

2025

MBA 1st Semester Examination

MBA

Paper : MBAC403X0

[Statistics for Business Decisions]

Full Marks : 100

Time : Three Hours

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

Group - A

Answer any *eight* questions : 5×8=40

1. Discuss the scope of Statistics in business studies.
2. Explain the concept of median. Mention any two applied areas of median in business. 2+3
3. Explain the concept of skewness and kurtosis in brief.
4. Calculate the Coefficient of Variation (CV) given :

Mean = 60, Standard Deviation = 12

Comment on the consistency.

P.T.O.

$$\sigma = \sqrt{\frac{\sum (x - \bar{x})^2}{n}}$$

$$= 0$$

$$\sigma^2 = \frac{\sum (x - \bar{x})^2}{n}$$

$$(2)$$



5. Compute the Variance and Standard Deviation for the following data :

8, 12, 16, 20, 24

6. What does a coefficient of determination of 0.70 signify in a regression model?

7. Explain the concept of probability distribution. Give two examples of how probability distribution is used in decision-making processes.

8. "Sampling is a necessity under certain conditions." Illustrate this by suitable example.

9. Briefly discuss the concept of 'Mutually Exclusive Event' with a suitable example.

10. The income of a group of 10,000 people was found to be normally distributed with mean Rs. 17500 p.m. and standard deviation Rs. 500. Find out the expected number of people getting more than Rs. 18320 p.m.

11. Write short notes on Null Hypothesis and Alternative Hypothesis.

12. What do you mean by 'Standard Error'? How do you distinguish between 'Standard Error' and 'Standard Deviation'?

2+3

~~10-10000~~
 $\bar{x} = 17500$



(3)

Group - B

Answer any *four* questions : $10 \times 4 = 40$

13. The following are the scores of two classes in an examination :

Class A : 50, 55, 60, 65, 70

Class B : 40, 50, 60, 70, 80

Calculate the mean, standard deviation, and coefficient of variation for both classes and comment on which class shows more consistency.

14. Given the following data, fit a regression line of Y on X and estimate Y when $X = 7$:

X	1	2	3	4	5
Y	2	3	5	4	6

y on x
 $= a + bx$

15. Discuss various types of measurement scales based on their importance.

16. (a) Give a classical definition of probability. What are its limitations?

(b) A bag contains 30 balls numbered from 1 to 30. One ball is drawn at random. Find the probability that the number of the ball drawn will be a multiple of (i) 5 or 7, and (ii) 3 or 7. $(2+2)+6$

P.T.O.



(4)

17. (a) A lock manufacturing company supplies locks to a retailer in different batches. A single batch size contains 300 locks. The company's past record suggests that on an average, in a single batch, 10 locks are defective. The number of defects per batch follows Poisson distribution. In a random selection of locks in a batch :
- (i) What is the probability of finding eight or fewer defectives in a batch?
 - (ii) What is the probability that the batch contains $6 < x < 10$ defectives?
- (b) In 10 independent throws of a defective die, the probability that an even number will appear 5 times is twice the probability that an even number will appear 4 times. Find the probability that an even number will not appear at all in 10 independent throws of the die. (3+2)+5
18. (a) Explain the method of drawing a stratified sample. State the situation where stratified random sampling is preferred to simple random sampling.
- (b) What is non-sampling error or bias? How does it arise in sampling? (3+2)+(2+3)

Internal Assessment : 20 marks

$$CV = \frac{\sqrt{\frac{\sum (x - \bar{x})^2}{n}}}{\bar{x}}$$