

**FACULTY OF ENGINEERING****B.E. 4/4 (Civil) I-Semester (Supplementary) Examination, May / June 2017****Subject : Concrete Technology****Time : 3 hours****Max. Marks : 75****Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.****PART – A (25 Marks)**

- |    |  |   |
|----|--|---|
| 1  | Define workability of concrete.  | 2 |
| 2  | Give the relationship between mechanical properties of concrete.                                   | 3 |
| 3  | Differentiate between nominal mix concrete and design mix concrete.                                | 3 |
| 4  | How do you calculate target strength of M <sub>20</sub> grade concrete if standard deviation is 4? | 2 |
| 5  | Differentiate between mineral and chemical admixtures.   | 3 |
| 6  | What is ready mixed concrete?  | 2 |
| 7  | Give any two advantages of high strength concrete.   | 2 |
| 8  | Define recycled aggregate concrete.  | 3 |
| 9  | What is shotcrete concrete?  | 2 |
| 10 | Give any three design principles of self compacting concrete.                                      | 3 |

**PART – B (50 Marks)**

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|-------|---|---|
| 11 a) | Explain the workability tests and also discuss segregation and bleeding of concrete.                          | 5 |
| b)    | Discuss the various tests on mechanical properties of concrete.   | 5 |
| 12 a) | Explain the mix design procedure for British method and ACI method. Also discuss quality control in concrete. | 5 |
| b)    | Design a concrete mix for M <sub>25</sub> grade concrete  | 5 |
|       | Standard deviation : 4  |   |
|       | Sp. gr. of cement : 3.15  |   |
|       | Sp. gr. of 'fa' : 2.65  |   |
|       | Sp. gr. of 'ca' : 2.85  |   |
|       | Water absorption 'fa' and 'ca' : 0.6% and 0.85%   |   |
|       | Percentage of sand : 0.36%  |   |
| 13 a) | Differentiate between plasticizers and superplasticizers. Also give advantages of the same.                   | 5 |
| b)    | Explain durability of ready mix concrete.   | 5 |
| 14 a) | Discuss the practical applications of high strength and high performance concrete.                            | 5 |
| b)    | Discuss how the recycled aggregate concrete is different from conventional concrete.                          | 5 |

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|-------|---|---|
| 15 a) | Write the practical applications of fly ash concrete.                     | 5 |
| b)    | Discuss the quality control in mineral and chemical admixtures.           | 5 |
| 16 a) | Discuss the advantages of fibre reinforced concrete.                      | 5 |
| b)    | Write the practical applications and advantages of ferro cement concrete. | 5 |
| 17 a) | Explain advantages of self compacting concrete.                           | 5 |
| b)    | Explain how the quality control is ensured in self compacting concrete.   | 5 |

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**FACULTY OF ENGINEERING****B.E. 4/4 (EEE) I – Semester (Suppl.) Examination, May/June 2017****Subject : Electrical Machine Design****Time : 3 hours****Max. Marks : 75****Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.****PART – A (25 Marks)**

- |    |   |   |
|----|---|---|
| 1  | Does the copper exhibit super conductivity? Explain.                                | 3 |
| 2  | What is the gap contraction factor in case of slots?                                | 2 |
| 3  | Explain the relation between real and apparent flux density.                        | 3 |
| 4  | Define heating time constant.   | 2 |
| 5  | What are the properties of a cooling medium to be selected for heavy duty machines? | 3 |
| 6  | Explain each term in the output equation of a 3-phase transformer.                  | 2 |
| 7  | On what factors does electrical loading of a machine depend?                        | 3 |
| 8  | What are the advantages of digital computers?                                       | 2 |
| 9  | Why the optimization is required for any machine design?                            | 3 |
| 10 | Give at least two applications of insulating materials.                             | 2 |

**PART – B (50 Marks)**

- |       |   |   |
|-------|---|---|
| 11 a) | Explain briefly about the suitability of a given insulating material for a particular application. Site at least four different materials.  | 5 |
| b)    | Distinguish soft and hard magnetic materials.   | 5 |
| 12 a) | Give the procedural steps to determine the required AT for air gap of an electrical machine.  | 5 |
| b)    | A magnet coil has a resistance of 0.02 ohm per turn. Show that the total ampere-turns will be 3200 for an applied voltage of 100 v. If not justify the answer.  | 5 |
| 13 a) | What are the various cooling methods adopted in the maintenance of heavy duty electrical machinery?   | 5 |
| b)    | If one hour rating of a machine is 3 times the continuous rating and if steady temperature rise for one hour rating is twice that on normal load, find the ratio of iron to copper loss at full load. | 5 |
| 14 a) | Give the significance of electrical loading and magnetic loading in case of rotating machines.  | 5 |
| b)    | Explain how the armature of a d.c. machine is designed.   | 5 |

