Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

VII SEMESTER B.TECH. (COMPUTER SCIENCE & ENGINEERING)

END SEMESTER EXAMINATIONS, NOV/DEC 2016

SUBJECT: MACHINE LEARNING (PROGRAME ELECTIVE-III)[CSE 451]

REVISED CREDIT SYSTEM

(06/12/2016)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ANY FIVE FULL** questions.
- Missing data may be suitable assumed.

1A.	Define the term 'Machine Learning'. Briefly explain the following Machine Learning approaches. a)Supervised b)Unsupervised c)Reinforcement	**4**
1B.	Explain the following applications of Machine Learning: a)Classification b)Regression	**2**
1C.	How Nearest Neighbor classification is different from K- nearest neighbor classification? Show the steps of K- nearest neighbor classification. What is the main disadvantage of K- nearest neighbor classification?	**4**
2A.	State the Bayes Rule and explain how it is applied to Machine Learning process of the classification problems.	**4**
2B.	Briefly explain minimum error rate classification. Show that p(error)=1-p(correct)	**2**
2C.	What is discriminant function? Explain any one classification method using discriminant function.	**4**
3A.	Draw the diagram of single layer and multi-layer perceptron. State any two activation functions.	**3**
3B.	Define supervised and unsupervised learning in perceptron give example for each mode of perceptron learning. Distinguish between linearly separable and linearly non separable issue of single layer perception model using AND OR and XOR functions.	**4**
3C.	Write weight updating models of a multilayer layer perceptron and with the help of a diagram explain its working.	**3**

4A.	Why is back propagation algorithm so called? What is the meaning of the hidden neuron? Write the name of an architecture for which back propagation algorithm is used.	**3**
4B.	Discuss the architecture of Radial Basis Function for classification.	**3**
4C.	What do you mean by parameter estimation? With one example for each distinguish between parameter and non-parameter estimation methods.	**4**
5A.	What is the use of Entropy and Information gain in generating decision trees? Define the meaning of a pure and impure nodes in Decision Trees.	**4**
5B.	With the help of two dimensional space, decision boundary and support vectors explain classification process of a Support Vector Machine.	**3**
5C.	What do you mean by clustering in machine learning? Write the steps of K-means algorithm.	**3**
6A.	What is the concept of Competitive learning? Explain the working of Naïve Bayes classifier?	**4**
6B.	What is the advantage of combined model of classifiers?	**2**
6C.	Briefly explain majority vote method of combining classifiers. Define the term bagging.	**4**