Sub Code:RCS071

Paper Id: 110722

Roll No:

B. TECH
(SEM-VII) THEORY EXAMINATION 2019-20
APPLICTION OF SOFT COMPUTING

Time: 3 Hours *Total Marks: 70*

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1 **Attempt *all* questions in brief.** **2 x 7 = 14**

a. How AI can be used in neural network? Give proper justification.
b. Differentiate the soft computing and hard computing.
c. Draw biological neural network and explain each part.
d. What is fuzzy quantifier?
e. Use the Hebb rule to store the vector [1 -1 1 -1] in an auto-associative neural network.
f. Explain convergence in genetic algorithm.
g. Explain conditional and unconditional fuzzy proposition.

SECTION B

2 **Attempt any *three* of the following:** **7 x 3 = 21**

a. Implement MADALINE network to solve XOR problem.
b. Explain generational cycle of GA with diagram.
c. Discuss the selection of various parameters in BPN.
d. Explain the Greg Voit's Fuzzy Cruise Controller.
e. For the given input vectors S= (S1, S2, S3, S4) and output vector T= (T1, T2). find the weight matrix using hetero associative training algorithm.

	$S=(S_1,S_2,S_3,S_4)$	$T=(T_1,T_2)$
I	(1, 1, 0, 0)	(0, 1)
II	(1, 0, 0, 1)	(1, 1)
III	(1, 1, 0, 0)	(1, 0)
IV	(0, 1, 0, 1)	(0, 0)

SECTION C

3 **Attempt any *one* part of the following:** **7 x 1 = 7**

(a) What is simulated annealing? Explain the structure the simulated annealing algorithm.

(b) Consider four destination wedding packages P1, P2, P3 and P4.We want to choose one. Their cost are INR-1,00,000, INR 1,50,000, INR 2,50,000 and INR 3,50,000.Their days for packages are 10,20,30 and 35 respectively. They are viewed as interesting with degrees 0.4, 0.3, 0.6, 0.5.Define your own Fuzzy set of acceptable days of packages. Then determine the Fuzzy set of interesting wedding packages whose cost and days for package are acceptable and use this set to choose one of your package.

4 **Attempt any *one* part of the following:** **7 x 1 = 7**

(a) Write the expression of bipolar continuous and bipolar binary activation function.

(b) Discuss the applications of GA in detail.

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5 **Attempt any *one* part of the following:** **7 x 1 = 7**

(a) Discuss the membership function and state its importance in fuzzy logic. Also discuss the features of membership functions.

(b) Write short note on genetic representation.

6 **Attempt any *one* part of the following:** **7 x 1 = 7**

(a) Explain back propagation algorithm and factors that may affect the Back propagation neural network.

(b) Explain fuzzy relations and fuzzy to crisp conversion in detail.

7 **Attempt any *one* part of the following:** **7 x 1 = 7**

(a) Explain mutation and mutation rate with example.

(b) Write short note on the following:

i. Hopfield Network

ii. Supervised learning and Unsupervised learning

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