

Total No. of Questions :8]

SEAT No. :

P3984

[5561]-688

[Total No. of Pages :2

B.E. (Computer Engineering)

MACHINE LEARNING

(2015 Course) (410250) (Semester-II)

Time : 2½Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Solve Q.1 or 2, Q.3 or 4, Q.5 or 6, Q.7 or 8,*
- 2) *Assume suitable data if necessary.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right indicates full marks.*

- Q1)** a) With reference to machine learning, explain the concept of adaptive machines. [6]
- b) Explain the role of machine learning algorithms in following applications. [6]
- a) Spam filtering.
 - b) Natural Language processing.
- c) Explain role of machine learning the following common un-supervised learning problems: [8]
- a) Object segmentation
 - b) Similarity detection

OR

- Q2)** a) Explain Data formats for supervised learning problem with example. [6]
- b) What is categorical data? What is its significance in classification problems? [6]
- c) Explain the Lasso, and ElasticNet types of regression. [8]
- Q3)** a) What problems are faced by SVM when used with real datasets? [3]
- b) Explain the non-linear SVM with example. [5]
- c) Write shorts notes on: [9]
- i) Bernoulli naive Bayes.
 - ii) multinomial naive Bayes.
 - iii) Gaussian naive Bayes.

P.T.O.

OR

- Q4)** a) Define Bayes Theorem. Elaborate Naive Bayes Classifier working with example. [8]
- b) What are Linear support vector machines? Explain with example. [4]
- c) Explain with example the variant of SVM, the Support vector regression. [5]
- Q5)** a) Explain the structure of binary decision tree for a sequential decision process. [8]
- b) With reference to Clustering, explain the issue of "Optimization of clusters" [5]
- c) Explain Evaluation methods for clustering algorithms. [4]

OR

- Q6)** a) With reference to Meta Classifiers, explain the concepts of Weak and eager learner. [8]
- b) Write short notes on: [9]
- a) Adaboost.
- b) Gradient Tree Boosting.
- c) Voting Classifier.
- Q7)** a) With reference to Hierarchical Clustering, explain the issue of connectivity constraints. [8]
- b) What are building blocks of deep networks, elaborate. [8]

OR

- Q8)** a) With reference to Deep Learning, Explain the concept of Deep Architectures? [8]
- b) Justify with elaboration the following statement: [8]
- The k-means algorithm is based on the strong initial condition to decide the Number of clusters through the assignment of 'k' initial centroids or means.

