

MBA(D) (1st Semester) Examinations, July 2018 (DDE)
[Sessions: (Jan 2016-Dec 2017), (Jan 2017-Dec 2018)]

Subject: Business Statistics
Paper: MBD-105

Time: 3 Hours

Full Marks: 80

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 six questions.

5×6=30

- (a) The mean and median of a moderately skewed distribution are 42.2 and 41.9 respectively. Find mode of the distribution.
 (b) For a moderately skewed distribution, the median price of men's shoes is ₹ 380 and modal price is ₹ 350. Calculate mean price of shoes.
- Determine the interquartile range of the following distribution:
 Class Intervals: 11-13 13-15 15-17 17-19 19-21 21-23 23-25
 Frequency: 8 10 15 20 12 11 4
- Calculate standard deviation and its coefficient of variation from the following data:
 Measurements: 0-5 5-10 10-15 15-20 20-25
 Frequency: 4 1 10 3 2
- The first four moments of a distribution about 4 are as given below:
 $\mu_1' = 1, \mu_2' = 4, \mu_3' = 10, \mu_4' = 45$
 Find mean of the distribution and calculate the first four moments about mean and also the first four moments about origin.
- Write a short note on Scatter Diagram.
- Calculate the coefficient of correlation between age group and rate of mortality from the following data:
 Age Group: 0-20 20-40 40-60 60-80 80-100
 Rate of Mortality: 350 280 540 760 900
- Calculate the price index no. (using quantity as weighted) using Fisher's formula for the following data and show that it satisfies time reversal test.

Commodity	2013		2014	
	Price	Quantity	Price	Quantity
A	6	70	8	120
B	8	90	10	100
C	12	140	16	280

- List out the characteristics of binomial distribution.

Please Turn Over

Group -B**Answer any five questions.****10×5=50**

9. Distinguish between statistical methods and statistics. Discuss in detail, the role of Statistics in decision making.
10. (a) What do you understand by coefficient of variation?
 (b) The mean and standard deviation of 200 items are found to be 60 and 20 respectively. If at the time of calculations, two items were wrongly recorded as 3 and 67 instead of 13 and 17, find the correct mean and standard deviation. What is the correct value of the coefficient of variation?
11. (a) Calculate the Karl Pearson's coefficient of skewness from the following data:
- | | | | | | | | | |
|-------------------|---|----|----|----|----|----|---|---|
| Size | : | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Frequency: | | 10 | 18 | 30 | 25 | 12 | 3 | 2 |
- (b) The following data are given to an economist for the purpose of economic analysis. The data refers to the length of life of a certain type of batteries.
 $n = 100$, $\sum fd = 50$, $\sum fd^2 = 1970$, $\sum fd^3 = 2948$, $\sum fd^4 = 86,752$. Here $d = X - 48$.
 Do you think that the distribution is platykurtic?
12. What do you by time series? Describe the various components of time series.
13. (a) Define the following terms with suitable examples:
 (i) Exhaustive events
 (ii) Equally likely events
 (b) The probability that a contractor will get a plumbing contract is $\frac{2}{3}$ and the probability that he will get an electric contract is $\frac{5}{9}$. The probability of getting at least one contract is $\frac{4}{5}$. (i) What is the probability that he will get both contracts? (ii) After getting the plumbing contract, what is the probability that he will get the electric contract?
14. Briefly explain the different types of non-probability sampling techniques.
15. (a) List out the properties of Maximum Likelihood Estimators (MLEs).
 (b) Briefly illustrate the steps used to test hypothesis.