

## JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

## MAKEUP EXAMINATION- 2016

## B.Tech (BI) VI Semester

COURSE CODE: 10B11BI112

MAX. MARKS: 25

COURSE NAME: Machine Learning in Bioinformatics

COURSE CREDITS: 04

MAX. TIME: 1Hr 30 Min

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

Q1. Significant rules often contain globally low ranked features. How did Li *et al.* conclude this about decision tree? (3)

Q2. Explain the meaning of coverage and fragmentation. (2)

Q3. Given Initial values:  $w_0(0) = -0.05$ ,  $w_1(0) = -0.02$ ,  $w_2(0) = 0.02$ , and  $\eta = 0.25$ . Show how perceptron can be used to solve the OR Gate. You must use atleast two iterations. (7)

Q4. Explain the difference between liberal and conservative performance in ROC analysis. (3)

Q5. Consider the data for serum ferritin as a test for iron deficiency anemia. Plot the ROC. (5)

Serum ferritin (mmol/l)	# with IDA (% of total)	# without IDA (% of total)
< 15	474	20
15-34	175	79
35-64	82	171
65-94	30	168
> 94	48	1332

Q6. What is Hebb's rule in artificial neural networks? State the weight update formulae used in perceptron and multi-layer perceptron. (5)