R18

Code No: 156BN

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, March - 2024

MACHINE LEARNING

(Common to CSE, CSE(CS), CSE(DS))

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

Note: i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

(25 Marks)

1.a)	What do you understand by Concept Learning?	[2]
b)	Define Inductive Bias.	[3]
c)	Give the purpose of Central Limit Theorem.	[2]
d)	Design a Two layer network of Perceptron to implement A XOR B.	[3]
e)	Outline the merits and demerits of Lazy Learners.	[2]
f)	Write the Gibbs algorithm.	[3]
g)	Define Reinforcement Learning.	[2]
h)	List the various evaluation functions for Learn-One-Rule.	[3]
i)	What is weakest preimage of the explanation for PROLOG-EBG?	[2]
j)	Give the remarks on the TANGENTPROP algorithm.	[3]

PART – B

(50 Marks)

2.a) How is Candidate Elimination algorithm different from Find-S algorithm? Discuss.
b) Demonstrate the Designing of a Learning System in ML. [5+5]

OR

3.a) What is Decision Tree? Explain how does it work for classification problem?
b) What are various issues of Machine learning? Explain. [5+5]

4. Illustrate the working of Back Propagation algorithm in Multilayered Neural Network. [10]

OR

5.a) Compare and contrast Mini-batches and Stochastic Gradient Descent.
b) Explain in detail about estimating the Hypothesis accuracy. [5+5]

6.a) Define Vapnik-Chervonenkis Dimension. Explain how the VC dimension can be used as measure of complexity of a hypothesis of different models.
b) State Bayes theorem. Illustrate Bayes theorem with an example. [5+5]

OR

7.a) Discuss the Bayesian perspective of the Least-Squared Error hypotheses.
b) Write the k- Nearest Neighbor classification algorithm and give its Remarks. [5+5]

8.a) How to create or generate new offspring from the given population for Genetic algorithm? Illustrate.

b) Compare and contrast between Sequential and Simultaneous Covering algorithms. [5+5]

OR

9.a) Discuss about Nondeterministic rewards and actions.

b) Illustrate General-to-Specific beam search algorithm for Learn-One-Rule. [5+5]

10.a) Differentiate between analytical and Inductive learning methods of the learning problem.

b) Demonstrate the EBNN algorithm. [5+5]

OR

11.a) Explain the FOCL algorithm.

b) Explain in detail about the EBL of Search Control Knowledge. [5+5]

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