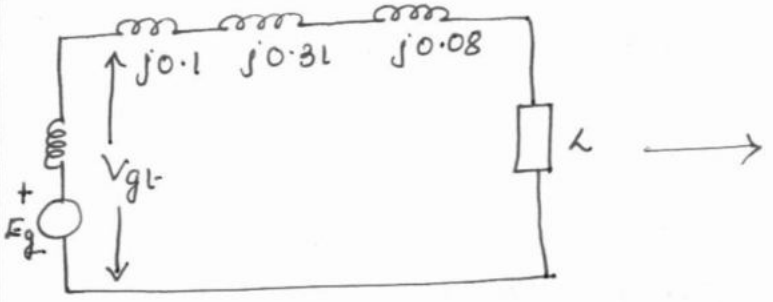
Department of Electrical and Electronics Engineering

Subject with Code: Power System Analysis-I

Question Number	Scheme & Solution	Marks
4.a)	$(kV)_B$ of G.S/C = 11kV $(kV)_B$ of Load S/C = 66kV →	2M
	Reactance of T_1 = j0.1 pu. Reactance of T2. Line = j0.3 pu Reactance of T_2 = j0.08 pu. →	2M
	Reactance diagram.  →	4M
	Terminal Voltage :- V_L = 0.909 pu → (1) I_L = 641.5 ∠-25.84 I_B = 874.77A → (1) I_{pu} = 0.733 ∠-25.84 pu. $(V_{gL})_{pu}$ = 1.112 ∠16.87 pu. → (1) $(V_{GT})_{kV}$ = 12.23 kV → (1)	4M

—— X ——

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Department of Electrical & Electronics Engineering

INTERNAL ASSESSMENT - I, MARCH-2018

Semester: **VI** Subject: **DIGITAL SIGNAL PROCESSING** Sub Code: **15EE-63**

Max Marks: 25 Date: 12-03-2018 Duration: **75** Minutes

NOTE: 1. Question No 1 is compulsory

2. Answer any two full questions from question No 2 to question No 4

1. Define Discrete Fourier Transformation (DFT) 01 Mark

2 a) Determine the 4-point DFT of x(n) ={0, 1, 2, 3}. Hence verify the result by taking IDFT using linear transformation. 06 Marks

b) Compute the 8-point DFT of the sequence x(n) ={1, 2, 2, 1, 2, 2} and verify conjugate symmetry about $k=\frac{N}{2}$ 06 Marks

3 a) State and prove the i) Circular time shift property ii) Circular frequency shift property iii) Parseval's theorem 09 Marks

b) The 3 samples of the 5 point DFT X(k) of a real sequence x(n) of length 5 are X(0)= 3, X(2)=0.5+j1.53, X(4)=05-j0.36. 03 Marks

4 a) Obtain the circular convolution of x1(n)={1, 2, 3, 4} witht x2(n)={1, 1, 2, 2}. 06 Marks

b) Compute the 4-point DFT of the sequence x(n)={1, 0, 1, 0}. Also find y(n), if $Y(k)=X((k-2))_4$. 06 Marks

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SHRIDEVI INSTITUTE OF ENGINEERING & TECHNOLOGY, TUMKUR-06

Department of Electrical & Electronics Engineering

INTERNAL ASSESSMENT - I, MARCH-2018

Semester: **VI** Subject: **DIGITAL SIGNAL PROCESSING** Sub Code: **15EE-63**

Max Marks: 25 Date: 12-03-2018 Duration: **75** Minutes

NOTE: 1. Question No 1 is compulsory

2. Answer any two full questions from question No 2 to question No 4

. Define Discrete Fourier Transformation (DFT) 01 Mark

2 a) Determine the 4-point DFT of x(n) ={0, 1, 2, 3}. Hence verify the result by taking IDFT using linear transformation. 06 Marks

b) Compute the 8-point DFT of the sequence x(n) ={1, 2, 2, 1, 2, 2} and verify conjugate symmetry about $k=\frac{N}{2}$ 06 Marks

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b) Compute the 4-point DFT of the sequence x(n)={1, 0, 1, 0}. Also find y(n), if $Y(k)=X((k-2))_4$. 06 Marks

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SHRIDEVI INSTITUTE OF ENGINEERING & TECHNOLOGY, TUMKUR -06

Department of Electrical and Electronics Engineering

I Internal Assessment

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Subject with code: Digital Signal Processing-15EE63

