

Roll No



**PRESIDENCY UNIVERSITY  
BENGALURU**

**SET A**

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

**Semester :** Semester I - 2023

**Course Code :** MBA1007

**Course Name :** Business Statistics

**Program :** MBA

**Date :** 04-JAN-2024

**Time :** 10:00AM - 1:00 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**

**10 X 3M = 30M**

- 1. What are the demerits of mean (CO1) [Knowledge]
- 2. Mention the demerits of median (CO1) [Knowledge]
- 3. Mention the properties of correlation coefficient. (CO2) [Knowledge]
- 4. Define intercept and regression (slope) coefficient. (CO2) [Knowledge]
- 5. Define a continuous random variable and give an example. (CO3) [Knowledge]
- 6. Define sample space and give an example (CO3) [Knowledge]
- 7. What are mutually likely events? Give an example (CO3) [Knowledge]
- 8. Define compliment of an event. Give an example (CO3) [Knowledge]
- 9. Define addition rule of probability (CO4) [Knowledge]
- 10. What is an alternative hypothesis? Provide an example (CO4) [Knowledge]

**PART B**

**ANSWER ALL THE QUESTIONS**

**6 X 7M = 42M**

11. The following data represent the number of appointments made per 15-minute interval by telephone solicitation for a lawn-care company. Compute mean and median

<b>Number of Appointments</b>	<b>Frequency of Occurrence</b>
0-under 1	31
1-under 2	57
2-under 3	26
3-under 4	14
4-under 5	6

(CO1) [Comprehension]

12. The following data represent the number of appointments made per 15-minute interval by telephone solicitation for a lawn-care company. Compute Quartile deviation

Number of Appointments	Frequency of Occurrence
0–under 1	31
1–under 2	57
2–under 3	26
3–under 4	14
4–under 5	6
5–under 6	3

(CO1) [Comprehension]

13. Suppose that a company launches 3 products A, B and C. Probability that the products A, B and C are successful are 0.3, 0.4 and 0.5 respectively. What is the probability (i) that all the products are successful (ii) only product A is successful?  
(CO2) [Comprehension]
14. Ship collisions in the Houston Ship Channel are rare. Suppose the number of collisions are Poisson distributed, with a mean of 1.2 collisions every four months.  
a. What is the probability of having no collisions occur over a four-month period?  
b. What is the probability of having exactly two collisions in a four-month period?  
(CO3) [Comprehension]
15. In a factory, which manufactures pistons, machines A, B and C produce 25% 35% and 40% of the total output. It is known that machines A, B and C produce 5%, 4% and 2% defective pistons. A randomly selected piston is found to be defective. What is the probability that it was produced by machine A?  
(CO3) [Comprehension]
16. A survey of the morning beverage market shows that the primary breakfast beverage for 17% of Americans is milk. A milk producer in Wisconsin, where milk is plentiful, believes the figure is higher for Wisconsin. To test this idea, she contacts a random sample of 550 Wisconsin residents and asks which primary beverage they consumed for breakfast that day. Suppose 115 replied that milk was the primary beverage. Using a level of significance of .05, test the idea that the milk figure is higher for Wisconsin. (table value = 1.65)  
(CO4) [Comprehension]

### PART C

#### ANSWER ALL THE QUESTIONS

2 X 14M = 28M

17. The general manager of a chain of department stores believes that experience is the most important factor in determining the level of success of a salesperson. To examine this belief she records last month's sales (in \$1,000s) and the years of experience of 10 randomly selected salespeople. These data are listed below.

Salesperson	Years of Experience	Sales
1	0	7
2	2	9
3	10	20
4	3	15
5	8	18
6	5	14
7	12	20
8	7	17
9	20	30
10	15	25

Obtain the correlation coefficient between Years of experience and sales.

(CO2) [Application]

18. According to a report by Scarborough Research, the average monthly household cellular phone bill is \$60. Suppose local monthly household cell phone bills are normally distributed with a standard deviation of \$11.35.  
a. What is the probability that a randomly selected monthly cell phone bill is more than \$85?  
b. What is the probability that a randomly selected monthly cell phone bill is between \$45 and \$70?  
c. What is the probability that a randomly selected monthly cell phone bill is between \$65 and \$75?  
(CO4) [Application]