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TCS–723/TIT–723

B. Tech. (CS/IT) (Seventh Semester)
Mid Semester EXAMINATION, 2017
SOFT COMPUTING

Time : 1:30 Hours] [*Maximum Marks : 50*

Note : (i) This question paper contains two Sections.

(ii) Both Sections are compulsory.

Section—A

1. Fill in the blanks/True-False : (1×5=5 Marks)

(a) Ability to learn how to do tasks based on the data given for training or initial experience is known as ..... .

(b) Neuron can send ..... signal at a time.

(c) ANN is composed of large number of highly interconnected processing elements (neurons) working in unison to solve problems. (True/False)

(d) Neurons or artificial neurons have the capability to model networks of original neurons as found in brain. (True/False)

(e) Soft computing uses a combination of ....., ... and ..... .

2. Attempt any *five* parts : (3×5=15 Marks)

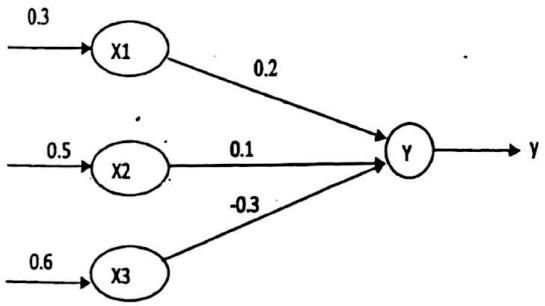
(a) State the characteristics of an artificial neural network.

(b) Differentiate between supervised learning and unsupervised learning with example.

(c) Differentiate between hard computing and soft computing.

(d) What is activation function ?

(e) For the network shown in figure, calculate the net input to the output neuron.



(f) Define bias and threshold.

Section—B

3. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

(a) Implement ANDNOT function using McCulloch-Pitt's neuron (take binary data).

(b) Explain Hebb learning rule for a neural network with the help of flowchart and training algorithm.

(c) Define an artificial neural network. Discuss the several activation functions used in ANNs.

4. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

(a) Compare and contrast artificial neural network and biological neural network.

(b) Define linear separability. How can the equation of straight line be formed using linear separability ?

(c) Explain the different areas where neural networks have good scope.

5. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

(a) What is the building block of the perceptron ? List the limitations of perceptron.

(b) With a neat flowchart, explain the training process of perceptron network.

(c) What is Adaline ? Draw the model of an Adaline network.