Question Number	Scheme & Solution	Marks
1	convert time domain signal into freqency domain	1
2 a)	$X(k) = \sum_{n=0}^{3} x(n) e^{-j\frac{2\pi}{4}kn}$ — ① $X(k) = \{6, -2+j2, -2, -2-j2\}$ ②	
	$x(n) = \frac{1}{N} \sum_{k=0}^{3} X(k) e^{+j\frac{2\pi}{4}kn}$ — ① $x(n) = \{0, 1, 2, 3\}$ ②	
b)	$X(k) = \sum_{n=0}^{8-1=7} x(n) e^{-j\frac{2\pi}{8}kn}$	①
	$X(k) = \{10, -1.707 - j2.707, 1-3j, -0.293 + j1.293$ $0, -0.293 - j1.293, 1+3j, -1.707 + j2.707\}$	⑤
3 a)	(i) $x((n-m))_N \leftrightarrow W_N^{mk} X(k)$ (ii) $x(n) e^{j\frac{2\pi}{N}ln} \longleftrightarrow X((k-l))_N$	3 + 3
	(iii) $\sum_{k=0}^{N-1} \lvert X(k)\rvert^2 = N \sum_{n=0}^{N-1} \lvert x(n)\rvert^2$	3
b)	$X(1) = 0.5 + j0.36$; $X(3) = 0.5 - j1.53$; $X(N-k) = X^*(k)$	③
4 a)	$\{15, 17, 15, 13\}$	6
b)	$X(k) = \sum_{n=0}^{3} x(n) e^{-j\frac{2\pi}{4}kn} = 1 + e^{-j\pi k}$	①
	$X(k) = \{2, 0, 2, 0\}$	②
	$2g(n) = W_4^{-2n} x(n)$	①
	$x(n) = \{1, 0, 1, 0\}$	②

SHRIDEVI INSTITUTE OF ENGINEERING & TECHNOLOGY, TUMKUR-06

(An ISO 9001:2008 Certified Institution)

Department of Electrical & Electronics Engineering

Power system Analysis I

SECOND-INTERNALS

VI Semester **Duration: 75 Minutes**

Max Marks: 25 **date: 13.04.18**

NOTE: First question is compulsory. Answer any *two* full questions

1. Define symmetrical components. 1M

2. a) Derive an expression for the three phase complex power in terms of symmetrical components. 6M

   b) Define sequence impedances & sequence networks 6M

3.a) draw the positive, negative and zero sequence networks for the power system shown in the figure. (3) Choose a base of 50MVA, 220KV in the 50Ω transmission lines. Mark all the reactance in p.u. The ratings of the generators and transformers are

Gen G1 & G2: 25MVA, 11KV, X''=20%.

Three phase transformers each rated: 20MVA, 11Y/220Y kV, X=15%.

The negative sequence reactance of each synchronous machine is equal to its sub transient reactance. The zero sequence reactance of each machine is 8%. Assume that zero sequence reactance of lines are 250% of their positive reactances. 12M

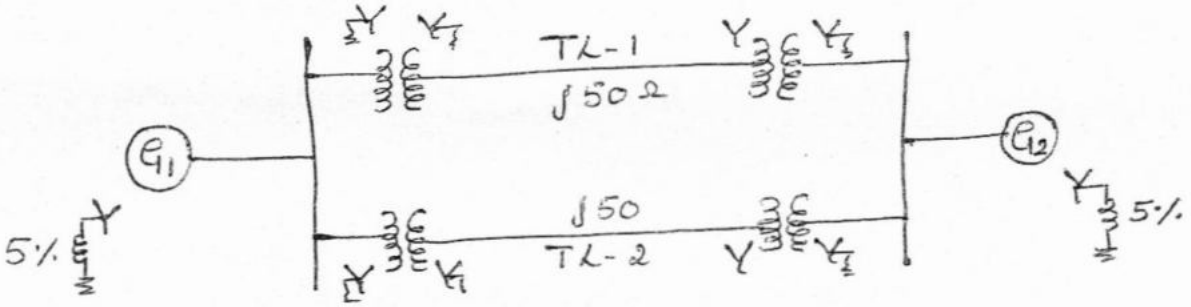


Fig (3)

4.a) Draw the zero sequence networks for the following 3-phase transformers.

i) Y - Y ii) Y - Y iii) Δ - Δ iv) Y - Δ v) Y - Δ vi) Δ - Y 6M

b) Draw the positive, negative & zero sequence networks for the power system shown in figure 4(b) 6M

