

MBA(D) (1st Semester) Examinations, Dec 2018 (DDE)
[Sessions: (Jul 2017-Jun 2019), (Jul 2016-Jun 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

- The arithmetic mean of 50 items of a series was calculated by a student as 20. However, it was later discovered that an item 25 was misread as 35. Find the correct value of mean.
- Distinguish between simple geometric mean and weighed geometric mean.
- 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?
- State the properties of simple correlation coefficient.
- From the following table, find the missing values and calculate the coefficient of correlation by Karl Pearson's method:

X:	6	2	10	4	?
Y:	9	11	?	8	7

Arithmetic means of X and Y series are 6 and 8 respectively.

- A box contains 40 envelopes of which 25 are ordinary (not meant for airmail) and 16 are unstamped, while the number of unstamped ordinary envelopes is 10. What is the probability that an envelope chosen randomly from the box is a stamped airmail envelope?
- List out the general properties of maximum likelihood estimators.
- Define 'hypothesis'. What do you understand by testing of hypothesis?

Group -B

Answer any five questions.

10×5=50

- From the prices X and Y of shares A and B respectively given below, state which share is more stable in value.

Price of Share A (X):	55	54	52	53	56	58	52	50	51	49
Price of Share B (Y):	108	107	105	105	106	107	104	103	104	101

Please Turn Over

10. (a) The following table gives the marks obtained by 10 students in commerce and statistics.
Calculate the rank correlation.

Marks in Statistics:	35	90	70	40	95	45	60	85	80	50
Marks in Commerce:	45	70	65	30	90	40	50	75	85	60

- (b) Obtain the lines of regression of Y on X for the data given below:

$$\sum X = 50, \sum Y = 60, \sum XY = 350, n=10, \sigma_X^2 = 4, \sigma_Y^2 = 9.$$

11. From the data given below, find:

1. The two regression equations.
2. The coefficient of correlation between marks in economics and statistics.
3. The most likely marks in statistics when marks in economics are 30.

Marks in Economics:	25	28	35	32	31	36	29	38	34	32
Marks in Statistics:	43	46	49	41	36	32	31	30	33	39

12. (a) The mean of a Binomial distribution is 20 and its standard deviation is 4. Calculate its n, p and q.
(b) In a certain blade producing factory there is a small chance of 1/500 for any blade to be defective. The produced blades are supplied in packets of 5. Use Poisson distribution to calculate the approximate number of packets containing (i) no defective and (ii) one defective blade respectively in a consignment of 5,000 packets.
13. (a) Explain the various uses of seasonal index in time series analysis.
(b) What do you mean by deseasonalisation of data? State the process of deseasonalisation of data.
14. Elaborate on the major criteria for a good estimator.
15. (a) Distinguish between
- (i) Parameter and Statistic
 - (ii) Estimator and Estimate
- (b) Briefly illustrate the steps used to test hypothesis.