R16

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

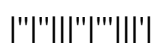*Question paper consists of Part-A and Part-B*
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B
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PART–A *(14 Marks)*

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	
		i. One-versus-one voting.	
		ii. Loss based decoding.	
		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]

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Code No: **R1642053**

R16

Set No. 2

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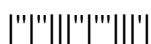*Question paper consists of Part-A and Part-B*
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B
*****

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   [7]
      machine learning.

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]

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

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MACHINE LEARNING
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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)   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]

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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]

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