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- 15 a) Derive an expression for the output of 3-phase core type transformer. 5  
b) Calculate the core and window areas of 500 KVA, 50 Hz, 1-phase, core type power transformer. The following data may be assumed : Ratio of weight of iron to weight of copper = 3 ; Ratio of length of mean turn of copper to length of mean flux path = 0.5 ; max. flux density = 1.25T; Current density = 2.2 A/mm<sup>2</sup> ; Density of copper = 8.9\*10<sup>3</sup> Kg/m<sup>3</sup> ; Density of Iron = 7.8\*10<sup>3</sup> Kg/m<sup>3</sup> ; copper surface factor = 0.1. 5
- 16 a) Discuss shortly about the estimation of air gap length in case of rotating machines. 5  
b) Explain the method to determine the reluctance of rectangular slots. 5
- 17 Give a brief treatise on the following :  
a) Analysis method of CAD 5  
b) Optimization method applicable to CAD 5

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**FACULTY OF ENGINEERING****B.E. 4/4 (ECE) I - Semester (Main) Examination, November / December 2016****Subject : Industrial Administration and Financial Management****Time : 3 Hours****Max. Marks: 75****Note: Answer all questions from Part-A and answer any five questions from Part-B.****PART – A (25 Marks)**

- 1 List the principle of plant layout.
- 2 Differentiate between share and debenture.
- 3 Why do you consider rating factor while calculating standard time?
- 4 Name various wage incentive payment plans.
- 5 What is the difference between variable data and attribute data?
- 6 What is the importance of quality circles?
- 7 How float is helpful in a project management?
- 8 What are the assumptions in linear programming?
- 9 Explain various overheads.
- 10 Explain factors affecting depreciation.

**PART – B (50 Marks)**

- 11 (a) Why Hi-Tech city located in Hyderabad? What factors influencing that?  
(b) Explain the functions of management.
- 12 (a) State the advantages of work sampling over stop watch time study.  
(b) Explain material type flow chart with an example.
- 13 (a) Explain the triple sampling plan.  
(b) Ten 1000 ml bottles were selected from a production lot at random. The number of defects observed in each bottle is given below. Construct the "C" chart and state whether the process is within control.

Sample No	1	2	3	4	5	6	7	8	9	10
No of defects	6	5	4	3	7	8	4	2	1	0

- 14 (a) Derive an expression for EBQ and state their assumptions.  
(b) Solve the following LPP  

$$\text{Maximize } Z = 16x_1 + 8x_2$$

subjected to conditions

$$4x_1 + 2x_2 \leq 60$$

$$3x_1 + 2x_2 \leq 96$$

$$x_1, x_2 \geq 0$$
- 15 (a) How to select a business organization? Explain various business organization.  
(b) Explain various principle of motion economy.
- 16 (a) Explain any two methods of depreciation  
(b) A factory producing only one item, which it sells for Rs12.5 per unit. Fixed cost equal to Rs 60,000 and variable cost Rs 7.5 per unit. Find out i) the no of units to be produced to breakeven ii) no of units to be produce to earn a profit of Rs12,000 iii) the profit if 25,000 units are produced and sold.
- 17 Write short notes on following
  - (a) Nature of financial management
  - (b) ISO
  - (c) Assignment problem

**FACULTY OF ENGINEERING****B.E. 4/4 (M/P/AE) I – Semester (Suppl.) Examination, May / June 2017****Sub: Operation Research****Time: 3 Hours****Max.Marks: 75****Note: Answer all questions from Part – A and any five questions from Part – B.****PART – A (25 Marks)**

- 1 State the assumptions made in Linear Programming Problem?
- 2 What is degeneracy in Simplex? How it is overcome?
- 3 What is an unbalanced assignment problem? Explain in briefly how to solve it.
- 4 What is the use of sensitivity analysis?
- 5 Construct the dual for the following LP Model:  

$$\text{Max } Z = -5X_1 + 2X_2$$

$$\text{Subject to } X_1 - X_2 \leq 2$$

$$2X_1 + 3X_2 \leq 5$$

$$X_1, X_2 \geq 0$$
- 6 How do you confirm that a Transportation problem has multiple optimal solution ?
- 7 What is meant by two person Zero sum game?
- 8 Explain briefly the importance of replacement analysis.
- 9 List out the assumptions in sequencing problem
- 10 Write down Kendall's Notation of Queuing Model.

