PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2024
(First Semester)

Branch – **COMPUTER SCIENCE**

SOFT COMPUTING

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Feature of ANN in which ANN creates its own organization or representation of information it receives during learning time is a.Adaptive Learning b. Self Organization c. What-If Analysis d.Supervised Learning	K1	CO1
	2	Hard computing performs what type of computation? a. Sequential b. Parallel c. Approximate d. Both a and b	K2	CO2
2	3	Each connection link in ANN is associated with _____ which has information about the input signal. a. Neurons b. Weights c. Bias d. Activation function	K1	CO1
	4	Internal state of neuron is called _____, is the function of the inputs the neurons receives. a. Weight b. Activation or activity level of neuron c. Bias d. None of these	K2	CO2
3	5	Genetic algorithms are example of a. heuristic b. Evolutionary algorithm c. ACO d.PSO	K1	CO1
	6	_____does not usually allow decision makers to see how a solution to a _____envolves over time nor can decision makers interact with it. a. Simulation, Complex problem b. Simulation, Easy problem c. Genetics, Complex problem d. Genetics, Easy problem	K2	CO2
4	7	Which of the following fuzzy operators are utilized in fuzzy set theory? a. OR b. AND c. NOT d. All of above	K1	CO1
	8	The union of two fuzzy sets is the_____of each element from two sets. a. maximum b. minimum c. equal to d. not equal to	K2	CO2
5	9	The process of fuzzy interference system involes a. Membership functions b. Fuzzy logic operators c. if-then rules d. All the above	K1	CO1
	10	What does a fuzzifier do? a. Coverts crisp input to linguistic variables b. Coverts crisp output to linguistic variables c. Coverts fuzzy input to linguistic variables d. Coverts fuzzy output to linguistic variables	K2	CO2

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Discuss the Perceptron Learning Algorithm.	K2	CO2
		(OR)		
	11.b.	Elucidate Fuzzy Cartesian Product with example.		
2	12.a.	Explicate the working Principle of Genetic Algorithm.	K3	CO3
		(OR)		
	12.b.	Elucidate the Fuzzy properties with example.		
3	13.a.	Apply the fuzzy Modus Ponens rules to deduce Rotation is quite slow? Given: (i) If the temperature is high then then the rotation is slow. (ii) The temperature is very high. Let H (High) , VH (Very High) , S (Slow) and QS (Quite Slow) indicate the associated fuzzy sets. Let the set for temperatures be X = {30, 40, 50, 60, 70, 80, 90, 100} , and Let the set of rotations per minute be Y = {10, 20, 30, 40, 50, 60} and H = {(70, 1) (80, 1) (90, 0.3)} VH = {(90, 0.9) (100, 1)} QS = {10, 1) (20, 08) } S = {(30, 0.8) (40, 1) (50, 0.6) To derive R(x, y) representing the implication	K2	CO2
		(OR)		
	13.b.	Summarize the Crisp Properties with example.		
4	14.a.	Explain any one real time example for Fuzzification.	K2	CO2
		(OR)		
	14.b.	Elucidate the Computation of Input, Hidden and Output Layers.		
5	15.a.	Enumerate the different types of Defuzzification methods with suitable example.	K3	CO3
		(OR)		
	15.b.	Describe the Inheritance operators in Genetic Algorithm.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions
ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Explain the Adaline Network in detail.	K2	CO2
2	17	Explain the different types of Parent selection in Genetic Algorithm.	K3	CO3
3	18	Describe howself organizing maps are different from other artificial neural networks and discuss the algorithm and features of Kohonen's map.	K3	CO3
4	19	Discuss how Genetic Algorithm can be used for a classification problem? How to choose inputs, Genetic Algorithm parameters and fitness function.	K3	CO4
5	20	Summarize the features and benefits of the following Fuzzy propositions.	K3	CO3

Z-Z-Z END