Total pages: 02

PG
MBA Semester- I Examination, 2024
MASTER OF BUSINESS ADMINISTRATION
PAPER: MBA 103
(STATISTICS FOR BUSINESS DECISIONS)

Full Marks: 80 **Time: 3 Hours**

The figures in the right-hand margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

Group-A

Answer any **EIGHT** of the following questions: $8 \times 5 = 40$

1. Define random experiment. Using classical definition of probability prove that, $0 \leq P(A) \leq 1$, for any event A. 2+3
2. Find the mean, median and standard deviation of the following distribution:

Marks Obtained	0-20	20-40	40-60	60-80	80-100
Number of students	5	10	12	6	3

3. The monthly profit in rupees of 100 shops are distributed as follows:

Profits per shop	0-100	100-200	200-300	300-400	400-500	500-600
No. of shops	12	18	27	20	17	06

Find the modal value.

4. There are three persons aged 50 years, 60 years and 70 years respectively. The probability to live 10 years more is $\frac{4}{5}$ for a 50 years old, $\frac{1}{2}$ for a 60 years old and $\frac{1}{5}$ for a 70 years old person. Find the probability that at least two of them will survive 10 years more.
5. Calculate the correlation coefficient and determine the regression lines of y on x and x on y for the sample

x	8	10	5	8	9
y	1	3	1	2	3

6. A speaks truth in 75% cases and B speaks truth in 80% cases. What is the probability to contradict while narrating the same incident?
7. Briefly explain the concept of skewness and its types.
8. State the properties of a Normal Distribution.
9. What is a non-sampling error? Give two examples.

10. A factory finds that the probability of a defective item is 0.1. If 10 items are chosen at random, find the probability that exactly 2 are defective using the Binomial distribution formula.
11. Explain the concept of a sampling distribution of the sample mean. Why is it important in inferential statistics?
12. Distinguish between Descriptive Statistics and Inferential Statistics.

Group-B

Answer any **FOUR** of the following questions: $4\times10=40$

13. The body weight of 8 adult male and 8 adult female is presented in the following table. Using 't-test' find whether or not the mean weight of male is significantly higher than that of female.

Male	50	58	60	55	59	56	54	64
Female	49	52	51	56	55	53	52	48

14. Define mutually exclusive event with example. A coin is thrown 5 times. What is the probability of getting 3 consecutive head. 3+7
15. i) Find the mode of the following distribution:

Class interval	51-53	54-56	57-59	60-62	63-65	66-68	69-71
Frequency	5	7	14	28	15	8	3

ii) There are 26 black and 26 red cards in a well shuffled deck of cards. Three cards are drawn find the probability of getting 3 black card without replacing.

16. Two machines produce bolts with the following information:
Machine A: Mean = 50, Standard Deviation = 5
Machine B: Mean = 48, Standard Deviation = 4.8
Which machine is more consistent in production? Justify your answer using the Coefficient of Variation.
17. Distinguish between stratified sampling and cluster sampling with suitable business-related examples.
18. The productivity scores of workers trained under three different methods are as follows:

Method A: 45, 50, 55
Method B: 40, 42, 38
Method C: 52, 54, 53

Use One-Way ANOVA to test whether there is any significant difference between the three me at 5% level.

<<<>>>