END OF SEMESTER EXAMINATIONS, NOVEMBER -2017
MATHEMATICS FOR MANAGERS-I
SUBJECT CODE: 15UBBM06

MAJOR: BBA   **SEMESTER : II**

TIME : 3 HOURS   **MAX. MARKS: 75**

SECTION – A (10 X 1 = 10)

Answer ALL the Questions:

1. Define singleton set.
2. What is meant by null set?
3. Define square matrix.
4. If $A = \begin{bmatrix} 4 & 6 & 9 \\ 3 & 5 & 10 \end{bmatrix}$ and $B = \begin{bmatrix} 5 & 0 & 1 \\ 4 & -7 & -3 \end{bmatrix}$, Find A+B.
5. Find the simple interest on the sum of Rs. 6,000 at 10% p.a. for 3 years.
6. What is meant by discounting?
7. State any two limitations of statistics.
8. Find median for the following

6	9	21	5	7	-2	0	32	9

9. List out the various types of correlation.
10. Write any 2 uses of scatter diagram.

SECTION – B (5 X 4 = 20)

Answer any FIVE Questions:

11. Verify the distributive law $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$ using Venn diagrams.
12. If $A = \begin{bmatrix} 4 & -2 \\ 3 & -1 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & 4 \\ 3 & 6 \end{bmatrix}$, Find AB and BA.
13. Solve the following equations by Cramer's rule.
    $3x + 2y = 8$
    $5x - 3y = 7$
14. Find the compound interest on Rs. 20,000 for 5 years at 20% per annum.
15. Calculate the arithmetic mean.

Marks	40	50	54	60	68	80	Total
Number of Students	10	18	20	39	15	8	110

16. Compute the Geometric mean for the following data

X	10	15	25	40	50
f	4	6	10	7	3

17. Find the rank correlation co-efficient for the data.

X	21	36	42	37	25
Y	47	40	37	42	43

18. From the following data construct an index for 1995 taking 1994 as base:

Commodities	A	B	C	D	E
Price in 1994 (Rs.)	50	40	80	110	20
Price in 1995 (Rs.)	70	60	90	120	20

SECTION – C (3 X 15 = 45)

Answer any THREE Questions:

19. a) If $U = \{0,1,2,3,4,5\}$, $A = \{0,1,2\}$ and $B = \{2,4\}$, Prove that

   i) $(A \cup B)' = A' \cap B'$ ii) $(A \cap B)' = A' \cup B'$

   b) If $A = \{0,1,3,4,6,7,9,10\}$, $B = \{2,3,4,5,6\}$ and $C = \{4,5,6,7,8,9\}$, Prove that

   i) $A - (B \cup C) = (A - B) \cap (A - C)$ and   ii) $A - (B \cap C) = (A - B) \cup (A - C)$

20. Find the inverse of the matrix $A = \begin{bmatrix} 1 & 0 & -1 \\ 3 & 4 & 5 \\ 0 & -6 & -7 \end{bmatrix}$.

21. i) A sum of Rs. 1,000 is to be paid at the end of every year for a period of 5 years at the rate of 10% per annum compound interest. If the first instalment is paid at the end of the first year, how much amount will be accured to the credit of the depositor? What is its present worth?

   ii) A bill for Rs. 1,825 was drawn on 22nd January at 6 months date and discounted on 16th April at the rate of 10% per annum. Find the sum for which the bill was discounted and the bankers gain.

22. Find $Q_1, Q_3, D_2, D_5, D_7, P_1, P_{32}$ and P_{41}

Daily pocket Money(Rs.)	15	20	25	40	60	100
Number of Days	34	39	70	72	81	69

23. Calculate the correlation coefficient for the following data.

X	10	12	18	8	13	20	22	15	5	17
Y	88	90	94	86	87	92	96	94	88	85

****