

(2 Hours)

[Total Marks: 60]

- N. B.:
- (1) All questions are compulsory.
 - (2) Make suitable assumptions wherever necessary and state the assumptions made.
 - (3) Answers to the same question must be written together.
 - (4) Numbers to the right indicate marks.
 - (5) Draw neat labeled diagrams wherever necessary.
 - (6) Use of Non-programmable calculators is allowed.

Q1. Attempt the two of the following.

12 Marks

1. With the help of example Define Machine Learning.
2. Write and explain characteristics of Machine Learning.
3. What are various types of features available? Explain each one in brief.
4. Describe logical models

Q2. Attempt the two of the following.

12 marks

1. Explain the concept of classification with suitable example.
2. Briefly explain the concept of class probability Estimation.
3. How are classification estimates assessed? Explain with suitable example.
4. Explain the growth bounding function with suitable derivation

Q3. Attempt the two of the following.

12 marks

1. Explain Multivariate linear regression with an example
2. What is the difference between Linear and non- linear least square method
3. Define support vector machine (SVM) and further explain the maximum margin linear separators concept
4. What are Hyperplane and Support vectors in the SVM algorithms?

Q4. Attempt the two of the following.

12marks

1. What is Frequent Itemset? Write Apriori Algorithm.
2. How does Association Rule Mining work?
3. Where Decision Tree is applicable?
4. With the help of the example kindly explain the regression tree.

Q5. Attempt the two of the following.

12 marks

1. What is the difference between deterministic and Probabilistic machine learning modes?
2. What is a Probabilistic model in information retrieval?
3. What is bagging and boosting?
4. Write the types of Sequence Prediction Problems.
