Code No.: CS602PC | R20 | H.T.No. | | 8 | R | | | | |

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
III–B.TECH–II–Semester End Examinations (Regular) - May- 2023
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) What is a well-posed learning problem in Machine Learning? [2M]
   b) Explain about decision tree learning. [2M]
   c) What is generalization accuracy? [2M]
   d) Define Overfitting concept in Machine Learning. [2M]
   e) Discuss about sample complexity in machine learning. [2M]
   f) What is case based reasoning? [2M]
   g) Write short notes on Reinforcement Learning. [2M]
   h) Define Temporal Difference Learning. [2M]
   i) What is the key difference between Reinforcement Learning and Dynamic Programming? [2M]
   j) Define Analytical Learning. [2M]

PART-B   (50 Marks)

2. Illustrate the basic design issues and approaches to machine learning using an example. [10M]

OR

3. Discuss the split criteria used in decision tree learning to determine the optimal feature and value for splitting the data. [10M]

4. What is an appropriate test for comparing two learning algorithms? [10M]

OR

5. Illustrate the practical design choices in Back Propagation Algorithm using face recognition. [10M]

6. Describe the k-nearest neighbour (KNN) algorithm and its applications. Write its advantages and disadvantages. [10M]

OR

7. Describe the working principles of the Naive Bayes algorithm for classification tasks. [10M]

8. Explain the typical structure of a Genetic Algorithm and discuss the following population, fitness function, selection, crossover, and mutation. [10M]

OR

9. Explain the concept of sequential covering algorithms and how they work in the context of machine learning. [10M]

10. What is PROLOG-EBG Algorithm? Explain Safe To Stack Example. [10M]

OR

11. Explain in detail about KBANN (Knowledge Based Artificial Neural Networks) algorithm. [10M]

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