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

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
IV–B.TECH–I–Semester End Examinations (Supply) - December- 2025
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) Define Machine Learning. [2M]
   b) Write about the Decision tree learning. [2M]
   c) Define Perceptron. [2M]
   d) What are all the Boolean functions represented by perceptron? [2M]
   e) What is Bayes Theorem? [2M]
   f) Explain about the EM algorithm [2M]
   g) Explain about Sequential covering algorithm? [2M]
   h) Summarize about the Schema in Genetic Algorithms [2M]
   i) What is explanation based learning? [2M]
   j) Examine the Prolog-EBG. [2M]

PART-B **(50 Marks)**

2. Describe the following problems with respect to Tasks, Performance and Experience:
   a. Checkers learning problem [3M]
   b. Handwritten recognition learning problem [4M]
   c. A Robot driving learning problem [3M]

OR

3. Design a two-input perceptron that implements the boolean function A Λ $\neg$ B and Design a two-layer network of perceptron's that implements A XOR B. [10M]

4. a. What is Perceptron Training rule? [5M]
   b. Explain in detail about comparing learning algorithms. [5M]

OR

5. Enumerate about the Back propagation algorithm with an example. [10M]

6. Explain the Q function and Q Learning Algorithm assuming deterministic rewards and actions with example. [10M]

OR

7. Summarize the advantage and disadvantage of Locally weighted regression. [10M]

8. a. List the learning sets of first-order rules: FOIL [5 M]
   b. Memorize about the Basic Foil algorithm. [5 M]

OR

9. Discuss Genetic algorithm with example. [10M]

10. Describe about the Analytical learning model with example. [10M]

OR

11. What is nth Motivation? Explain Motivation Inductive-Analytical approaches to Learning. [10M]

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