BBA (H) (3rd Semester) Examinations, 2021
Subject: Business Statistics
Paper: BBA-3.2

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

1. 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.
2. Find the median of the following distribution:

Gross profit as % of sales:	0-10	10-20	20-30	30-40	40-50
Number of companies:	22	38	46	35	20

3. The mean and median of a moderately skewed distribution are 42.2 and 41.9 respectively. Find mode of the distribution.
4. Find the quartile deviation and its coefficient from the following data:

Age in years:	15	16	17	18	19	20	21
No. of Students:	4	6	10	15	12	9	4

5. State the properties of simple correlation coefficient.
6. Calculate the coefficient of skewness for the following distribution.

Debt as % of total Capitalization:	0-10	10-20	20-30	30-40	40-50	50-60
No. of companies:	15	17	19	27	19	12

7. The first four raw moments of a distribution are 2, 136, 320, and 40,000. Find out coefficient of kurtosis.
8. What is an index number? State the uses of index number.

Group -B

Answer any five questions. 10×5=50

9. (a) Distinguish between an absolute measure and a relative measure of dispersion.

   (b) Find the missing information from the following:

	Group I	Group II	Group III	Combined
Number of observations	50	?	90	200
Standard Deviation	6	7	?	7.746
Mean	113	?	115	116

10. (a) Find out the missing frequency in the following distribution with mean equal to 30.

Class:	0-10	10-20	20-30	30-40	40-50
Frequency:	5	6	10	?	13

    (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) When mean = 50, coefficient of variation = 40%, and skewness = - 0.4, find the standard deviation, mode and median.
    (b) The first four moments of a distribution about the value 5 of the variable are 2, 20, 40, and 50. Show that the mean is 7. Also find the other moments, $\beta 1$ and $\beta 2$, and comment upon the nature of the distribution.
12. A computer while calculating the correlation coefficient between two variables x and y from 25 pairs of observations obtained the following results:

    $x = 5$, $y = 4$, $\sigma_x^2 = 1$, $\sigma_y^2 = 2.4$, and $r_{xy} = 8/\sqrt{1500}$

    It was, however, discovered at the time of checking that two pairs of observations were not correctly copied. They were taken as (6,14) and (8,6) while the correct values were (8, 12) and (6, 8). Calculate the correct value of the correlation coefficient.

13. Prepare quantity index numbers for 2012 with 2008 as the base year from the following data, using (i) Laspeyres' formula, (ii) Paasche's formula, (iii) Fisher's formula, and (iv) Edgeworth-Marshall's formula.

Commodity	2008		2012	
	Price	Quantity	Price	Quantity
A	5	10	8	12
B	10	15	15	12
C	12	14	20	15
D	16	12	12	20
E	8	10	10	12

14. Briefly discuss the various components of time series.
15. Write short notes on any two:
    (a) Frequency Distribution
    (b) Properties of Standard Deviation
    (c) Spearman's Rank Correlation
    (d) Characteristics of Index Numbers