

Code No.: 10557 E

Sub. Code: CABA 11/
CASL 11B.B.A. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2022

First Semester

Business Administration / Shipping and Logistics
Management – Allied

BUSINESS STATISTICS

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Out of all measures of dispersion, the easiest one to calculate is _____.
(a) Standard deviation (b) Range
(c) Variance (d) Quartile deviation

6. If $\rho = 0$, the angle between the two lines of regression is _____.
(a) Zero degree (b) Ninety degree
(c) Sixty degree (d) Thirty degree

7. Secular trend is indicative of long term variation towards _____.
(a) Increase only
(b) Decrease only
(c) Either increase or decrease
(d) None of the above

8. If the slope of the trend line is positive, it shows _____.
(a) Rising trend (b) Declining trend
(c) Stagnation (d) All of the above

9. The best average to calculate index numbers is _____.
(a) A.M (b) G.M
(c) H.M (d) None

10. Factor reversal test permits the interchange of _____.
(a) Base periods (b) Price and quantity
(c) Weights (d) None of the above

2. The correct relationship between A.M., G.M. and H.M. is _____.
(a) $A.M. = G.M. = H.M.$
(b) $G.M. \geq A.M. \geq H.M.$
(c) $H.M. \geq G.M. \geq A.M.$
(d) $A.M. \geq G.M. \geq H.M.$
3. The co-efficient of correlation is not affected by
(a) Change of origin
(b) Change of scale
(c) Both origin and scale
(d) None
4. Rank correlation method was developed by _____.
(a) Karl Pearson (b) R.A. Fisher
(c) Speannan (d) Croxten and Cowden
5. If one of the regression coefficient is negative, the other _____.
(a) Must be positive
(b) Must be negative
(c) May be positive or negative
(d) Non-negative

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PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) State the applications of measures of Central Tendency in business.

Or

- (b) Calculate Range and its coefficient from the following data

Age (in years) : 5-10 10-15 15-20 20-25 25-30

No. of persons : 12 16 20 10 2

12. (a) Define Correlation. State the significance of Correlation Analysis.

Or

- (b) For a given sets of 10 observations. Find the Rank correlation coefficient.

X: 5 4 3 8 10 6 6 7 8 5

Y: 6 2 1 5 6 3 9 8 10 7

13. (a) What is the relation between regression and correlation?

Or

- (b) Write a note on Regression Line.

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[P.T.O.]

14. (a) What are the different methods of measuring trend?

Or

- (b) Calculate the 4 yearly moving averages from the following data:

| | | | | | | |
|-------------------------|------|------|------|------|------|------|
| Year | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| Sales (in Rs. lakhs) | 614 | 615 | 652 | 678 | 681 | 655 |

| | | | | | |
|-------------------------|------|------|------|------|------|
| Year | 2010 | 2011 | 2012 | 2013 | 2014 |
| Sales (in Rs. lakhs) | 717 | 719 | 708 | 779 | 757 |

15. (a) Write a brief note on splicing.

Or

- (b) From the following data, construct price index number by Simple Aggregate Method.

| Commodities | Base Year Price | Current Year Price |
|-------------|--------------------|-----------------------|
| A | 42 | 52 |
| B | 10 | 28 |
| C | 15 | 22 |
| D | 7 | 17 |
| E | 5 | 12 |
| F | 6 | 9 |

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18. (a) By using the following data, find out the two lines' of regression from them.

$$\sum x = 250; \sum y = 300; \sum xy = 7900;$$

$$\sum x^2 = 6500; \sum y^2 = 10,000; n = 10.$$

Or

- (b) Write down the regression equations from the following data:

| | | | | | | | | | | |
|------------------------|---|---|----|---|----|---|----|----|----|----|
| Fresh weight (gms): | 8 | 6 | 10 | 5 | 12 | 2 | 20 | 15 | 14 | 18 |
| Dry weight (gms): | 3 | 2 | 2 | 2 | 4 | 1 | 5 | 4 | 3 | 4 |

19. (a) Explain the components of time series.

Or

- (b) Calculate the trend values by the method of least squares from the data given below:

| | | | | | |
|-------------------------|------|------|------|------|------|
| Year | 2011 | 2012 | 2013 | 2014 | 2015 |
| Production (in '000) | 12 | 18 | 20 | 23 | 27 |

20. (a) What are the tests used for testing the consistency of Index Numbers? Explain.

Or

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PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) Calculate the mean, median and mode from the following data.

| | | | | | | |
|----------------------------|------|-------|-------|-------|-------|-------|
| No. of Insurance policies: | 9-11 | 12-14 | 15-17 | 18-20 | 21-23 | 24-26 |
|----------------------------|------|-------|-------|-------|-------|-------|

| | | | | | | |
|---------------|---|---|---|----|---|---|
| No. of Buyers | 3 | 5 | 8 | 12 | 7 | 5 |
|---------------|---|---|---|----|---|---|

Or

- (b) The following data show the sales performed by 23 shops in a region. Calculate the Standard Deviation.

| | | | | | |
|------------------|-----|-------|-------|-------|-------|
| Sales (Rs. '000) | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 |
| No. of shops | 3 | 5 | 8 | 4 | 3 |

17. (a) Explain different types of correlation.

Or

- (b) Find Karl Pearson's coefficient of correlation between sales and expenses of the following ten items.

| | | | | | | | | | | |
|---------------------------------|----|----|----|----|----|----|----|----|----|----|
| Firms: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Sales in thousand units: | 50 | 50 | 55 | 60 | 60 | 65 | 65 | 60 | 60 | 50 |
| Expenses in thousand Rs.: | 11 | 13 | 14 | 16 | 16 | 15 | 15 | 14 | 13 | 13 |

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- (b) Construct Fisher's Ideal Index from the following data and show that it satisfies the Time Reversal Test.

| | | | | |
|-----------|-------|-------|-------|-------|
| Commodity | P_0 | P_1 | Q_0 | Q_1 |
| Wheat | 30 | 35 | 5 | 4 |
| Rice | 32 | 37 | 7 | 5 |
| Gram | 20 | 18 | 3 | 4 |

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