Code No: 128CN **R15**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year II Semester Examinations, July - 2019
MACHINE LEARNING
(Information Technology)

Time: 3 hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a)	What are the issues in machine learning?	[2]
b)	How to choose a function approximation algorithm?	[3]
c)	What is preference bias?	[2]
d)	How can you avoid over fitting the data?	[3]
e)	Define Confidence Interval?	[2]
f)	What is conditional independence?	[3]
g)	What are the limitations of eager learning?	[2]
h)	Why do we need locally weighted regression?	[3]
i)	How can you reduce prior knowledge for reducing sample complexity?	[2]
j)	What are the ways of parallelizing genetic algorithms?	[3]

PART - B

(50 Marks)

2.a) Write about List-Then-Elimination algorithm.
b) Define the following
i) Inductive Learning Hypothesis ii) Consistent hypothesis iii) Version Space for the PlayTennis problem. [5+5]

OR

3.a) With an example, Explain the working of Find-S algorithm?
b) Discuss in brief about Inductive bias. [5+5]

4.a) Explain about decision tree based learning? How it is represented. Give some problems for which decision tree based learning is appropriate.
b) Explain ID3 algorithm for decision tree learning. [5+5]

OR

5.a) Define neural network learning. What are the problems in neural network learning?
b) Explain in brief about Back propagation algorithm. [5+5]

6.a) Define sampling theory. What are the basics of sampling theory?
b) Explain in brief about Multiplicative rules for weight tuning. [5+5]

OR

7.a) What are the criteria for comparing learning algorithms?
b) What are the approaches for deriving Confidence Interval? [5+5]

8.a) Define Instance based learning? What are the different types of instance based learning techniques?

b) Explain in brief about Radial basis functions. [5+5]

OR

9.a) Discuss in brief about Locally weighted Linear regression.

b) What are the advantages and limitations of Locally weighted Linear regression? [5+5]

10.a) Discuss in brief about different search method for induction.

b) Explain in brief about Genetic operators. [5+5]

OR

11.a) Define Learning. Explain in brief about Models of evolution and learning.

b) What is genetic programming? How can you represent Genetic programs? [5+5]

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Code No: 118CN **R13**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year II Semester Examinations, September - 2020
MACHINE LEARNING
(Information Technology)

Time: 2 hours **Max. Marks: 75**

Answer any Five Questions
All Questions Carry Equal Marks

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1.a) Machine learning draws on ideas from a diverse set of disciplines. Discuss these disciplines and their influence on machine learning.
b) Define learning. Categorize various types of learning. [10+5]

2. Examine the hypothesis space search performed by ID3 learning algorithm and contrast it with candidate-elimination algorithm. [15]

3.a) Discuss the causes of errors in estimating hypothesis accuracy.
b) Defend t-test and paired t-test for comparing two learning algorithms. [7+8]

4.a) Explain the curse of dimensionality as a difficulty in k-nearest neighbor approaches.
b) Discuss locally weighted regression method with illustrative example. [8+7]

5.a) Explain the genetic algorithm in GABIL system.
b) Discuss the importance of fitness function with an example. [7+8]

6. Illustrate FIND-S algorithm and explain the hypothesis space search with an example dataset. [15]

7.a) Evaluate the convergence chance and local maxima in back propagation algorithm.
b) Elaborate gradient descent rule. [8+7]

8. Apply the Expectation maximization algorithm to the problem of learning. [15]

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