21CSC4C12L

Sl. No.

M.Sc. IV Semester Degree Examination, October - 2023
MASTER OF COMPUTER SCIENCE
Machine Learning
(NEP)

Time : 3 Hours   Maximum Marks : 70

Note : *Answer **any five** questions. (Question No. **1** is **Compulsory**)*

1. (a) List out and explain different machine learning approach. **7**

   (b) Consider the following exam scores of 10 students (out of 100) : **7**

      85, 90, 78, 92, 88, 85, 95, 84, 90, 88

      Find Measures of Central Tendency.

2. (a) Define predictive data analytics. Explain characteristics of predictive data analytics. **7**

   (b) Discuss the working of PCA. List out the benefits of PCA. **7**

3. (a) Consider the below table and calculate the probability using Naive Bayes. **7**

      Fruit = {yellow, sweet, long}

Fruit	Yellow	Sweet	Long	Total
Orange	350	450	0	650
Banana	400	300	35	400
Others	50	100	50	150
Total	800	850	400	1200

   (b) List out and explain types of regression. **7**

4. (a) Consider the below table find the information gain for Fruit, Competition. **7**

Fruit	Competition	Type	Profit
Mango	Yes	Yellow	Down
Mango	No	Yellow	Down
Mango	No	Yellow	Down
Orange	Yes	Pink	Down
Orange	Yes	Pink	Down
Orange	No	Pink	Up
Orange	No	Pink	Up
Apple	Yes	Green	Up
Apple	Yes	Green	Up
Apple	No	Green	Up

(b) List out advantages and disadvantages of decision tree. **7**

5. (a) Write an algorithm for K - Nearest Neighbor. **7**

(b) Demonstrate the concept of feature space for the given real estate data. **7**

6. (a) Explain the process Analytics Base Table implementation with an example. **7**

(b) Consider the below logistic regression table and calculate the following. **7**

   (i) Probability of pass for the student who studied for 33 hours.

   (ii) At least how many hours student should study that makes he will pass the course with the probability of more than 95%.

Hours study	Pass (1)/Fail (0)
29	0
15	0
33	1
28	1
39	1

7. (a) Compare information gain and entropy. **7**

(b) Describe the importance of distance metrics in machine learning and explain any two distance metrics. **7**

8. (a) List the steps involved in predicting continuous variables using regression in machine learning. **5**

(b) Write an algorithm for id3 decision tree. **5**

(c) What can go wrong with machine learning. **4**

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