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**PRESIDENCY UNIVERSITY  
BENGALURU**

**SCHOOL OF MANAGEMENT  
MID TERM EXAMINATION - NOV 2023**

**Semester :** Semester V - 2021

**Course Code :** BBB3004

**Course Name :** Sem V - BBB3004 - Machine Learning

**Program :** BBA

**Date :** 3-NOV 2023

**Time :** 9:30AM - 11:00AM

**Max Marks :** 50

**Weightage :** 25%

**Instructions:**

- (i) Read all questions carefully and answer accordingly.
- (ii) Question paper consists of 3 parts.
- (iii) Scientific and non-programmable calculator are permitted.
- (iv) Do not write any information on the question paper other than Roll Number.

**PART A**

**ANSWER ALL THE QUESTIONS**

**(5 X 2 = 10M)**

1. How does Machine Learning differ from traditional programming?  
(CO1) [Knowledge]
2. How is data important for Machine Learning?  
(CO1) [Knowledge]
3. Write the basic syntax of creating a vector in python  
(CO2) [Knowledge]
4. List some strengths of Python as a programming language.  
(CO2) [Knowledge]
5. Explain about unsupervised learning in Machine Learning?  
(CO1) [Knowledge]

**PART B**

**ANSWER ALL THE QUESTIONS**

**(2 X 10 = 20M)**

6. Subject: Predicting Customer Churn in a Telecommunication Company.  
A leading telecommunication company is experiencing high customer churn rates, which is negatively impacting its revenue and market share. They aim to reduce churn by identifying customers at risk of leaving and implementing targeted retention strategies. To address this, the company decides to create a machine learning model for predicting customer churn.  
Object: Explain the general process of creating a machine learning model, starting from data collection to model deployment, in a few sentences.  
(CO1) [Comprehension]

7. The local electricity provider charges consumers based on their electricity usage. The billing rates are as follows:

For consumers using 100 units or less, the rate is Rs. 1.50 per unit.

For consumers using between 101 and 200 units (inclusive), the rate is Rs. 2.50 per unit.

For consumers using more than 200 units, the rate is Rs. 5.00 per unit.

Calculate the electricity bill for the following consumers, based on their electricity usage:

Consumer Name	Electricity Usage (in units)
Kiran Kumar	85
Lalit	150
Mohan	250
Raju	850

Calculate the total bill for each consumer based on the given conditions and provide the output in separate Total Bill Column.

(CO2) [Comprehension]

### PART C

#### ANSWER THE FOLLOWING QUESTION

(1 X 20 = 20M)

8. Write a Python program to analyze sales data from a local XLSX file. The program should perform the following tasks:

1. Read the sales data from a local XLSX file, which contains columns for "Order ID," "Date," "Region," "Customer Name," "Product," "Sales," and "Discount."
2. Calculate the total sales from the dataset.
3. Calculate the total sales by region, showing the sum of sales for each region.
4. Identify the customer segment with the highest frequency in the dataset.
5. Find the customer with the highest revenue generated.
6. Calculate the total discount given across all orders.

Order ID	Date	Region	Customer Name	Product	Sales	Discount
101	15-01-2023	East	John Doe	Laptop	1000	50
102	18-01-2023	West	Jane Smith	Phone	500	25
103	05-02-2023	North	David Johnson	Tablet	300	15
104	20-02-2023	East	Emily Brown	Laptop	1200	60
105	02-03-2023	South	Michael Lee	Phone	550	30
106	12-03-2023	West	Susan Davis	Tablet	320	18
107	10-04-2023	East	Robert Wilson	Phone	480	20
108	25-04-2023	North	Mary White	Tablet	280	12
109	08-05-2023	South	Linda Hall	Laptop	1100	55
110	20-05-2023	West	James Harris	Phone	520	28

(CO2) [Application]