A   **Reg. No. :**

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. What is Artificial intelligence?   CO1- U

    (a) Putting your intelligence into Computer   (b) Programming with your own intelligence

    (c) Making a Machine intelligent   (d) Putting more memory into Computer

2. Which of the following is a component of Artificial Intelligence?   CO1- U

    (a) Learning   (b) Training   (c) Designing   (d) Puzzling

3. Artificial neural network used for   CO2- U

    (a) Pattern recognition   (b) Classification   (c) Clustering   (d) All of these

4. Neural Networks are complex _____ with many parameters.   CO2- U

    (a) Linear Function   (b) Nonlinear Functions

    (c) Discrete Functions   (d) Exponential Functions

5. The -------------- of an organism is measured by means of success of   CO3- U
    organism in life

    (a) Strength   (b) fitness   (c) Gene   (d) Chromosome

6. ------------ is the first operator applied on population   CO3- U

    (a) Reproduction   (b) Recombination   (c) Mutation   (d) Diversity

7. The values of the set membership is represented by   CO4- U

   (a) Discrete Set   (b) Degree of truth   (c) Probabilities   (d) Both b & c

8. Fuzzy relation associates ------------ to a varying degree of membership   CO4- U

   (a) records   (b) tuples   (c) fields   (d) none of the above

9. ---------------- of bit involves changing bits from 0 to 1 and 1 to 0.   CO5- U

   (a) Mutation   (b) Crossover   (c) Inversion   (d) Segregation

10. In hebbian learning intial weights are set?   CO5-U

    (a) random   (b) near to zero   (c) near to target value   (d) near to target value

<div align="center">PART – B (5 x 2= 10 Marks)</div>

11. Define Intelligent System   CO1- U

12. Enumerate the necessity of activation function.   CO2-U

13. State few advantages and disadvantages of Genetic Algorithm.   CO3- U

14. Give the expression of Mean-Max Membership method to get defuzzified   CO4- U
    output

15. Mention the role of fitness function in Genetic Algorithm.   CO5- U

<div align="center">PART – C (5 x 16= 80 Marks)</div>

16. (a) Explain the role of artificial intelligence in future.   CO1- U   (16)

<div align="center">Or</div>

    (b) Explain in detail about symbolic reasoning system.   CO1- U   (16)

17. (a) Design a perceptron to implement the truth table of AND Gate.   CO2-U   (16)
         Use bipolar inputs and targets.

<div align="center">Or</div>

    (b) Explain the architecture, Training and Testing Algorithms of   CO2-U   (16)
         Discrete Hopfield Neural Network

18. (a) Explain in different search techniques in Genetic algorithm.   CO3- U   (16)
         Discuss merits and demerits.

<div align="center">Or</div>

    (b) Enumerate the procedure involved in using Tabu search for   CO3- U   (16)
         optimization problems.

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19. (a) Develop Fuzzy Inference System (FIS) using rule based components also illustrate Mamdani FIS.   CO4- App   (16)

                             Or

     (b) Construct the block diagram of Fuzzy Inference System (FIS) and also illustrate Sugeno FIS.   CO4- App   (16)

20. (a) Apply Fuzzy Logic Controller for controlling the Washing Machine   CO5- App   (16)

                             Or

     (b) Apply Neural Network for solving Inverted Pendulum Problem   CO5- App   (16)

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