

1. Attempt any three questions from each section
2. Answers to the two sections must be written in same answer sheet.
3. Figures to the right indicate full marks.
4. Assume additional data if necessary but state the same clearly.
5. Symbols have their usual meanings and tables have their usual standard design unless stated otherwise.
6. Use of Simple calculators and statistical tables is allowed.

**Section I**

- Q1. A) Explain briefly neural network and its importance in AI. 6  
B) Explain Knowledge Discovery Process. 6
- Q2. A) What is AI? Explain the components of AI with suitable block diagram. 6  
B) What is fuzzy logic? Explain with example. 6
- Q3. A) Classify and state different neural network models. 6  
B) Explain Fuzzy systems and its applications. 6
- Q4. A) Explain Fuzzy systems as Principle based Systems. 6  
B) Explain the applications of genetic based machine leaning. 6
- Q5. A) Write a short note on Indexing and Frame notation. 6  
B) What is FAM? Describe FAM in detail. 6

**Section II**

- Q1. A) Define Image Processing. Explain all fundamental steps in image processing. 6  
B) Draw and explain Structure of human eye. 7
- Q2. A) Write a short note on brightness adaptation and discrimination. 6  
B) Draw and explain simple image formation model. 7
- Q3. A) Explain in brief Log transformation and Negative transformation. 6  
B) Define Histogram, Where Histogram is used? Explain its need. 7
- Q4. A) Explain Error free compression and Lossy compression in detail. 6  
B) How Dilation and Erosion helps to improve image? Explain in detail. 7
- Q5. A) Explain 4-adjacency of pixel, 8-adjacency of pixel and m-adjacency of pixel. 6  
B) How region based segmentation is done? Explain with detail. 7

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**Section I**

- Q1. A What is stateful or stateless connection? What are their advantages? 6  
B Describe the different forms of communication in distributed system. 6
- Q2. A Discuss flat and structured naming systems with the help of examples. 6  
B Discuss the reasons for the Code Migration. Why it is needed? 6
- Q3. A What is cache coherence? Discuss the implementation issues of cache coherence protocol in the Client centric consistency model. 6  
B Define clock synchronization. Explain any two clock synchronization algorithms. 6
- Q4. A Discuss the different types of system authentication protocols. 6  
B Explain types of Data-Centric consistency models. 6
- Q5. A Define Distributed commit. Explain two-phase commit with neat and labeled diagram 6  
B Illustrate with an example the implementation of an object reference that allows a client to bind to a remote object in CORBA. 6

**Section II**

- Q6. A Distinguish between RISC and CISC. 6  
B Define embedded system. List and explain any two embedded system. 7
- Q7. A Explain the different deadlock prevention methods. 6  
B Write a short note on Device Drivers. 7
- Q8. A Explain unipolar and bipolar stepper motor. 6  
B What types of files can be included using preprocessor directive. 7
- Q9. A Explain with example data sharing problem with respect to interrupts. 6  
B Explain different terminology used in memory system design. 7
- Q10. A What is preemptive and non preemptive interrupts? Explain with example. 6  
B Elaborate recent processor trends in embedded system. 7



**(JUNE - 2019)**

**(3 Hours)**

**(Total Marks : 75)**

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**Section I**

- 1 **A** Define the term Data Communication in networking. Explain its components in detail. **6**  
**B** Write a short note on Fiber Optic Cable? And explain how it's more advantageous than any other wired media for communication? **6**
- 2 **A** How communication is done through Satellite? Explain with proper diagram. **6**  
**B** Explain any two wireless media in detail. **6**
- 3 **A** Explain following in terms of communication **6**
  - a) Baud Rate
  - b) Framing
  - c) Error**B** Differentiate between Time Division Multiplexing and Wave Division Multiplexing. **6**
- 4 **A** Write a short note on CSMA/CA. **6**  
**B** Explain the use of Bridge in long distance communication. **6**
- 5 **A** What is Distributed Spanning tree? Explain. **6**  
**B** Differentiate between HUB, SWITCH and ROUTER. **6**

