

Roll No

MCSE-205**M.E./M.Tech., II Semester**

Examination, December 2017

Soft Computing

Time : Three Hours

Maximum Marks : 70

- Note :** i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) What is soft computing? Indicate biological analogies of the basic techniques of soft computing? 7
b) What is the importance of training, learning and generalization in ANN? 7
2. a) Explain the following uninformed search strategies. 7
i) Depth first search
ii) Bidirectional search
iii) Iterative deepening depth first search
b) Explain the use of planning graph in providing better heuristic estimation with suitable example. 7
3. a) Why training algorithms are required? Explain Windrow-Hoff/Delta learning rule. 7
b) Explain the training algorithm used in ADALINE network. Also state the characteristics of weighted interconnections between Adaline and madaline. 7
4. a) Derive the derivations of the binary and bipolar sigmoidal activation function. 7
b) Draw and explain the architecture of back propagation algorithm. List the stages involved in training of back propagation network. 7

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5. a) Explain the architecture of Adaptive Resonance theory with the help of schematic diagram. 7
b) What is a Hopfield net? Also mention the applications of Hopfield network. 7
6. a) Consider two given fuzzy sets: 7
$$\underline{A} = \left\{ \frac{1}{2} + \frac{0.3}{4} + \frac{0.5}{6} + \frac{0.2}{8} \right\}$$
$$\underline{B} = \left\{ \frac{0.5}{2} + \frac{0.4}{4} + \frac{0.1}{6} + \frac{1}{8} \right\}$$

Perform Union, intersection, difference and complement over fuzzy sets \underline{A} and \underline{B} .

b) Compare and contrast multiobjective Decision Making and multiattribute Decision Making. 7
7. a) With a neat flowchart, explain the operation of genetic programming. Also mention the applications of genetic algorithm. 7
b) What do you understand by evolutionary algorithms? What is the significance of genetic algorithms in present scenario? 7
8. Write short notes on: 14
a) Genetic operators
b) Job shop scheduling problem
c) Fuzzy rule base system
d) Minimax search procedure

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