

(8 pages)

Reg. No. :

**Code No. : 12443 E Sub. Code : CABA 11/
CASL 11**

B.B.A. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2021.

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 — ($10 \times 1 = 10$ marks)

Answer ALL the questions.

Choose the correct answer :

1. Which of the following is a unit less measure of dispersion?
 - (a) Standard deviation
 - (b) Mean deviation
 - (c) Coefficient of variation
 - (d) Range

2. The number of partition values in case of quartiles is _____.
- (a) 4 (b) 3
(c) 2 (d) 1
3. Scatter diagram of the variant values (X, Y) give the idea about _____.
- (a) Functional relationship
(b) Regression model
(c) Distribution of errors
(d) None of the above
4. The value of correlation ratio varies from _____.
- (a) -1 to 1 (b) -1 to 0
(c) 0 to 1 (d) 0 to ∞
5. If X and Y are two variants, there can be at most _____.
- (a) One regression line
(b) Two regression lines
(c) Three regression lines
(d) An infinite number of regression lines

6. When $r = \pm 1$, the two regression lines are _____.
(a) Perpendicular to each other
(b) Parallel to each other
(c) Coincide
(d) None
7. The general decline in sales of cotton clothes is attached to the component of the time series _____.
(a) Secular trend (b) Cyclical variation
(c) Seasonal variation (d) All of the above
8. Method of least squares to fit in the trend is applicable only if the trend is _____.
(a) Linear (b) Parabolic
(c) Both (a) and (b) (d) Neither (a) nor (b)
9. Index number is a _____.
(a) Measure of relative changes
(b) A special type of an average
(c) A percentage relative
(d) All the above

10. Laspeyre's index formula uses the weights of the _____.

- (a) Base year
- (b) Current year
- (c) Average of the weights of a number of years
- (d) To any arbitrary chosen year

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) The number of days that students were missing from school due to sickness in one year was recorded. Calculate mean:

Number of days off sick	0 – 5	5 – 10	10 – 15	15 – 20	20 – 25
Frequency	12	11	10	4	3

Or

- (b) Discuss the procedure for calculating standard deviation for continuous series.

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

Or

- (b) Two judges in a baby-competition rank the seven entries as follows:

Entry :	A	B	C	D	E	F	G
Judge I :	5	1	2	4	3	7	6
Judge II :	7	2	4	6	5	1	3

Calculate the rank correlation coefficient.

13. (a) Describe the linkage between Correlation and Regression.

Or

- (b) Write a note on Standard Error of estimates.

14. (a) State the significance of Time Series Analysis.

Or

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

Year	2004	2005	2006	2007	2008
Sales (in Rs. Lakhs)	464	515	518	467	502

Year	2009	2010	2011	2012	2013
Sales (in Rs. Lakhs)	540	557	571	586	612

15. (a) State the characteristics of Index number.

Or

- (b) Construct Index Number for 2013 taking 2012 as base:

Commodity	Price 2012	Price 2013
A	90	95
B	40	50
C	90	110
D	30	35

PART C — ($5 \times 8 = 40$ marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Calculate Quartile Deviation from the following distribution.

Wages:	0-10	10-20	20-30	30-40	40-50	50-60	60-70
No. of Workers:	4	6	12	20	10	6	2

Or

- (b) Calculate Bowley's Co-efficient of Skewness from the following data:

Income (in Rs.) :	Below 200	200-400	400-600
No. of families :	25	40	80

Income (in Rs.) :	600-800	800-1000	Above 1000
No. of families :	75	20	16

17. (a) Explain the methods of measuring correlation.

Or

- (b) Compute Karl Pearson's Coefficient of Correlation between heights of father and son from the following data:

Heights of father : (in inches)	65	66	67	67	68	69	70	72
Heights of son : (in inches)	67	68	65	68	72	72	69	71

18. (a) Assuming that there is linear relationship between (X) and (Y) of residents of a certain locality, estimate the height of an individual whose weight is 150 lbs from the following data:

Mean height: 65 inches

Mean weight: 160 lbs

Standard deviation of height: 3 inches

Standard deviation of weight: 20 lbs

Coefficient of correlation between height and weight = + 0.6

Also find the most likely weight of a person whose height is 68 inches.

Or

- (b) The following table shows the number of motor registrations in a certain territory for a term of 5 years and the sale of motor tyres by a firm in the territory for the same period.

Year	Motor Registration	No. of Tyres sold
1	600	1,250
2	630	1,100
3	720	1,300
4	750	1,350
5	800	1,500

Find the regression equation to estimate the sale of tyres when the motor registration is known. Estimate sale of tyres when registration is 850.

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

Or

- (b) Calculate trend value using method of least square and estimate the sales for the year 2015.

Year	2008	2009	2010	2011	2012	2013	2014
Sales (in Rs. Crores)	20	23	22	25	26	29	30

20. (a) Explain the problems in the construction of Index numbers.

Or

- (b) Construct index number of prices for the following data by

- (i) Laspeyre's (ii) Paaschee's
(iii) Fisher's (iv) Bowley's

Commodity	2013		2014	
	Price	Quantity	Price	Quantity
A	5	14	3	18
B	8	18	6	25
C	3	25	1	40
D	15	36	12	48
E	9	14	7	18
F	7	13	5	19