**Section II**

- 6 **A** Diagrammatically explain the combined Uplink and Downlink carrier to noise ratio. **6**  
**B** List the various applications of satellite **7**
- 7 **A** List and discuss the various orbits defined for satellite communication. **6**  
**B** Discuss the phenomenon of Sun Transit Outage. **7**
- 8 **A** List the advantages and disadvantages of GEO satellites. **6**  
**B** Write a note on Polar Mount Antennas. **7**
- 9 **A** Write a note on Rain Depolarization. **6**  
**B** Explain the technique of TDMA. How TDMA network is advantageous over FDMA network **7**
- 10 **A** Explain what is isotropic raditors? **6**  
**B** List and discuss various orbits defined for satellite communication. **7**

**M.SC. (COMPUTER SCIENCE) PART-II**  
**Optimization Techniques and**  
**Customer Relations Management**

(3 Hours)

(Total Marks : 75)

**(P-IV) (JUNE - 2019)**

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**Section I**

**Q1. A** Solve the following assignment problem to obtain optimal cost. **6**

|   | I  | II | III | IV |
|---|----|----|-----|----|
| A | 15 | 13 | 14  | 17 |
| B | 11 | 12 | 15  | 13 |
| C | 13 | 12 | 10  | 11 |
| D | 15 | 17 | 14  | 16 |

**B** What are the special cases in assignment problems? **6**

**Q2. A** Three different airplanes are to be assigned to handle a three cargo assignment with a view to maximize the profit in lakhs. The profit matrix is as given below. **6**

|    | C1 | C2 | C3 |
|----|----|----|----|
| A1 | 1  | 4  | 5  |
| A2 | 2  | 3  | 3  |
| A3 | 3  | 1  | 2  |

**B** Department head has three sub ordinates and four tasks to be performed with the performance matrix given below which three of the four tasks should be assign to the subordinates. **6**

|   | 1  | 2  | 3  |
|---|----|----|----|
| A | 9  | 12 | 11 |
| B | 8  | 13 | 17 |
| C | 20 | 12 | 13 |
| D | 21 | 15 | 17 |

**Q3. A** What is NWCR method? Write an algorithm to explain NWCR method. **6**

**B** Obtain the IBFS by NWCR for following problem. **6**

|             | D1 | D2 | D3 | D4 | D5 | Availability |
|-------------|----|----|----|----|----|--------------|
| Q1          | 2  | 11 | 10 | 3  | 7  | 4            |
| Q2          | 3  | 4  | 7  | 2  | 1  | 8            |
| Q3          | 3  | 9  | 4  | 8  | 13 | 9            |
| Requirement | 3  | 3  | 4  | 5  | 6  |              |

**Q4. A** Solve the following problem using VAM. **6**

|    | D1  | D2  | D3  | D4  |     |
|----|-----|-----|-----|-----|-----|
| P1 | 190 | 300 | 500 | 100 | 70  |
| P2 | 700 | 300 | 400 | 600 | 90  |
| P3 | 400 | 100 | 600 | 200 | 180 |
|    | 50  | 80  | 70  | 140 |     |

**B** Explain the following terms. **6**

- i) IBFS
- ii) Optimal Solution
- iii) Slack variable

**Q5. A** Write an algorithm to explain MODI method. **6**

**B** XYZ furniture firm manufactures tables and chair data given below shows the resources consumed and unit profit in manufacturing a table and a chair, here it is assumed that wood and labor are the only two resources which are consumed in manufacturing furniture. The manager of the farm wishes to determine how many tables and chair to be made to maximize the profit. Formulate the LPP. **6**

| Recourses   | Unit Requirement |        | Amount Available |
|-------------|------------------|--------|------------------|
|             | Table            | Chairs |                  |
| Wood(sq.ft) | 30               | 20     | 300              |
| Labor(hrs)  | 5                | 10     | 110              |
| Profit(Rs)  | 6                | 8      |                  |

**Section II**

**Q1. A** What is CRM? Explain the benefits. **6**

**B** Cost of retaining old customer is always less than generating new customer. Justify the statement with proper example. **7**

**Q2. A** Differentiate between CRM and eCRM. **6**

**B** Discuss the CRM G-SPOT activity for any business with the help of diagram. **7**

**Q3. A** Explain commission management and territory management with respect to SFA. **6**

**B** Discuss the barriers to successful SFA. **7**

**Q4. A** Differentiate between interruption marketing and permission marketing. **6**

**B** Write a note on Interactive Voice Response (IVR). **7**

**Q5. A** What do you mean by kick of meeting? **6**

**B** Why most ASP's advertise 24/7/365 uptime for their customer? **7**