**PART – B (5x10 = 50 Marks)**

- 11 Use Simplex Method to  

$$\text{Minimize } Z = 5x_1 + 4x_2$$

$$\text{Subject to } 4x_1 + x_2 \leq 40$$

$$2x_1 + 3x_2 \leq 90$$

$$x_1, x_2 \geq 0$$
- 12 Use Dual Simplex method to solve the LPP  

$$\text{Minimize } Z = 3x_1 + x_2$$

$$\text{Subject to } x_1 + x_2 \leq 1$$

$$2x_1 + 3x_2 \leq 2$$

$$x_1, x_2 \geq 0$$

- 13 The efficiency of 5 men on each of 5 jobs is given below. Determine an assignment schedule of jobs to the men such that the total efficiency is maximum.

		Jobs				
		1	2	3	4	5
Men	I	62	78	50	101	82
	II	70	85	60	75	55
	III	88	96	118	85	71
	IV	48	64	87	77	80
	V	60	70	98	66	83

- 14 Evaluate the optimum solution to the following TP.

		WAREHOUSES				
		D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	SUPPLY
ORIGIN	O <sub>1</sub>	42	48	38	37	160
	O <sub>2</sub>	40	49	52	51	150
	O <sub>3</sub>	39	38	40	43	190
	DEMAND	80	90	110	160	

- 15 A machine costs RS. 2,50,000. The running and maintenance costs are R.1,20,000 per year for the first five years and increasing thereafter by Rs. 20,000 per year. If the money is worth 10% per year and there is no salvage value for the machine. Determine the best period for replacing the machine.

16. Solve the following sequencing problem of four jobs on five machines.

Job	Machines				
	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>
A	7	5	2	3	9
B	6	6	4	5	10
C	5	4	5	6	8
D	8	3	3	2	6

- 17 a) Arrivals at a telephone booth are considered to be Poisson, with an average time of 10 minutes between one arrival and next. The length of the phone call is assumed to be distributed exponentially with a mean of 3 minutes.
- What is the probability that a person arriving at a booth will have to wait ?
  - Find the average no of persons in the system.
  - What is the mean queue size?
- b) Write short notes on (i) Genetic Algorithms (ii) NSGA.

Code No. 3271/S

**FACULTY OF ENGINEERING**

**B.E. 4/4 (CSE) I - Semester (Suppl.) Examination, May/June 2017**

**Subject : Principles and Applications of Embedded Systems**

**Time : 3 Hours**

**Max. Marks: 75**

**Note: Answer all questions from Part-A and answer any five questions from Part-B.**

**PART – A (25 Marks)**

- 1 Harvard Machine Architecture has separate memory for program and data. Why? (3)
- 2 Write about PC and DPTR registers of ARM processor. (2)
- 3 List down the types of interrupts in ARM processor, give one example for each. (3)
- 4 Define message queues, mail boxes and pipes. (3)
- 5 Define Embedded Real Time system. Give any three examples. (3)
- 6 What is the role of RE-entrant function in a real time system? (2)
- 7 Write the metrics for direct measuring the utilization of CPU. (2)
- 8 List the limitations of Priority based task Scheduling. (3)
- 9 What are the types of RTOS? (2)
- 10 Compare native linker and locator. (2)

**PART – B (50 Marks)**

- 11 (a) Write about instruction level parallelism in ARM processor. (5)  
(b) Explain various addressing modes of ARM processor with example. (5)
- 12 (a) Compare Direct-Mapped versus Set-Associative cache memory with example. (5)  
(b) Write about memory management unit and address translation mechanisms in advanced processors. (5)
- 13 What is shared data problem ? Consider task A, B and C are in an Interrupt Service Routine (ISR), sharing the variable cError. Explain the problems related to sharing the cError and suggest your solution. (10)
- 14 Discuss about different categories of Multiprocessor architecture with neat Diagram. (10)
- 15 (a) Discuss the design challenges of RTOS. (5)  
(b) Explain Debugging Techniques of RTOS. (5)
- 16 (a) Write short note on Memory Management. (5)  
(b) What hardware and software factors might be considered when choosing a computing platform? (5)
- 17 (a) Describe I<sup>2</sup>C bus protocol in detail. (5)  
(b) Explain how the embedded software is ported onto a target system. (5)

