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# JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
## MAKE UP EXAMINATION- April 2018
### B.Tech VIII Semester

COURSE CODE: **13B1WEC831**
COURSE NAME: **SOFT COMPUTING TECHNIQUES**
COURSE CREDITS: 3

MAX. MARKS:25

MAX. TIME: 1:30 Hr

*Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.*

**Q1** Critically compare and contrast Biological neural networks (BNNs) to conventional Von Neumann computers.                                                                                    [4]

**Q2.** a) Distinguish between Supervised and Unsupervised Learning.
b) Windrow-Hoff learning rule and Delta learning rule                                         [3+3]

**Q3.** What are the basic learning laws? Explain the weight updation rules in each learning law.        [4]

**Q4.** A fully connected feed forward network has 10 source nodes, 2 hidden layers, one with 4 neurons and the other with 3 neurons, and a single output neuron. Construct an architectural graph of this network.                                                                                              [4]

**Q5.** Consider a simple perceptron model with four inputs. Let the initial weight vector be $[1\ -1\ 0.5\ 0]^T$. Set of input training vectors are $x1=[1\ -2\ 0\ -1]^T$, $x2=[0\ 1.5\ -0.5\ -1]^T$ and $x3=[-1\ 1\ 0.5\ -1]^T$. Desired responses for these input vectors are -1, -1, and 1 respectively. The activation function is sign(x). Illustrate perceptron learning process.                                                                      [5]

**Q6.** Elaborate two defuzzification methods.                                                              [2]