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# PRESIDENCY UNIVERSITY

## BENGALURU

### Mid - Term Examinations – March 2026

**Date:** 12- 03- 2026

**Time:** 11.45am to 01.15pm

<b>School:</b> SOC	<b>Program:</b> BBA/BAV/BBD/BBB		
<b>Course Code:</b> MAT1701	<b>Course Name:</b> BUSINESS APPLICATION OF STATISTICS		
<b>Semester:</b> II	<b>Max Marks:</b> 50	<b>Weightage:</b> 25%	

CO - Levels	C01	C02	C03	C04	C05	C06
<b>Marks</b>	14	14	-	22	-	-

Instructions:

(i) Read all questions carefully and answer accordingly.

(ii) Do not write anything on the question paper other than roll number.

### Part A

Answer ALL the Questions. Each question carries 2marks.

5Q x 2M = 10M

1	Define statistics with one example.	2 Marks	L1	C01
2	Define ordinal data and nominal data with examples.	2 Marks	L1	C01
3	What is the difference between a population and a sample?	2 Marks	L2	C02
4	What is the difference between stratified and cluster sampling?	2 Marks	L2	C02
5	Define probability distribution and name its types.	2 Marks	L1	C04

### Part B

Answer the Questions.

Total Marks 40M

6	ABC Retail Store is a mid-sized clothing store located in an urban area. The management wants to increase sales and improve customer satisfaction. To achieve this, the company decides to create a customer demographic profile using data collected from 200 customers through surveys and billing records. Based on this case, answer the following: i) What is meant by a customer demographic profile? ii) Identify the types of data (categorical and numerical) that can be collected from customers. iii) What statistical tools and diagrams can be used to summarize this data?	10 Marks	L3	C02
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	iv) Explain how this demographic analysis can help ABC Retail Store in making business decisions.			
<b>Or</b>				
7	XYZ Ltd. is a consumer goods company operating in multiple regions. To monitor sales activities and improve decision-making, the management decided to design a Sales Performance Dashboard using sales data collected over the year. Based on this scenario, answer the following questions: (i) What is a sales performance dashboard? (ii) What key sales metrics are displayed in a sales dashboard? (iii) What types of data and charts are used in a sales performance dashboard? (iv) What insights were obtained from the dashboard and what decisions were taken?	10 Marks	L3	CO2
8	Explain the difference between probability and non-probability sampling. Explain all the probability and non-probability sampling methods.	10 Marks	L3	CO1
<b>Or</b>				
9	Explain different types of data and their business applications with examples.	10 Marks	L3	CO1
10	A company plans to introduce a bonus scheme depending on who becomes the manager. There are three possible managers: X, Y, and Z. The probabilities that X, Y, and Z become the manager are $\frac{4}{9}$ , $\frac{2}{9}$ , and $\frac{1}{3}$ , respectively. If X, Y, and Z become the manager, the bonus scheme is introduced with probabilities $\frac{3}{10}$ , $\frac{1}{2}$ , and $\frac{4}{5}$ , respectively. An employee observes that the bonus scheme has been introduced. If the bonus scheme is introduced, find the probability that the manager was: (i) X (ii) Z	10 Marks	L3	CO4
<b>Or</b>				
11	A university bought 45%, 25% and 30% of computers from HCL, Wipro and IBM respectively. Suppose that 2% of the computers from HCL, 3% of the computers from Wipro and 1% of the computers from IBM are found to be defective. Given a randomly chosen computer is defective, find the probability that it is made by (i) HCL (ii) Wipro?	10 Marks	L3	CO4
12	It has been observed that 2 out of 10 bulbs manufactured by a company are defective. (i) Construct a suitable mathematical model, which represents the number of defective bulbs manufactured by the company out of a total of n bulbs. (ii) If a box of 10 bulbs is selected, find the probability that at most 3 are defective?	10 Marks	L3	CO4

	(iii) If a box containing 10 bulbs is selected, find the probability that more than 7 are defective? (iv) If 50 bulbs each are picked up, compute the expected mean number of defective bulbs?			
<b>Or</b>				
13	It has been observed that 1 child out of 2 children being born is likely a female child. (i) Construct a suitable mathematical model, which represents the number female children born out of n childbirths. (ii) If 6 children are born in a particular instant, find the chances that exactly 4 are female? (iii) If 6 children are born in a particular instant, find the chances that at most 2 are females? (iv) If 20 new born are considered, compute the expected mean number of female children?	10 Marks	L3	C04