Code No.: CY701PC/DS701PC　　R20　　H.T.No. | | | 8 | R | | | | |

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
IV–B.TECH–I–Semester End Examinations (Regular) - November- 2024
MACHINE LEARNING
(Common for CSD, CSC)

[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 various issues in machine learning. [2M]
   b) Write the appropriate problems for decision tree learning. [2M]
   c) What is the role of artificial neural network in face recognition problem? [2M]
   d) What are the limitations of back propagation algorithm? [2M]
   e) How does Bayes' Theorem relate to conditional probability? [2M]
   f) Define Gibbs Algorithm. [2M]
   g) What is Q-learning? [2M]
   h) How does Prolog's logic-based programming paradigm differ from imperative [2M] programming?
   i) How does inductive bias affect analytical learning models? [2M]
   j) How does Prolog-EBG relate to other ILP approaches? [2M]

PART-B　　　　　　　　　　　　　　　　　　　　(50 Marks)

2. List and explain the issues in decision tree learning [10M]
   ### OR
3. Explain the Find S: algorithm for finding a maximally specific hypothesis. [10M]

4. Design a two input perceptron that implements the Boolean function $A \wedge (\sim B)$. Design [10M] a two layer network perceptrons that implements A XOR B.
   ### OR
5. List and explain the appropriate problems for neural networks learning. [10M]

6. Briefly explain the remarks on k nearest neighbor algorithm. [10M]
   ### OR
7. Discuss the Maximum Likelihood Hypothesis for Predicting Probabilities. [10M]

8. List and explain the common operators for genetic algorithm. [10M]
   ### OR
9. Difference between FOIL and the distributive property. [10M]

10. Explain the relationship between Occam's Razor and inductive learning. [10M]
    ### OR
11. Discuss the PROLOG- EBG in detail. [10M]

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