

R18

Code No: 156BN

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, July - 2023

MACHINE LEARNING

(Common to CSE, CSIT, 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) Define Well-Posed problem. [2]
- b) Write about inductive bias. [3]
- c) Define sampling theory. [2]
- d) What is hypothesis? [3]
- e) State Baye's theorem. [2]
- f) Define the terms 'estimation bias' and 'confidence intervals'. [3]
- g) Define term Genetic. [2]
- h) What is FOIL? [3]
- i) Write about control knowledge. [2]
- j) Define Analytical Learning. [3]

PART – B

(50 Marks)

- 2.a) Explain the two uses of features in machine learning.
- b) What are the concepts of learning as search? Discuss. [5+5]

OR

- 3.a) Briefly explain the need of Inductive Bias in decision Tree Learning.
- b) Explain the Find-S: Finding a Maximally Specific Hypothesis in detail. [5+5]

- 4.a) Explain back-propagation algorithm in detail.
- b) Explain the methods for comparing the accuracy of two hypotheses. [5+5]

OR

5. Discuss in detail about representation of Neural Networks. [10]

6. Describe the Naive Bayesian method of classification. What assumptions does this method make about the classification? Give an example where this assumption is to justify. [10]

OR

- 7.a) Write the differences between Eager Learning and Lazy Learning approaches.
- b) Discuss about Bayesian belief networks. [5+5]

- 8.a) Write the basic algorithm for learning sets of First-Order Rules.
b) Apply inverse resolution in propositional form to the clauses $C=A B$, $C1=A B G$. Give at least two possible results for $C2$. [5+5]

OR

- 9.a) Discuss about Q-learning, in detail.
b) Explain about the hypothesis space search. [5+5]

10. What are the differences between inductive learning and analytical learning problems and explain the same with an example. [10]

OR

- 11.a) Explain how to initialize the hypothesis by using prior knowledge.
b) Discuss Explanation-Based learning of search control knowledge. [5+5]

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Use Paper July/Aug-2023