

Code No.: CS602PC

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CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
III-B.TECH-II-Semester End Examinations (Regular) - June- 2024
MACHINE LEARNING
(Common for CSE, CSM)

[Time: 3 Hours]

[Max. Marks: 70]

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 20 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

(20 Marks)

1. a) List the basic design issues to machine learning. [2M]
- b) In general-to-Specific Ordering of Hypothesis , Consider $h_1 = (\text{Sunny}, ?, ?, \text{Strong}, ?)$ and $h_2 = (\text{Sunny}, ?, ?, ?, ?)$. How you formalize h_1 and h_2 ? [2M]
- c) What is the representation of perceptron? [2M]
- d) Define variance of a random variable. [2M]
- e) What is Artificial Neural Network? [2M]
- f) In probably learning PAC stands for? [2M]
- g) How to use entropy as evaluation function? [2M]
- h) What is conditional Independence? [2M]
- i) What is the essential difference between analytical and inductive learning methods? [2M]
- j) What are the limitations of explanation based learning? [2M]

PART-B

(50 Marks)

2. Analyze the role of inductive bias in the Find-S algorithm and the candidate elimination algorithm. [10M]
- OR**
3. What do you mean by a well –posed learning problem? Explain the important features that are required to well –define a learning problem. [10M]
 4. Explain the Back propagation algorithm with example. [10M]
- OR**
5. Explain the importance of estimating the accuracy of a hypothesis in machine learning. [10M]
 6. Explain Naïve Bayes Classifier with an Example. [10M]
- OR**
7. Explain the difference between lazy and eager learning. Why is the k-nearest neighbour algorithm classified as a lazy learning method? [10M]
 8. Explain the sequential covering algorithm and its purpose in learning rule sets [10M]
- OR**
9. Explain the key features and advantages of the FOIL algorithm in learning sets of first-order rules. Provide examples. [10M]
 10. Describe a plan to use prior knowledge to initialize the hypothesis using KBANN algorithm. [10M]
- OR**
11. Analyze the benefits and potential drawbacks of inductive-analytical learning approaches. [10M]
