

BE-VII / COMP / CBGS / ^{Soft} Computing / 31.05.2016

QP Code : 31392

(3 Hours)

[Total Marks : 80

N.B. 1. Question no. 1 is compulsory.

2. Solve any THREE out of FIVE remaining questions.

1. a. Define soft computing? Distinguish between soft computing and hard computing. 5
- b. Explain Mc Culloch Pitts neuron model with the help of an example. 5
- c. Determine (alfa) α -level sets and strong α -level sets for the following fuzzy set.
 $A = \{(1,0.2), (2,0.5), (3,0.8), (4,1), (5,0.7), (6,0.3)\}$ 5
- d. Explain linear separable and non-linearly separable pattern with example. 5
2. a. What is learning in neural networks? Differentiate between supervised and unsupervised learning. 10
- b. Explain any four defuzzification methods with suitable example. 10
3. a. Explain error back propagation training algorithm with the help of a flowchart. 10
- b. Explain genetic algorithm with the help of an example. 10
4. a. Prove the following identities:
 (i) For unipolar continuous activation function $f'(net) = o(1-o)$. 10
 (ii) For bipolar continuous activation function $f'(net) = o(1-o^2) / 2$.
- b. Explain perceptron learning with the help of an example. 10
5. a. Explain ANFIS architecture with neat diagram. 10
- b. Explain Mamdani type of fuzzy inference systems in detail. 10
6. Write note on any two of the following.
 a. Winner take all learning rule. 20
 b. Learning vector quantization.
 c. Character recognition using neural network.

FW-Con, 11659-16.