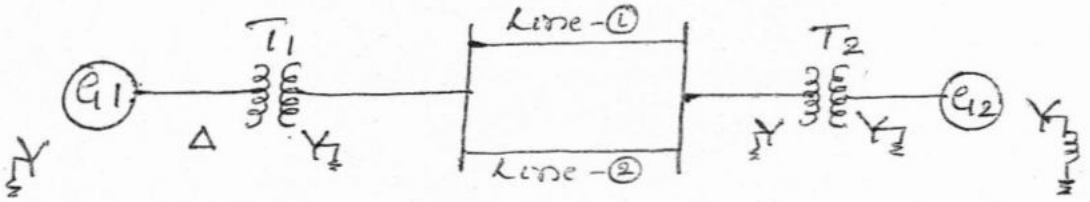
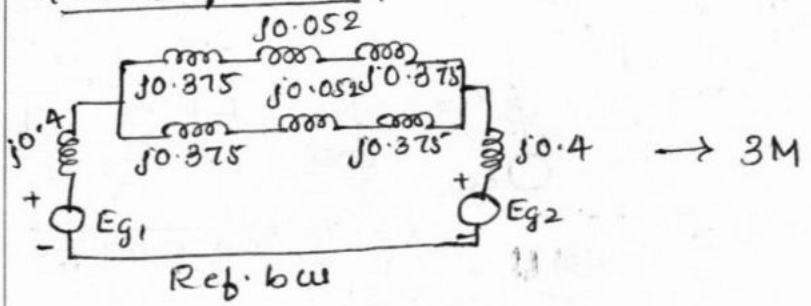
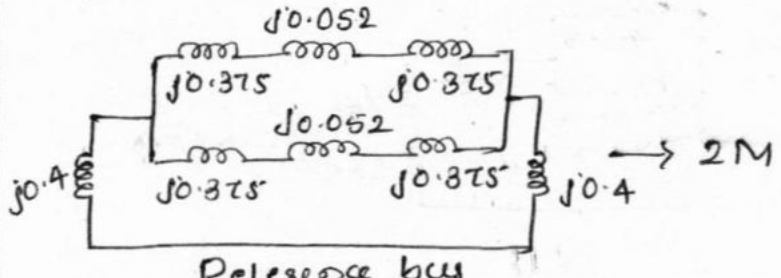


Fig. 4 (b)

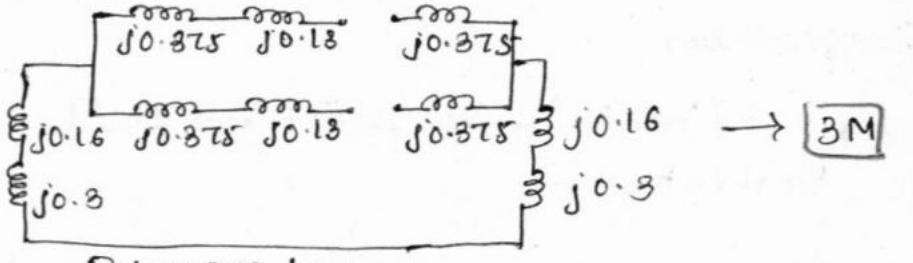
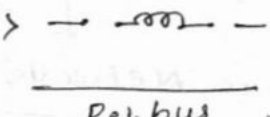
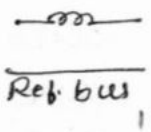
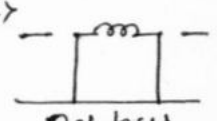
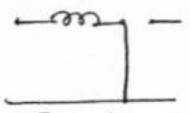
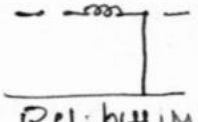
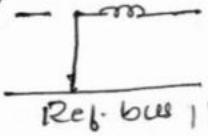
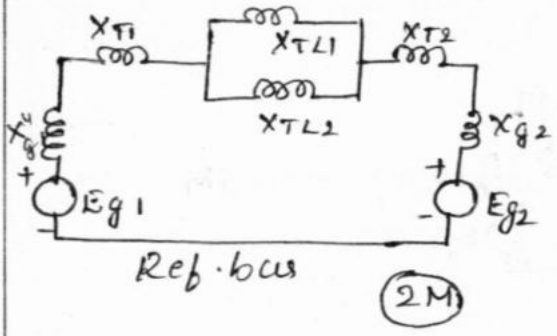
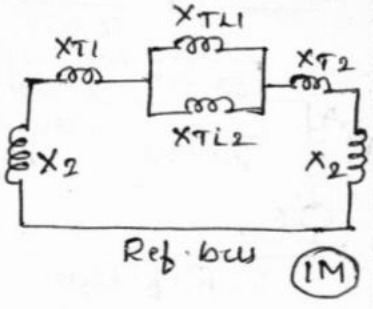
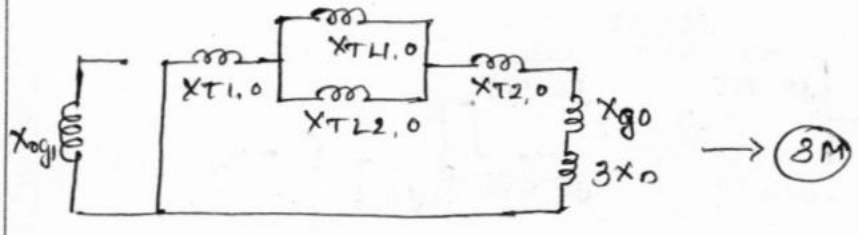
Date : 16.04.18