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**FACULTY OF INFORMATICS**

**B.E. 4/4 (IT) I – Semester (Supplementary) Examination, May / June 2017**

**Subject : Wireless and Mobile Communications (Elective-II)**

**Time : 3 hours**

**Max. Marks : 75**

**Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.**

**PART – A (25 Marks)**

- 1 Define the terms setup-time and request rate.
- 2 Write an expression for capacity of a cellular system.
- 3 Define the terms Reflection and Brewster angle relate them.
- 4 Find path loss (median) using Okumura's model for  $d = 50$  km  $h_{te} = 100$ m,  $h_{re} = 10$ m in sub urban area. Base station transmits EIRP of 1 KW at 900 MHz.
- 5 Draw the block diagram of non-coherent FSK receiver.
- 6 Write the factors that influence choice of digital modulation.
- 7 Define the terms Home Agent (HA) and care-of-address (COA).
- 8 Write disadvantages of segmentation in I-TCP.
- 9 Write salient features of TDMA.
- 10 Write GSM frame structure.

**PART – B (50 Marks)**

- 11 a) Explain W-CDMA (UMTS) in detail.  
b) Explain sectoring techniques for improving capacity of a cellular system.
- 12 Explain knife-edge diffraction model in detail and determine an expression for diffraction loss.
- 13 a) Explain DSSS techniques with a neat block diagram.  
b) Derive an expression for probability of error for DSSS.
- 14 a) Explain generic routing encapsulation in detail.  
b) Explain the problem associated with reverse tunneling.
- 15 a) Write differences between wireless and fixed telephone networks.  
b) Explain signal process in GSM.
- 16 a) Explain dynamic host configuration protocol.  
b) Derive an expression for the efficiency of TDMA.
- 17 Write short notes on Two of the following :
  - a) QPSK Transmitter and Receiver
  - b) Signal propagation into buildings
  - c) Interference in cellular system

**FACULTY OF INFORMATICS****B.E. 4/4 (IT) I - Semester (Suppl.) Examination, May/June 2017****Subject : Intellectual Property Rights (Elective II)****Time : 3 Hours****Max. Marks: 75****Note: Answer all questions from Part-A and answer any five questions from Part-B.****PART – A (25 Marks)**

- 1 What is the term of a patent, industrial design and trade mark in the Indian system? (2)
- 2 What do you understand by the right of priority and what is its significance? (2)
- 3 What are the types of inventions which are not patentable in India? (2)
- 4 Define passing off. (2)
- 5 Differentiate between trade mark and service mark. (2)
- 6 Is there any relationship between the Paris Convention and the TRIPS Agreements? (3)
- 7 What is patent cooperation treaty (PCT) ? Who coordinate the activities of PCT? (3)
- 8 What do you mean by patentability? (3)
- 9 State whether the following are true or false. (3)
  - (a) Copyright rests in the author of the work.
  - (b) 'Under specified circumstances, the licensee can also be an owner of copyright.
- 10 State whether the following are true or false: (3)
  - (a) Preventing others from making copies of his / her work is an exclusive right under copyright.
  - (b) The right to authorize making of a sound recording belongs to the owner of the copyright in music.

**PART – B (50 Marks)**

- 11 TRIPS Agreement obliges member States to exclude from patentability plants and animals other than micro-organism and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. Comment.
- 12 Effective management of Intellectual Property enables companies to use their intellectual property rights to improve their competitiveness and strategic advantages. Discuss the significance of Intellectual Property Management.
- 13 Discuss the functions and powers of WIPO. Explain the role of WIPO in protection of IPR.
- 14 How is infringement of copyright determined. What are the remedies available against infringement of copyright ? Explain briefly Authors Special Rights?
- 15 (a) Explain the concept of Industrial Designs. What are the Designs prohibited from registration?  
(b) Write about the procedure for Registration of Designs. What are the Rights conferred by Registration?
- 16 Define 'Patent' and 'Invention'. Explain the various things which are excluded from patentability. How is infringement of patent determined?
- 17 Write short notes on the following:
  - (a) Passing off
  - (b) Infringement
  - (c) Copy Right Act
  - (d) Assignment and transmission of copyright
  - (e) WTO

