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

**IV B.Tech II Semester Regular Examinations, September - 2020**

**MACHINE LEARNING**

**(Common to Computer Science and Engineering and Information Technology)**

**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***
*****

## PART–A *(14 Marks)*

| | | | |
|---|---|---|---|
| 1. | a) | Define binary Classification. | [2] |
| | b) | Describe the performance of Multi-class classifier. | [3] |
| | c) | What is a decision tree? | [2] |
| | d) | What is Minkowski distance? | [2] |
| | e) | What is discriminative probabilistic model? | [2] |
| | f) | What is the representational power of perceptron? | [3] |

## PART–B *(4x14 = 56 Marks)*

| | | | |
|---|---|---|---|
| 2. | a) | What are the different types of a Machine Learning models? | [7] |
| | b) | Explain about Feature Construction and Transformation. | [7] |
| 3. | a) | How to handle more than two classes in beyond Binary Classification. | [7] |
| | b) | Explain the following<br>i. One-versus-one voting.<br>ii. Loss based decoding.<br>iii. Coverage counts as scores. | [7] |
| 4. | a) | Explain Rule set for Ranking and Probability estimation. | [7] |
| | b) | Discuss in detail about Learning Ordered Rule Lists. | [7] |
| 5. | a) | Discuss in detail about Soft Margin SVM. | [7] |
| | b) | Describe Nearest-Neighbor Classification in detail. | [7] |
| 6. | a) | Write detailed note on Feature Transformations. | [7] |
| | b) | Explain about normal distribution with the help of sample data. | [7] |
| 7. | a) | Explain about Principle Component Analysis in detail. | [7] |
| | b) | Discuss in detail about representation of Neural Networks. | [7] |

Code No: **R1642053** **R16** **Set No. 2**

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**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***
*****

## PART–A *(14 Marks)*

1. a) What is Scoring Classifier? [2]
   b) What is unsupervised learning? [3]
   c) Define Feature Tree. [2]
   d) What is Support Vector Regression? [3]
   e) Write a short note on random forests. [2]
   f) Write a short note on PCA? [2]

## PART–B *(4x14 = 56 Marks)*

2. a) Explain in detail about geometric model. [7]
   b) Explain the two uses of features in machine learning. [7]

3. a) Explain the following
      i. most general consistent hypothesis.
      ii. closed concepts in path through the hypothesis . [7]
   b) Write in detailed note on Regression. [7]

4. a) Explain in detail about ranking and probability estimation tree. [7]
   b) Discuss about First-Order rule learning in detail. [7]

5. a) Explain about the Least-Squares method? [7]
   b) Discuss in detail about Distance Based Clustering. Write its importance in machine learning. [7]

6. a) Write about Probabilistic models for categorical data. [7]
   b) Discuss about the Normal Distribution and its Geometric interpretations? [7]

7. a) Explain how dimensionality reduction takes place using PCA. [7]
   b) Describe in detail about neural networks role in machine learning. [7]

Code No: **R1642053** **R16** **Set No. 3**

**IV B.Tech II Semester Regular Examinations, September - 2020**

**MACHINE LEARNING**

**(Common to Computer Science and Engineering and Information Technology)**

**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***
*****

## PART–A *(14 Marks)*

| | | | |
|---|---|---|---|
| 1. | a) | Write short notes on Geometric model. | [3] |
| | b) | What are the Descriptive models? | [2] |
| | c) | What is Ranking? | [2] |
| | d) | What is Univariate Linear Regression? | [2] |
| | e) | What is Cumulative Probability Distribution? | [2] |
| | f) | List the applications of Neural Networks in Machine Learning. | [3] |

## PART–B *(4x14 = 56 Marks)*

| | | | |
|---|---|---|---|
| 2. | a) | List the problems that can be solved with machine learning. | [7] |
| | b) | Explain about binary classification and related tasks. | [7] |
| 3. | a) | Find least general conjunctive generalization of two conjunctions, employing internal disjunction. | [7] |
| | b) | How to learn a conjunction of horn clauses from membership, equivalence and also explain algorithm for it? | [7] |
| 4. | a) | Distinguish between regression and clustering trees. | [7] |
| | b) | Explain in detail about descriptive rule learning. | [7] |
| 5. | a) | Explain about K-means algorithm with an example. | [7] |
| | b) | With an example explain Hierarchical clustering? | [7] |
| 6. | a) | Explain the probabilistic models with hidden variables. | [7] |
| | b) | What is Ensemble modeling? Discuss about Bagging and Boosting. | [7] |
| 7. | a) | List and explain in detail about appropriate problems for Neural Network learning. | [7] |
| | b) | Explain in detail about multilayer neural networks and back propagation algorithm. | [7] |

Code No: **R1642053** **R16** **Set No. 4**

**IV B.Tech II Semester Regular Examinations, September - 2020**

**MACHINE LEARNING**

**(Common to Computer Science and Engineering and Information Technology)**

**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***
*****

## PART–A *(14 Marks)*

| | | | |
|---|---|---|---|
| 1. | a) | Compare Supervised and unsupervised learning. | [2] |
| | b) | What is descriptive learning? | [2] |
| | c) | What are the functions used in Decision Tree? | [2] |
| | d) | Write a short note on Distance based clustering. | [3] |
| | e) | What is boosting? | [2] |
| | f) | What is dimensionality reduction? | [3] |

## PART–B *(4x14 = 56 Marks)*

| | | | |
|---|---|---|---|
| 2. | a) | Explain about Grouping and Grading models. | [7] |
| | b) | Describe in detail about the role of features in Machine Learning. | [7] |
| 3. | a) | Discuss about beyond Conjunctive concepts using first-order logic. | [7] |
| | b) | Write in detailed note on multi class Probabilities from Coverage counts. | [7] |
| 4. | a) | Explain in detail about Decision Tree with an example. | [7] |
| | b) | Write in detailed note on Regression Trees. | [7] |
| 5. | a) | How to obtain the probabilities from Linear Classifiers? Explain. | [7] |
| | b) | Explain in detail about Kernel Perceptron. | [7] |
| 6. | a) | Write a note on Feature construction and selection. | [7] |
| | b) | Describe about Probabilistic models used for categorical data. | [7] |
| 7. | a) | Explain in detail about multilayer neural network? | [7] |
| | b) | Explain how dimensionality is reduced using PCA. | [7] |