Subject Title power system analysis I **Subject Code:15EE62**

Question Number	Solution	Marks
1)	Definition.	1M
2a)	$P_\phi = 3\{V_{a0} I_{a0}^* + V_{a1} I_{a1}^* + V_{a2} I_{a2}^*\}$ Derivation	6M
b)	Definitions :- +ve Seq impedance -ve Seq impedance } 3M Zero " — " — +ve sequence Network -ve — " — — " — Zero — " — — " — } 3M	6M
3.)	$(kV)_B$ for G_1 s/c → 11kV $(kV)_B$ for G_2 s/c → 11kV } 1M Calculation of Reactances → 3M +ve Seq N/w.  → 3M -ve Sequence N/w.  → 2M	

Date : 16.04.18.

Subject Title power system analysis I **Subject Code:**15EE62

Question Number	Solution	Marks
	Zero Sequence N/w:  → 3M	12M
4.a)	i)  Ref. bus 1M ii)  Ref. bus 1M iii)  Ref. bus 1M	each 1M. 6M
	iv)  Ref. bus 1M v)  Ref. bus 1M vi)  Ref. bus 1M	
b)	+ve Seq. N/w. −ve Seq. N/w  2M  1M	
	Zero Sequence Networks:  → 3M	6M

SHRIDEVI INSTITUTE OF ENGINEERING & TECHNOLOGY, TUMKUR-06

Department of Electrical & Electronics Engineering

INTERNAL ASSESSMENT - II, APRIL-2018

Semester: **VI** Subject: **DIGITAL SIGNAL PROCESSING** Sub Code: **15EE-63**

Max Marks: 25 Date: 16-04-2018 Duration: **75** Minutes

NOTE: 1. Question No 1 is compulsory

2. Answer any two full questions from question No 2 to question No 4

1. Calculate the number of multiplication needed in the DFT & FFT for N=16.	01 Mark
2 a) Find the output y(n) of a filter whose impulse response is h(n) ={1, 1, 1} and input signal x(n) ={3,-1, 0, 1, 3, 2, 0, 1, 2, 1}using i) overlap-add method ii) overlap-save method.	12 Marks
3 a) Develop the DIT-FFT algorithm for N=8.	08 Marks
b) Compute the 4 point DFT of the sequence x(n)={4, 3, 2, 1} by invoking DIF-FFT algorithm.	04 Marks
4 a) Determine the 8-point DFT of sequence x(n)={0, 1, 2, 3, 4, 5, 6, 7} using DIT-FFT algorithm.	08 Marks
b) Compute the 4-point IDFT of the sequence X(k)={4, 1+j, -2, 1-j} by using DIF-FFT algorithm	04 Marks

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SHRIDEVI INSTITUTE OF ENGINEERING & TECHNOLOGY, TUMKUR-06

Department of Electrical & Electronics Engineering

INTERNAL ASSESSMENT - II, APRIL-2018

Semester: **VI** Subject: **DIGITAL SIGNAL PROCESSING** Sub Code: **15EE-63**

Max Marks: 25 Date: 16-04-2018 Duration: **75** Minutes

NOTE: 1. Question No 1 is compulsory

2. Answer any two full questions from question No 2 to question No 4

1. Calculate the number of multiplication needed in the DFT & FFT for N=16.	01 Mark
2 a) Find the output y(n) of a filter whose impulse response is h(n) ={1, 1, 1} and input signal x(n) ={3,-1, 0, 1, 3, 2, 0, 1, 2, 1}using i) overlap-add method ii) overlap-save method.	12 Marks
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4 a) Determine the 8-point DFT of sequence x(n)={0, 1, 2, 3, 4, 5, 6, 7} using DIT-FFT algorithm.	08 Marks
b) Compute the 4-point IDFT of the sequence X(k)={4, 1+j, -2, 1-j} by using DIF-FFT algorithm	04 Marks

