

MBA 1st Semester Examination, 2023

MBA

(Statistics for Business Decisions)

PAPER — MBA-103

Full Marks : 80

Time : 3 hours

The figures in the right hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

GROUP—A

Answer any **eight** questions of the following :

5 × 8

1. Discuss various types of correlation with the help of scatter diagrams.
2. Distinguish between correlation and covariance with suitable examples.

3. Find the SD of 'n' natural numbers.
4. From the following information, determine in which firm, A or B, there is greater variability in individual wages.

Particular	Firm A	Firm B
Average monthly wages	Rs. 50	Rs. 45
Variance of distribution of wages	100	121

5. In a regression output, the value of R square is 0.80 Interpret the result.
6. Establish the relation between correlation coefficient and regression coefficient.
7. Explain the method of drawing a stratified sample. State the situation where stratified random sampling is preferred to simple random sampling.

8. There are 60 students in the 1st semester of MBA programme of Vidyasagar University. The probability that a student of MBA 1st Semester will place a demand for a particular Statistics book from the university library on any day is 0.05. There are five books kept in the library (for the MBA 1st Semester students). Calculate the probability that in a particular day no book is demanded by the students and the probability that in a particular day on which some demand is refused (Given $e^{-5} = 0.0067$, $e^{-0.05} = 0.9512$ and $e^{-3} = 0.0498$).
9. Write a short note on 'Equally Likely Events'.
10. If 1000 light (bulbs) with a mean life of 120 days are installed in a new factory and their length of life is normally distributed with standard deviation of 20 days. Calculate how many bulbs will expire in less than 90 days ?

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'?

GROUP-B

Answer any **four** questions of the following : 10 × 4

13. Discuss various types of measurement scales based on their importance.
14. The following data is attained from garden records of a certain period. Calculate the median weight of the apple.

Weight in grams	410-420	420-430	430-440	440-450	450-460	460-470	470-480
Number of apples	14	20	42	54	45	18	7

15. The lines of regression of y on x and x on y are respectively $y = x + 5$ and $16x = 9y - 94$. Find the variance of x if the variance of y is 16. Also compute the value of correlation coefficient.
16. (a) Briefly discuss the concept of 'Mutually Exclusive Event' with a suitable example.
- (b) A bag contains 30 balls numbered of 1 to 30. One ball is drawn at random. Find the probability that the number of the ball drawn will be a multiple of (a) 5 or 7 and (b) 3 or 7. 4 + 6
17. (a) State the conditions under which the Binomial Distribution is applied.
- (b) In a multiple-choice examination, there are 20 questions. Each question has four alternative answers, and the

students must select the one correct answer. Four marks are given for the correct answer and one mark is deducted for every wrong answer. A student must secure at least 50% of the maximum possible marks to pass the examination. Suppose that a student has not studied at all so that he decides to select the answers to the questions on a random basis. What is the probability that he will pass the examination ?

18. (a) Discuss the relative advantages of sample survey over the census survey.

(b) What are the potential biases that can arise in sampling ? How does its arise in sampling ?

5 + (2 + 3)