Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

SECON SEMESTER (Second Year Direct) &

FOURTH SEMESTER MCA (Regular) DEGREE EXAMINATION, APRIL 2018

Course Code: RLMCA208

Course Name: INTRODUCTION TO MACHINE LEARNING

Max. Marks: 60 Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks.

		Marks
1	What is the purpose of Ordinary Least Square Estimation?	(3)
2	Give a sample scenario where decision tree can be used for classifying data?	(3)
3	Explain the structure of a single artificial neuron with a diagram.	(3)
4	What is deep learning?	(3)
5	Give one method to choose a maximum margin hyperplane for SVM classifiers?	(3)
6	What is a Support Vector?	(3)
7	What are the advantages of K-fold cross validation?	(3)
8	How Boosting process improves model performance?	(3)

PART B

Each question carries 6 marks.

9 a) Explain PCA and its steps in detail. (6)

OR

b) Describe any 6 different measurements of central tendency & spread with relevant examples? (6)

10 a) We have data from survey and objective testing with two attributes (acid durability and strength) to classify whether a special tissue is good or not. Here is four training samples. (6)

X1(Acid Durability)	X2(Strength)	Y(Class)
7	7	BAD
7	4	BAD
3	4	GOOD
1	4	GOOD

Now the factory produces a new tissue paper that pass the test with x value

3 and Y value 5. Find the classification of this new paper from the data of trained samples using KNN algorithm.

OR (6)

b) Write a note on Bayes theorem and illustrate the method for predicting probabilities with an example. (6)

11 a) Differentiate Simple Linear Regression & Multiple linear regression with an example. (6)

OR

b) Explain the divide and conquer approach for the construction of decision trees with an example. (6)

12 a) Explain any 3 characteristics of neural networks? (6)

OR

b) How does a Perceptron learn the appropriate weights using delta rule? (6)

13 a) How SVM handles non- linearly separable data. (6)

OR

b) How Classification using hyper planes is possible? What is Maximum Margin Hyperplane? (6)

14 a) How will you evaluate the performance of a model using confusion matrices? Justify answer using the statistics - Accuracy, Precision and Recall. (6)

OR

b) How ensembles learning improve model performance? Explain any two ensemble based methods. (6)

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