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SHRIDEVI INSTITUTE OF ENGINEERING & TECHNOLOGY, TUMKUR-06

Department of Electrical & Electronics Engineering

INTERNAL ASSESSMENT - II, APRIL-2018

Semester: **VI** Subject: **DIGITAL SIGNAL PROCESSING** Sub Code: **15EE-63**

Max Marks: 25 Date: 16-04-2018 Duration: **75** Minutes

NOTE: 1. Question No 1 is compulsory

2. Answer any two full questions from question No 2 to question No 4

1. Calculate the number of multiplication needed in the DFT & FFT for N=16.	01 Mark
2 a) Find the output y(n) of a filter whose impulse response is h(n) ={1, 1, 1} and input signal x(n) ={3,-1, 0, 1, 3, 2, 0, 1, 2, 1}using i) overlap-add method ii) overlap-save method.	12 Marks
3 a) Develop the DIT-FFT algorithm for N=8.	08 Marks
b) Compute the 4 point DFT of the sequence x(n)={4, 3, 2, 1} by invoking DIF-FFT algorithm.	04 Marks
4 a) Determine the 8-point DFT of sequence x(n)={0, 1, 2, 3, 4, 5, 6, 7} using DIT-FFT algorithm.	08 Marks
b) Compute the 4-point IDFT of the sequence X(k)={4, 1+j, -2, 1-j} by using DIF-FFT algorithm	04 Marks

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SHRIDEVI INSTITUTE OF ENGINEERING & TECHNOLOGY, TUMKUR -06

Department of Electrical and Electronics Engineering

II Internal Assessment

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Subject with code: Digital Signal Proceesing-15EE63

Question Number	Scheme & Solution	Marks
1	DFT $N^2 = 256$ FFT $= \frac{N}{2}\log_2 N = 32$	1
2 a)	$N = 2^M$ $N = 8$ $N = L+M-1$ $L = 6$	2
	i) $x_1(n) = \{3, -1, 0, 1, 3, 2, 0, 0\}$	2
	$x_2(n) = \{0, 1, 2, 1, 0, 0, 0, 0\}$	
	3 2 2 0 4 6 5 2	2
	0 1 3 4 3 1 0 0	
	$y(n) = \{3, 2, 2, 0, 4, 6, 5, 3, 3, 4, 3, 1\}$	2
	ii) $x_1(n) = \{0, 0, 3, -1, 0, 1, 3, 2\}$	2
	$x_2(n) = \{3, 2, 0, 1, 2, 1, 0, 0\}$	
	$y(n) = \{3, 2, 2, 0, 4, 6, 5, 3, 3, 4, 3, 1\}$	2
3a)	Stanal derivation + Flow graph 6 + 2	8
b)	$X(0) = 10$, $X(2) = 2$ $X(1) = 2-j2$ $X(3) = 2+j2$	
	$X(k) = \{10, 2-j2, 2, 2+j2\}$	4
4 a)	DIT-FFT $X(k) = \{28, -4+j9.65, -4+j4, -4+j1.65,$	8
	$-4, -4-j1.65, -4-j4, -4-j9.65\}$	
b)	$x(n) = \{1, 1, 0, 2\}$	

SHRIDEVI INSTITUTE OF ENGINEERING & TECHNOLOGY, TUMKUR-06

(An ISO 9001:2008 Certified Institution)

Department of Electrical & Electronics Engineering

Power system Analysis I

THIRD-INTERNALS

VI Semester | Duration: 75 Minutes

Max Marks: 25 | date: 21.05.18

NOTE: First question is compulsory. Answer any *two* full questions

1. Define faults. 1M

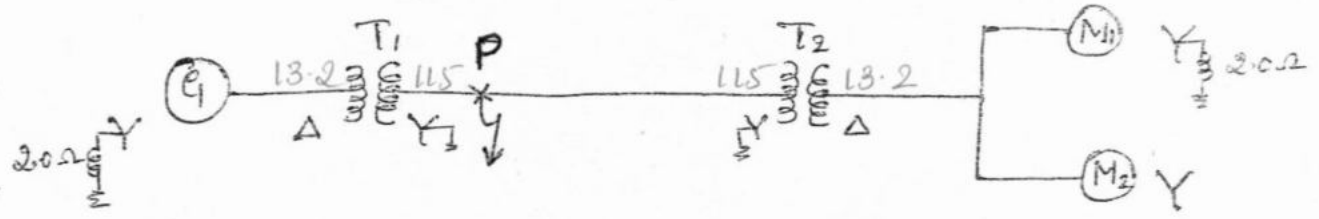
2. a) Derive an expression for the fault current when an LLG fault occurs on an unloaded generator through a fault impedance Zf. Draw the inter connection of sequence networks. 8M

   b) A 400V star connected neutral grounded three phase generator is subjected to various types of faults. The fault currents for various types of faults are
   i) three phase---120amperes
   ii) L-L Fault ----150amperes
   iii) L-G Fault---250amperes
   determine the sequence impedances. 4M

