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15/06/23 A/N

Reg. No. : .....

Code No. : 30631 E Sub. Code : CABA 11/  
CASL 11/CAAM 11

B.B.A. (CBCS) DEGREE EXAMINATION,  
APRIL 2023.

First Semester

Business Administration/Shipping and Logistics  
Management/Aviation 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. \_\_\_\_\_ is not a measure of central tendency.  
(a) Mean (b) Median  
(c) Range (d) Mode
2. Variance is \_\_\_\_\_ of standard deviation.  
(a) Square root (b) Cube  
(c) Square (d) Cube root

3. When interpreting a correlation coefficient, it is important to look at \_\_\_\_\_  
(a) The +/- sign of the correlation coefficient  
(b) The magnitude of the correlation coefficient.  
(c) The significance of the correlation coefficient.  
(d) All of these.
4. If a data contains  $n$  paired values on two variables  $x$  and  $y$  then their plot is called  
(a) Dentogram  
(b) Scatter diagram  
(c) Point diagram  
(d) Correlogram
5. The Regression Lines  $5X + 2Y = 16$  and  $9X + 10Y = 48$  intersect at \_\_\_\_\_.  
(a) (0, 8) (b) (2,3)  
(c) (3, 2) (d) (8, 0)
6. Which of the following techniques is an analysis of the relationship between two variables to help provide the prediction mechanism?  
(a) Standard error  
(b) Correlation  
(c) Regression  
(d) None of the above

A pattern that is repeated throughout a time series and has a recurrence period of at most one year is called:

- (a) Cyclical variation
- (b) Irregular variation
- (c) Seasonal variation
- (d) Long term variation

The general pattern of increase or decrease in economics or social phenomena is shown by

- (a) Seasonal trend
- (b) Cyclical trend
- (c) Secular trend
- (d) Irregular trend

The time period for which an index number is determined is known as \_\_\_\_\_.

- (a) Base period
- (b) Normal period
- (c) Current period
- (d) None of the above

Index number is a type of \_\_\_\_\_.

- (a) Dispersion
- (b) Correlation
- (c) Average
- (d) None of the above

PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) Find the mean for the following distribution.

$x$ : 15 21 27 30 35

$f$ : 3 5 6 7 8

Or

- (b) Find the standard deviation and variance for the following data: 10, 12, 8, 14, 16.

12. (a) Explain the types of correlation.

Or

- (b) Calculate the coefficient of correlation between X and Y for the following data :

X: 1 2 3 4 5 6 7 8 9

Y: 9 8 10 12 11 13 14 16 15

13. (a) Find the means of X and Y variables from the following two regression equations:

$$4X - 5Y + 33 = 0; 20X - 9Y - 107 = 0.$$

Or

- (b) Calculate the regression coefficients for the following information:  $\sum X = 50$ ;  $\sum Y = 30$ ,  $\sum XY = 1000$ ,  $\sum X^2 = 3000$ ,  $\sum Y^2 = 180$ ,  $N = 10$ .

14. (a) Determine the equation of straight line which best fits the following data

Year:	1984	1985	1986	1987	1988
Sales (in Rs'000):	35	56	79	80	40

Compute the trend values for all the years from 1984 to 1988

Or

- (b) Explain the components of time series.

15. (a) Calculate an index number of the following data:

	Base Year		Current Year	
	Kilo	Rate	Kilo	Rate
Bread	10	3	8	3.25
Meat	20	15	15	20
Tea	2	25	3	23

Or

- (b) From the following data calculate price index numbers for 2007 with 2006 as base by Laspeyre's method.

Commodity	2006		2007	
	Price	Quantity	Price	Quantity
A	20	8	40	6
B	50	10	60	5
C	40	15	50	15
D	20	20	20	25

PART C — (5 × 8 = 40 marks)

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

16. (a) Find the mean and median, of the following data:

Classes:	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency:	5	10	18	30	20	12	5

Or

- (b) For the following open-ended data, calculate the Quartile Deviation and its coefficient.

Marks:	0-10	10-20	20-30	30-40	40-50	50-60
No. of Students:	10	20	30	50	40	30

17. (a) For the following data, Calculate Karl Pearson's coefficient of correlation:

X: 64 65 66 67 68 69 70

Y: 66 67 65 68 70 68 72

Or

- (b) Two judges in a beauty competition rank the 12 entries as follows. Calculate Rank Correlation

X: 1 2 3 4 5 6 7 8 9 10 11 12

Y: 12 9 6 10 3 5 4 7 8 2 11 1

18. (a) Find the regression equation of  $X$  on  $Y$  and the coefficient of correlation from the following data:

$$\Sigma X = 60; \Sigma Y = 40, \Sigma XY = 1150, \Sigma X^2 = 4160, \Sigma Y^2 = 1720, N = 10.$$

Or

- (b) Find the two regression lines from the following data:

$X$ : 57 58 59 59 60 61 62 64

$Y$ : 67 68 65 68 72 72 69 71

Find the estimate of  $Y$  when  $X = 66$ .

19. (a) The annual production of a commodity is given as follows:

Year:	1990	1991	1992	1993	1994	1995	1996
Production (in tonnes):	70	80	90	95	102	110	115

Fit a straight-line trend by the method of least squares.

Or

- (b) The sale of a company in thousands of rupees for the year 1980 through 1986 are given below:

Year:	1980	1981	1982	1983	1984	1985	1986
Sales:	32	47	65	92	132	190	275

Estimate the sales figure for the year 1987 using an equation of the form  $Y = ab^x$ , where  $X = \text{years}$  and  $Y = \text{sales}$ .

20. (a) Compute a Price index for the following by

(i) Simple aggregate and

(ii) Average of price relative method by using geometric mean

Commodity:	A	B	C	D	E	F
Price in 2005 (Rs.):	20	30	10	25	40	50
Price in 2006 (Rs.):	25	30	15	35	45	55

Or

- (b) Convert the following fixed base index numbers into chain base index numbers:

Year:	2002	2003	2004	2005	2006	2007
F.B.I.:	94	98	102	95	98	100