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S.No. 1341

17USTA11

(For the candidates admitted from 2017 – 2018 onwards)

B.B.A. (CA) DEGREE EXAMINATION,
APRIL/MAY 2018.

First Semester

BUSINESS MATHEMATICS AND STATISTICS

Time : Three hours   Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. If $A = \begin{bmatrix} 4 & -1 & 0 \\ -3 & 5 & -6 \\ 2 & -7 & 8 \end{bmatrix}$ and $B = \begin{bmatrix} -1 & 0 & 1 \\ 5 & -2 & 2 \\ 3 & 4 & 3 \end{bmatrix}$ then find $A + B$.

2. Find the adjoint of $A = \begin{bmatrix} 1 & 5 \\ -3 & 0 \end{bmatrix}$.

3. What is the amount?

4. What is the face value?

5. Write the two types of collection of data.

6. Define mode.

7. Define co-efficient of variation.

8. Write about the method of moving average in time series.

9. Define correlation.

10. What is the formula for repeated ranks in spearman's rank correlation?

PART B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Find the value of the determinant $\begin{vmatrix} 3 & -2 & 1 \\ 2 & 3 & -1 \\ 1 & 1 & 1 \end{vmatrix}$.

Or

(b) Find the inverse of $\begin{bmatrix} a & b \\ c & d \end{bmatrix}$.

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12. (a) A certain sum amounts to Rs. 4,000 at the end of 5 years at 12% p.a interest. Find the sum.

Or

(b) The banker's gain of a sum due 10 months hence at 6% p.a is Rs. 25. Find the sum due.

13. (a) What are the diagrammatic represeutation of data?

Or

(b) Calcualte the arithmetic mean.

Marks :	40	50	54	60	68	80	Total
No. of students :	10	18	20	39	15	8	110

14. (a) Find the standard deviation of the salaries

Salary (in Rs.) :	75	80	85	90	95	100
No. of Persons :	3	7	18	12	6	4

Or

(b) Explain about secular trend and irregular variations.

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15. (a) Explain the properties of correlation co-efficient.

Or

(b) X : 21 36 42 37 25

   Y : 47 40 37 42 43

Calculate the rank correlation co-efficient for the about data.

PART C — $(3 \times 10 = 30$ marks$)$

Answer any THREE questions.

16. Using matrix inversion method, solve the following system of equation:

$$2x - y + 3z = 1$$
$$x + y + z = 2$$
$$x - y + z = 4$$

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[P.T.O.]

17. Mr. X borrows Rs. 1,716. He repays Rs. 250 at the end of each year. In how many years can be clear the debt if the rate of compound interest is 7.5% p.a?

18. Calculate A.M., G.M and H.M.

Interval :	0-19	20-39	40-59	60-79	80-99
Frequency :	5	15	35	15	10

19. Fit a straight line trend equation to the following data by the method of least squares and estimate the value of sales for the year 1985.

Year :	1979	1980	1981	1982	1983
Sales (in Rs.) :	100	120	140	160	180

20. Calculate the co-efficient of correlation between expenditure on advertisement in Rs. '000 (x) and sales in Rs. lakhs (y) after allowing a time lag of two months.

Month :	January	February	March	April	May
X:	40	45	47	50	53
Y:	75	69	65	64	70

Month :	June	July	August	September	October
X:	60	57	51	48	45
Y:	71	75	83	90	92