3.a) Derive an expression for the fault current when an LL fault occurs on power system through a fault impedance Zf. Draw the inter connection of sequence networks. 8M

   b) Write a short notes on open conductor of faults. 4M

4) A 30MVA, 13.8kV, 3 phase alternator has a Xd=15%, X2=15% & X0=5% respectively. The alternator supplies two motors over a transmission line having transformers at both ends as shown in figure. The motors have rated inputs of 20MVA & 10MVA. Both 12.5kV with Xd=20%, X2=20% & Xo=5% respectively. Current limiting reactors of 2.0Ω each are in the neutral of the alternator and a large motor. Th e 3 phase transformers are both rated 35 MVA, !3.2 delta – 115 Y kV, with leakage reactance of 10% . Series reactance of the line is 80Ω. The zero sequence reactance of the line is 200Ω. Determine the fault current when L-L fault takes place at the point P. Assume Vf=120kV. 12M



SHRIDEVI INSTITUTE OF ENGINEERING & TECHNOLOGY, TUMKUR -06

Department of Electrical and Electronics Engineering

Subject with Code: Power Systems Analysis - I 15EE62.

Question Number	Scheme & Solution	Marks
1.	Definition — 1M	1M
2.a)	Figure — 1M Terminal conditions — 1M Sequence quantities → 2M Sequence Nlw → 2M Fault Cl (If) = 3 Ia0. → 2M $= \frac{3(-I_{a1}) \times Z_2}{(Z_2 + Z_0 + 3Z_f)}$	8M
b)	$X_1 = 1.924\ \Omega$ → 1M $X_2 = 0.7242\ \Omega$ → 1M $X_0 = 0.105\ \Omega$ → 2M	4M
3.a)	Figure → 1M Terminal conditions → 1M Sequence quantities → 2M Sequence Nlw → 2M Fault current. $\lvert I_f \rvert = \sqrt{3}\, I_{a1}$ 2M $= \sqrt{3}\, \frac{V_{th}}{Z_1 + Z_2 + Z_f}$	8M
b)	One conductor open fault. — 2M Two conductors open fault — 2M	4M.

4.) $(kV)_B$ for Tee Line SIC = 120.22kV

$(kV)_B$ for M SIC = 13.8 kV.

SHRIDEVI INSTITUTE OF ENGINEERING & TECHNOLOGY, TUMKUR-06

Department of Electrical & Electronics Engineering

INTERNAL ASSESSMENT - III, MAY-2018

Semester: **VI** Subject: **DIGITAL SIGNAL PROCESSING** Sub Code: **15EE-63**

Max Marks: 25 Date: 22-05-2018 Duration: **75** Minutes

NOTE: 1. Question No 1 is compulsory

2. Answer any two full questions from question No 2 to question No 4

1. Write any one property of Butterworth filter. 01 Marks
2. a) Derive an expression for Impulse Invariant method. 06 Marks

   b) Derive an expression for Bilinear transformation method 06 Marks
3. a) Draw the direct form I & II realization of a system with transfer function $H(z) = \frac{0.28Z^2+0.819Z+0.04}{0.5Z^3+0.3Z^2+0.17Z-0.2}$ 08 Marks

   b) Obtain the cascade form realizations for the system function given by $H(z) = \frac{1+\frac{1}{4}z^{-1}}{(1+\frac{1}{2}z^{-1})(1+\frac{1}{2}z^{-1}+\frac{1}{4}z^{-2})}$. 04 Marks
4. a) Design a digital low pass filter using Bilinear transformation to satisfy the following specifications.
   i) Monotonic pass & stop bands
   ii) -3.01 dB cut-off frequency of 0.5π
   iii) Magnitude down at least by 15dB at $0.75\ \pi$

