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**PRESIDENCY UNIVERSITY
BENGALURU**

SET B

**SCHOOL OF MANAGEMENT
END TERM EXAMINATION - JAN 2024**

Semester : Semester V - 2021

Course Code : BBB3030

Course Name : Application of Business Analytics

Program : BBA

Date : 09-JAN-2024

Time : 1:00 PM - 4:00 PM

Max Marks : 100

Weightage : 50%

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 2M = 10M

1. Calculate the mean of the following dataset: [3, 7, 9, 1, 4]. What does the mean represent in this dataset?
(CO1) [Knowledge]
2. What are the different domains where analytics can be applied?
(CO2) [Knowledge]
3. Describe the role of customer analytics in understanding customer behavior.
(CO2) [Knowledge]
4. Define the probability of an event in a finite sample space.
(CO2) [Knowledge]
5. Give an example of a situation that occurs in the real world and involves the utilisation of a continuous probability distribution.
(CO2) [Knowledge]

PART B

ANSWER ALL THE QUESTIONS

5 X 10M = 50M

6. Distinguish between continuous and discrete probability distributions.
(CO3) [Comprehension]
7. Define a Python list with at least five elements of different data types. Demonstrate how to append an element, remove an element, and slice the list to obtain a subset. Describe the state of the list after each operation.
(CO4) [Comprehension]

8. Explain how to use a DataFrame to execute a conditional selection. If the values in a particular column are higher than a predetermined value, use a condition to filter those rows. Give an account of the outcome of this procedure.
(CO4) [Comprehension]
9. Given a DataFrame with columns named 'A', 'B', and 'C', write a Python script to select and display only the 'B' column. Explain the difference between selecting a single column and multiple columns.
(CO3,CO4,CO5) [Comprehension]
10. Explain how to create multiple plots on the same canvas using the subplot method in Matplotlib. Provide an example of a canvas with three subplots.
(CO5,CO3,CO4) [Comprehension]

PART C

ANSWER ALL THE QUESTIONS

2 X 20M = 40M

11. **Scenario:** A financial analyst is assessing the risk of investment portfolios. The analyst needs to understand the probability distribution of returns for a particular stock, which has shown variability in its returns over the past few years.
Question: Describe how the financial analyst would use probability distributions to assess the risk of the stock. Discuss the selection of an appropriate probability distribution for this scenario and explain how the distribution can be used to calculate the risk measures, such as expected return and standard deviation.

(CO5,CO2,CO1,CO4) [Application]

12. **You're a data analyst working for a bike-sharing company. You've been tasked with analyzing the relationship between the number of bikes rented daily and the average temperature for that day. You have a small dataset of daily rentals and temperatures for the past month. Using Python, complete the following tasks:**

1. **Import the necessary libraries:** Import pandas, matplotlib.pyplot, and sklearn.linear_model.
2. **Load the data:** Create a pandas DataFrame with the following data:

Temperature (°C)	Number of Bikes Rented
-----	-----
15	85
18	115
20	130
22	145
24	160
19	120
21	135
17	110
23	150
16	90

1. **Create a linear regression model:** Use sklearn.linear_model to build a linear regression model that predicts the number of bikes rented based on temperature.
2. **Make predictions:** Use the model to predict the number of bikes rented for a temperature of 25°C.
3. **Plot the regression line:** Add the regression line to the scatter plot you created earlier.

(CO3,CO4,CO5) [Application]