A **Reg. No. :** | | | | | | | | | | |

Question Paper Code:99376

B.E./B.Tech. DEGREE EXAMINATION, NOV 2024

Open elective

Civil Engineering

19UEE976 -APPLIED SOFT COMPUTING

(Common to CSE,ECE, MECH,IT and Chemical , Agri, Biomedical)

(Regulation 2019)

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. Rules are expressed as a set of ? CO1- U

   (a) Switch statement (b)Using Loop

   (c) if-then statements (d) Using continue statement

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. Where are Genetic Algorithms applicable? CO3- U

   (a) Real time application (b) Biology (c) Artificial Life (d) All the above

6. ---------- mimic the principle of natural genetics CO3- U

(a) Genetic programming (b) Genetic Algorithm

(c) Genetic Evolution (d) All of the above

7. There are also other operators, more linguistic in nature, called _____ that can be applied to fuzzy set theory. CO4- U

(a) Hedges (b) Lingual Variable (c) Fuzz Variable (d) None of the mentioned

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

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

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. Reproduction operator is also known as --------- CO5- U

(a)Recombination (b)Selection

(c)Regeneration (d)Segregation

PART – B (5 x 2= 10 Marks)

11. Mention the key role of knowledge based systems CO1- U

12. Distinguish artificial neural network and biological network CO2-U

13. State the different selection methods in GA CO3- U

14. List out the applications of FLC CO4- U

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

PART – C (5 x 16= 80 Marks)

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

Or

(b) Explain in detail about rule - based system CO1- U (16)

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

Or

(b) Demonstrate back propagation training algorithm with the help of a flowchart. CO2-U (16)

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

Or

(b) With a neat flowchart, explain the algorithm of Ant Colony CO3- U (16)

Optimization..

19.	(a)	Develop Fuzzy Inference System (FIS) using rule based components also illustrate Mamdani FIS.	CO4-	App	(16)
		Or			
	(b)	Build the Fuzzy Logic Controller using basic components and explain with neat diagram	CO4-	App	(16)
20.	(a)	Apply Fuzzy Logic Controller for controlling the Washing Machine	CO5-	App	(16)
		Or			
	(b)	Explain step by step procedure for solving Unit commitment problems using genetic algorithm.	CO5-	App	(16)