M.SC. {COMPUTER SCIENCE} (PART-II)
ARTIFICIAL INTELLIGENCE & IMAGE PROCESSING
PAPER – I (JAN- 2020)

(3 Hours) **(Total Marks : 75)**

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** What are Atoms and Lists in Lisp? **6**
B What is AI? Explain the components of AI with suitable block diagram. **6**

Q2. **A** Explain the following:- **6**
i) Predicates and Arguments ii) Connectives Variables
iii) Quantification.
B Explain Isa-Hierarchy. **6**

Q3. **A** Explain minimal deceptive problem. **6**
B What is fuzzy logic? Explain with example. **6**

Q4. **A** Explain basic flow of control in LISP. **6**
B Explain Pulse –Coded Signal functions. **6**

Q5. **A** Explain two-armed and K-armed Bandit Problem. **6**
B Explain briefly neural network and its importance in AI. **6**

Section II

Q1. **A** Short note on **6**
(a)DFT. (b) Walsh transform.
B What are the Components of Image Processing? **7**

Q2. **A** Write a short note on sampling and quantization. **6**
B Explain Spatial Filtering in detail. **7**

Q3. **A** Explain **6**
(a) Subband coding. (b) Haar transform
B What do you mean by image segmentation? **7**

Q4. **A** What is Boundary descriptors, Regional descriptors? **6**
B Differentiate between Error free compression and Lossy compression. **7**

Q5. **A** Explain Edge linking and Boundary detection. **6**
B What is structuring element? What is the use of it in morphological operation? **7**

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M.SC. {COMPUTER SCIENCE} (PART-II)
DISTRIBUTED COMPUTING & EMBEDDED SYSTEM
PAPER – II (JAN- 2020)

(3 Hours) **(Total Marks : 75)**

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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

M.SC. {COMPUTER SCIENCE} (PART-II)
ENTERPRISE NETWORKING
& SATELLITE COMMUNICATIONS
PAPER – III (JAN- 2020)

(3 Hours) **(Total Marks : 75)**

1. Attempt any three questions from each section
2. Answers to the two sections must be written in same answer sheet.
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Section I

1	**A**	Describe the complexity in network?	**6**
	B	What is asynchronous communication?	**6**
2	**A**	Explain different noise problem in communication?	**6**
	B	Write a short note on spread spectrum.	**6**
3	**A**	Describe in detail different transmission media.	**6**
	B	Explain different Multiplexing techniques.	**6**
4	**A**	Write a short note on CSMA and CSMA/CD.	**6**
	B	Describe in detail synchronous optical network?	**6**
5	**A**	Explain different Terms:- Byte stuffing, Parity Bits, Transmission errors.	**6**
	B	Describe the working of Repeaters, Bridges, Frame.	**6**

Section II

6	**A**	Write a note on Polar Mount Antennas.	**6**
	B	Why is there a need for satellite communication?	**7**
7	**A**	How are GEO satellites made to inject to different orbits?	**6**
	B	List the advantages and disadvantages of GEO satellites.	**7**
8	**A**	Explain what is meant by rain rate. How this is related to specific attenuation.	**6**
	B	Differentiate between XPD and Polarization Isolation.	**7**
9	**A**	How are antennas classified? With an appropriate diagram, show an antenna in the transmitting and receiving modes.	**6**
	B	Discuss the features of CDMA.	**7**
10	**A**	Discusses the transmission losses seen between a space craft and earth station.	**6**
	B	What is Uplink and Downlink?	**7**

(3 Hours) (Total Marks : 75)

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Section –I

1) A. Explain the scope of optimization Techniques 6
B. What is Travelling salesman Problem? Explain With Example. 6

2) A. In Linear programming Explain The following Terms 6
(1) Basic feasible Solution
(2) Onbound Solution
B. Write a short note on cutting plane algorithm. 6

3) A. How LP problem is solved using simplex method & Give steps. 6
B. Explain Application of Optimaization techniques. 6

4) A. Explain Hungarian method to solve assignment Problem. 6
B. Write an algorithm to explain LCM method. 6

5) A. Write a Short note on branch and bound method. 6
B. Explain Transshipment problem with an example. 6

Section –II

Q6 **A.** Explain G-spot of CRM? 6
B. List and explain the different features of E-CRM? 7

Q7 **A.** Explain the five step process involved in permission marketing? 6
B. What are the benefits of CLV analysis ? 7

Q8 **A.** Write a short note on telephone integration (CTI) ? 6
B. State and explain various background process involved in call centre implementation? 7

Q9 A. Explain automic call distribution? 6
B. Elaborate on customer loyalty and relationship program ? 7

Q10 **A.** Explain the functionalities of ASP. and list their advantages? 6
B. Explain the role of data warehousing in CRM? 7

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