Total No. of Questions :8]

SEAT No. :

P3984

[Total No. of Pages :2

[5561]-688
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, Expalin 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.

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