   12 Marks

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SHRIDEVI INSTITUTE OF ENGINEERING & TECHNOLOGY, TUMKUR-06

Department of Electrical & Electronics Engineering

INTERNAL ASSESSMENT - III, MAY-2018

Semester: **VI** Subject: **DIGITAL SIGNAL PROCESSING** Sub Code: **15EE-63**

Max Marks: 25 Date: 22-05-2018 Duration: **75** Minutes

NOTE: 1. Question No 1 is compulsory

2. Answer any two full questions from question No 2 to question No 4

1. Write any one property of Butterworth filter. 01 Marks
2. a) Derive an expression for Impulse Invariant method. 06 Marks

   b) Derive an expression for Bilinear transformation method 06 Marks
3. a) Draw the direct form I & II realization of a system with transfer function $H(z) = \frac{0.28Z^2+0.819Z+0.04}{0.5Z^3+0.3Z^2+0.17Z-0.2}$ 08 Marks

   b) Obtain the cascade form realizations for the system function given by $H(z) = \frac{1+\frac{1}{4}z^{-1}}{(1+\frac{1}{2}z^{-1})(1+\frac{1}{2}z^{-1}+\frac{1}{4}z^{-2})}$. 04 Marks
4. a) Design a digital low pass filter using Bilinear transformation to satisfy the following specifications.
   iv)Monotonic pass & stop bands
   v) -3.01 dB cut-off frequency of 0.5π
   vi)Magnitude down at least by 15dB at $0.75\ \pi$

   12 Marks

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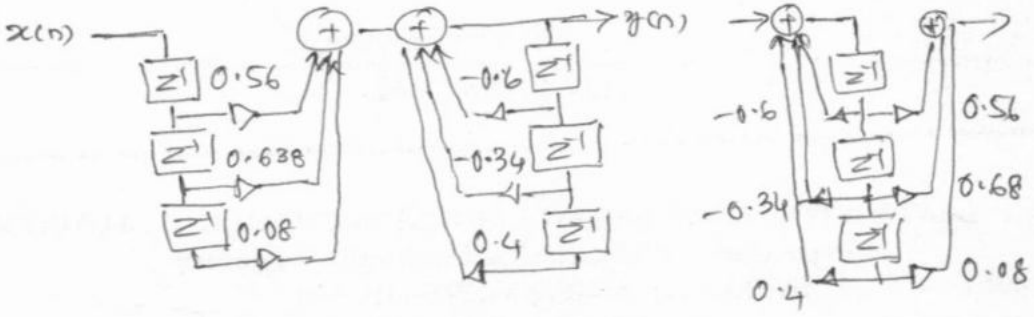
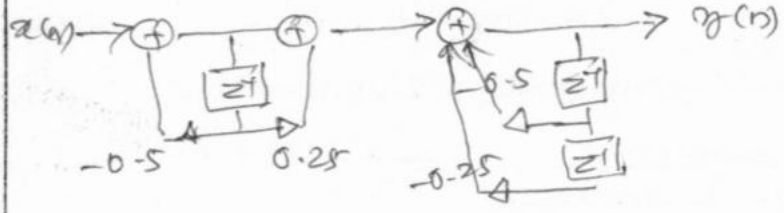
SHRIDEVI INSTITUTE OF ENGINEERING & TECHNOLOGY,
TUMKUR -06
Department of Electrical and Electronics Engineering
III Internal Assessment

An ISO 9001:2015 Certified Institution

Subject with code: Digital Signal Proceesing-15EE63

Question Number	Scheme & Solution	Marks
1	Magnitude at $\Omega = 0$ is 1 (2) No & parameter N, Ω_c	(1)
2 a)	$\frac{1}{S - P_K} \longrightarrow \frac{1}{1 - e^{P_K T} z^{-1}}$	6
b)	$S = \frac{2}{T} \frac{1 - z^{-1}}{1 + z^{-1}}$	6
3 a)		4+4
b)		4
4 a)	$\Omega_1' = \frac{2}{T} \tan\left(\frac{\omega_1}{2}\right) = 2 \quad \Omega_2' = 4.828$	(2)
	$N = 1.9411 \simeq (2)$	(2)
	$\Omega_c = 2$	(2)
	$H(S) = \frac{1}{S^2 + \sqrt{2}S + 1} \Big/ S \to \frac{S}{2} \quad H(S) = \frac{4}{S^2 + 2\sqrt{2}S + 4}$	(4)
	$S = \frac{2}{T} \frac{(1 - z^{-1})}{1 + z^{-1}} \quad H(z) = \frac{1 + 2z^{-1} + z^{-2}}{3.4142 + 0.5857 z^{-2}}$	(2)

