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B.Tech. (EE)

MID SEMESTER EXAMINATION

EE/EEL-432 ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS

Time: 1 Hours and 30 Minutes

Max. Marks: 20

Roll No. ....

Eighth Semester

(March-2019)

**Note:** 1. Attempt all questions.  
2. Assume suitable missing data, if any.

Q.1[a] Compare biological neuron with artificial neuron. Write down the strength and weaknesses of a human brain with respect to a computer.

[b] What is the difference between unsupervised and supervised learning? [3+2]

Q.2 [a] A two input, single output two layer feedforward neural network has the hidden layer weights=[0.3 0.4;0.2 0.8;0.1 0.6] and output layer weights=[0.22 0.47 0.36]. The bias values are 0.5 and 0.45 respectively. Consider a sigmoidal function with  $s=0.2$  as activation function. What is the output of the neural network if the input is  $[0.5 \ 0.2]^T$  ?

[b] Find the change in weights using backpropagation algorithm if given target is 0.7 and  $\eta=0.6$ . [2+3]

Q.3 Classify different type of transfer functions used in multilayer feed ford neural networks. Find the output of Q.2[a] using different transfer functions. [5]

Q.4 Explain different terms used in artificial neural networks with examples

[a] Weights

[b] Bias and threshold

[c] Activation functions

[1.5+2+1.5]