CBCS SCHEME

Sixth Semester B.E. Degree Examination, July/August 2022
Machine Learning

Time: 3 hrs.   Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. Define Machine Learning with example.   **(04 Marks)**
   b. Explain different types of machine learning system with example.   **(12 Marks)**
   c. List the issues of machine learning.   **(04 Marks)**

OR

2 a. Write Candidate Elimination Algorithm. Apply the algorithm to obtain final version space of training example.

Sl.No.	Sky	Air Temp.	Humidity	Wind	Water	Forecast	Enjoy sports
1	Sunny	Warm	Normal	Strong	Warm	Same	Yes
2	Sunny	Warm	High	Strong	Warm	Same	Yes
3	Rainy	Cold	High	Strong	Warm	Change	No
4	Sunny	Warm	High	Strong	Cool	Change	Yes

                                                                                   (12 Marks)
   b. Discuss about inductive bias.   **(04 Marks)**
   c. List out steps in designing a learning system.   **(04 Marks)**

Module-2

3 a. Why performance measurement of a machine learning model is important?   **(04 Marks)**
   b. Considering house dataset from Kaggle perform the following task using Python.
      → Read the dataset
      → Print first five rows from dataset
      → Describe the entire dataset
      → Divide dataset into train and test
      → Plot the distribution of an attribute from dataset using histogram
      → Plot the latitude and longitude using scatter plot.   **(12 Marks)**
   c. Explain how to find correlation among attributes/features in the dataset.   **(04 Marks)**

OR

4 a. Explain why data cleaning is essential task?   **(05 Marks)**
   b. Explain the following terms:
      (i) Cross validation   (ii) Classification   (iii) Confusion matrix
      (iv) Recall   (v) Multioutput classification   **(15 Marks)**

Module-3

5 a. Discuss the usage of gradient descent.   **(08 Marks)**
   b. How polynomial regression is different from linear regression.   **(07 Marks)**
   c. Explain loss function of Logistic Regression.   **(05 Marks)**

OR

6 a. Explain working principles of Support Vector Machine (SVM). **(10 Marks)**
  b. Discuss various usage of kernel used in SVM. **(10 Marks)**

Module-4

7 a. Considering Iris dataset, write and explain how a decision tree model can be developed.
 (10 Marks)
  b. Discuss the benefits and application of ensemble learning. **(10 Marks)**

OR

8 a. Describe CART training algorithm with example. **(10 Marks)**
  b. Define following terms:
   (i) Gimi impurity   (ii) Out of bag evaluation. **(10 Marks)**

Module-5

9 a. Explain Brute force MAP learning algorithm. **(10 Marks)**
  b. Discuss working principle of Naïve bases algorithm. **(10 Marks)**

OR

10 a. Discuss minimum description length principle in brief. **(10 Marks)**
   b. Describe the steps of IM algorithm with example. **(10 Marks)**

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