

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.*

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

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|----|--|-----|
| | 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. | |

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

(6)

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)