**FACULTY OF INFORMATICS****B.E. 4/4 (IT) I – Semester (Supplementary) Examination, May, June 2017****Subject : Ad-hoc and Sensor Networks (Elective-II)****Time : 3 hours****Max. Marks : 75****Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.****PART – A (25 Marks)**

- |    |  |   |
|----|--|---|
| 1  | Write about the functions of beacon frames.                              | 3 |
| 2  | What is the effect of partition on TCP?                                  | 2 |
| 3  | Define location based routing.   | 2 |
| 4  | Differentiate between broadcasting, multicasting and geo-casting.        | 3 |
| 5  | Write about ADDV.  | 2 |
| 6  | Write the QOS parameters in Ad-hoc Wireless Networks.                    | 3 |
| 7  | Write the applications of Adhoc sensor networks.                         | 2 |
| 8  | What are the data dissemination techniques in sensor networks?           | 3 |
| 9  | Write about issues in Adhoc-Wireless Networks.                           | 3 |
| 10 | Write about classification of MAC protocols for Adhoc-Wireless Networks. | 2 |

**PART – B (50 Marks)**

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|----|--|-----|
| 11 | a) Explain about characteristics of MANET.   | 5   |
|    | b) What are the current challenges in Adhoc-and sensor networking?   | 5   |
| 12 | Why routing is different in MANET compared to wired network? Discuss about proposed solutions and algorithms?  | 10  |
| 13 | Explain the challenges in using TCP over MANETS. Discuss about the working of any one TCP proposed for MANETS. | 10  |
| 14 | a) List various applications WSN's? Discuss any two applications in detail.                                    | 5   |
|    | b) Describe about the Sensor Network Hardware with a neat diagram.   | 5   |
| 15 | Discuss various performance metrics used in practice to determine the performance of MAC protocol for WSN's.   | 10  |
| 16 | Explain in detail about the following two protocols with respect to MANET's.                                   | 5+5 |
|    | a) CEDAR   |     |
|    | b) ODMRP   |     |
| 17 | Write a short notes on any two :   | 5+5 |
|    | a) Co-operation in MANET's   |     |
|    | b) Key Management  |     |
|    | c) QOS issue in Adhoc Network  |     |

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**FACULTY OF INFORMATICS****B.E. 4/4 (IT) I – Semester (Supplementary) Examination, May / June 2017****Subject : Distributed Systems (Elective-II)****Time : 3 hours****Max. Marks : 75****Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.****PART – A (25 Marks)**

- |    |  |   |
|----|--|---|
| 1  | What is open distributed system?   | 2 |
| 2  | What are scaling techniques?   | 3 |
| 3  | What is static RMI and dynamic RMI?  | 2 |
| 4  | Explain the difference between transient and persistent communication of messages. | 3 |
| 5  | What are advantages of user-level threads?   | 3 |
| 6  | Define mounting point and mount point.   | 2 |
| 7  | Define interface repository and implementation repository in CORBA.                | 2 |
| 8  | What is active directory in DCOM.  | 3 |
| 9  | Define the characteristics of multimedia data.                                     | 3 |
| 10 | What is real-time scheduling?  | 2 |

**PART – B (50 Marks)**

- |    |   |    |
|----|---|----|
| 11 | a) Define transparency. Explain different types of transparency with examples.                          | 5  |
|    | b) Give differences between homogeneous multi computer systems and heterogeneous multi computer system. | 5  |
| 12 | Explain message-oriented persistent communication in detail.  | 10 |
| 13 | a) Explain about software agents in distributed systems.  | 5  |
|    | b) Explain different layers in the implementation of Name space.  | 5  |
| 14 | a) How does process-to-object binding takes place in Globe? Explain.                                    | 5  |
|    | b) Explain about security service in DCOM.  | 5  |
| 15 | Explain the quality of Service Management in distributed multimedia systems.                            | 10 |
| 16 | a) Explain simple solutions for locating mobile entities.   | 5  |
|    | b) Explain Resource Management in Distributed Multimedia systems.                                       | 5  |
| 17 | Write short notes on the following :  |    |
|    | a) Distributed objects in RMI   | 5  |
|    | b) Services of CORBA  | 5  |

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