SHRIDEVI INSTITUTE OF ENGINEERING & TECHNOLOGY, TUMKUR-06

Department of Electrical & Electronics Engineering

INTERNAL ASSESSMENT - I, MARCH-2017

Semester: **VI** Subject: **DIGITAL SIGNAL PROCESSING** Sub Code: **10EE-64**

Max Marks: **25** Date: 18-03-2017 Duration: **75** Minutes

NOTE: 1. Question No 1 is compulsory

2. Answer any two full questions from question No 2 to question No 4

1. Define Discrete Fourier Transformation (DFT) 01 Marks

2 a) Determine the 4-point DFT of x(n) ={0, 1, 2, 3}. Hence verify the result by taking IDFT using linear transformation. 06 Marks

b) Compute the 8-point DFT of the sequence x(n) ={1, 2, 2, 1, 2, 2} and verify conjugate symmetry about $k=\frac{N}{2}$ 06 Marks

3 a) Find the 4-point DFT of sequence $x(n) = 6 + \sin(\frac{\pi}{2}n)$ 04 Marks

b) State and prove the i) Circular time shift property ii) Circular frequency shift property 08 Marks

4 a) Using overlap and save method, determine the output y(n) of a filter whose impulse response h(n)={1, 1, 1} to an input x(n)={3, -1, 0, 1, 3, 2, 0, 1}. Use 6-point circular convolution 06 Marks

b) Given and infinite sequence input x(n) ={1, 2, 3, 4, 1, 3, 5, 7, 2, 4, 6, 8,.....} and h(n)={1, 2, 1} Find the output y(n) using overlap add method, considering x(n) is made up of segments of length 4. 06 Marks

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SHRIDEVI INSTITUTE OF ENGINEERING & TECHNOLOGY, TUMKUR-06

Department of Electrical & Electronics Engineering

INTERNAL ASSESSMENT - I, MARCH-2017

Semester: **VI** Subject: **DIGITAL SIGNAL PROCESSING** Sub Code: **10EE-64**

Max Marks: **25** Date: 18-03-2017 Duration: **75** Minutes

NOTE: 1. Question No 1 is compulsory

2. Answer any two full questions from question No 2 to question No 4

1 Define Discrete Fourier Transformation (DFT) 01 Marks

2 a) Determine the 4-point DFT of x(n) ={0, 1, 2, 3}. Hence verify the result by taking IDFT using linear transformation. 06 Marks

b) Compute the 8-point DFT of the sequence x(n) ={1, 2, 2, 1, 2, 2} and verify conjugate symmetry about $k=\frac{N}{2}$ 06 Marks

3 a) Find the 4-point DFT of sequence $x(n) = 6 + \sin(\frac{\pi}{2}n)$ 04 Marks

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b) Given and infinite sequence input x(n) ={1, 2, 3, 4, 1, 3, 5, 7, 2, 4, 6, 8,.....} and h(n)={1, 2, 1} Find the output y(n) using overlap add method, considering x(n) is made up of segments of length 4. 06 Marks

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10EE64 - DIGITAL SIGNAL PROCESSING

SCHEME & SOLUTION
IA MARCH - 2017

1 DFT definition — 01

2 a) $X(k) = \{6, -2+2j, -2, -2-2j\}$ — (03)

$x(n) = \{0, 1, 2, 3\}$ — (03)

b) $x(n) = \{1, 2, 2, 1, 2, 2, 0, 0\}$ — (2)

$\{10, 1.707 - j2.707, 1 - j3, -0.293 + j1.293, 0, -0.293 - j1.293, 1 + 3j$

$1.707 + j2.707\}$ — (04)

3 a) $x(n) = \{6, 7, 6, 5\}$ — (2)

$X(k) = \{24, -2j, 0, 2j\}$ — (2)

b) i) $x((n-m))_N \longleftrightarrow W_N^{mk} X(k)$ — (4)

ii) $x(n)\, e^{-j\frac{2\pi}{N}ln} \longleftrightarrow X((k-l))_N$ — (4)

4 a) $x_1(n) = \{1, 1, 3, 2, 2, 0\}$ — (1)

$x_2(n) = \{1, 2, 4, 6, 5, 3\}$ — (1)

$x_3(n) = \{0, 1, 1, 0, 0, 0\}$ — (1)

$N = L + M - 1$

$6 = L = 3 - 1$ } (1)

$L = 4$

$x(n) = \{3, 2, 2, 0, 4, 6, 5, 3, 1, 1\}$ — (1)

b) 1, 4, 8 12 11 4 — (1)

1 5 12 20 19 7 — (1)

$N = 6$ — (1)

2 8 16 24, 22 8 — (1)

$x(n) = \{1, 4, 8, 12, 12\ 9, 12, 20, 21, 15, 16, 24 \ldots\}$

— (2)