Code No: **R1642053** **R16** **Set No. 1**

IV B.Tech II Semester Advanced Supplementary Examinations, Aug/Sep - 2022

MACHINE LEARNING

(Computer Science and Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B

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PART–A *(14 Marks)*

1. a) Write a short note on types of predictive tasks. [3]
   b) Write about bias and variance tradeoff. [3]
   c) What is impurity? Discuss with any one measure. [2]
   d) Write a short note on feature correlation. [2]
   e) Discuss the role of Bayes-Optimality in model selection. [2]
   f) What is dimensionality reduction? Give its importance in learning. [2]

PART–B *(4x14 = 56 Marks)*

2. a) With suitable example explain the task of binary classification. Discuss different quantities and evaluation measures for classifiers. [7]
   b) Demonstrate the importance of scoring and ranking in assessing the performance of classification tasks. [7]

3. a) Explain the principles of unsupervised and descriptive learning with respect to clustering. [7]
   b) What is version space? How to find the path with Most general consistent specialization? Give example. [7]

4. a) Write about the feature trees and functional modules used to grow the tree. [7]
   b) Given set of transactions and items, find all association rules exceeding given support and confidence thresholds using association rule learning. [7]

5. a) Discuss various intuitions of Linear regression. How it handles the outliers? Explain with examples. [7]
   b) Differentiate hierarchical clustering with distance based clustering. [7]

6. a) How logistic regression can be used in discriminative learning by optimizing conditional livelihood? Explain the Training of a logistic regression model. [7]
   b) Describe the operations of thresholding, recursive partitioning, Agglomerative merging, Normalisation and calibration feature transformations. [7]

7. Explain the following
   a) Principle Component Analysis [5]
   b) Back Propagation training algorithm for hidden neuron [5]
   c) Back Propagation training algorithm for output neuron [4]