



- Notes :
1. All questions carry equal marks.
  2. Due credit will be given to neatness and adequate dimensions.
  3. Assume suitable data wherever necessary.

1. Explain history of artificial intelligence. 16

**OR**

2. a) What is genetic algorithm? 8
- b) What is fuzzy logic? Give its application. 8
3. a) Distinguish between crisp logic and fuzzy logic. 8
- b) Explain the following- 8
- i) Partitioning ii) Covering

**OR**

4. a) Explain different operations on fuzzy sets each with an example. 8
- b) Find max-product composition. 8

$$R = \begin{matrix} & y_1 & y_2 \\ \begin{matrix} x_1 \\ x_2 \\ x_3 \end{matrix} & \begin{bmatrix} 0.5 & 0.3 \\ 0.7 & 0.5 \\ 0.6 & 0.4 \end{bmatrix} \end{matrix}, S = \begin{matrix} & z_1 & z_2 & z_3 \\ \begin{matrix} y_1 \\ y_2 \end{matrix} & \begin{bmatrix} 0.9 & 0.4 & 0.7 \\ 0.3 & 0.8 & 0.6 \end{bmatrix} \end{matrix}$$

5. a) Explain the following types of inference rules in propositional logic. 8
- i) Modus Ponens
- ii) Modus tollens
- iii) Disjunctive syllogism
- b) Transfer the following sentences into predicate logic with proper explanation. 8
- i) All purple mushrooms are poisonous
- ii) Some birds don't fly
- iii) Some boys play basketball
- iv) All romans are Italian

**OR**

6. a) What are the different inference rules in predicate logic? 8
- b) Explain the followings- 8
- i) Logical connectives ii) Hypothetical syllogism

7. a) Describe human brain with suitable diagram. 8
- b) What is the analogy between biological neural network and artificial neural network. 8

**OR**

8. a) What is machine learning? 8
- b) What is artificial neural network? Write its characteristics. 8
9. a) What is Genetic modelling? 8
- b) What is ADALINE? Write its algorithm. 8

**OR**

10. a) Explain the following. 8
- i) Single layer recurrent network
- ii) Multi layer recurrent network
- b) What do you understand by MADALINE? Explain with its algorithm. 8

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