

Prof S P Ghosh

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -2 EXAMINATION- Apr 2019
B.Tech(CSE/IT) VIII Semester

COURSE CODE: 18B1WCI832

MAX. MARKS: 25

COURSE NAME: Machine Learning Algorithms

COURSE CREDITS: 3

MAX. TIME: 90 Min

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

Q.1. [10 Marks. Each part is two marks]

- Define Precision and Recall. What is their importance in machine learning algorithms?
- List the data structures required for neural network algorithm.
- What is data set splitting in machine learning?
- List essential properties of logistic sigmoid function?
- What are support vectors in SVM?

Q.2. [5 marks] We have two nodes x_1 and x_2 for input, three nodes defined in the hidden layer and one output node y . Draw the neural network graph and derive the forward and backward propagation functions for one iteration.

Q.3. [5 marks] For two linearly separable classes, SVM tries to maximise the distance m between two hyperplanes. If w is a vector orthogonal to the hyperplane, prove that $m=2/||w||$. Based on the above, define the optimisation problem in SVM.

Q.4. [5 marks] State the cost function of SVM classifier and derive expression for parameter update for next iteration.