



18103602

QP CODE: 18103602

Reg No :

Name :

BBA DEGREEE(CBCS)EXAMINATION, DECEMBER 2018**First Semester**

Bachelor of Business Administration

Complementary Course - BA1CMT03 - FUNDAMENTALS OF BUSINESS MATHEMATICS

2018 Admission only

49A27A70

Maximum Marks: 80**Time: 3 Hours****Part A**

Answer any ten questions.

Each question carries 2 marks.

1. If $A = \{a, b, c, d\}$, $B = \{c, d, e, f\}$ and $C = \{e, f, g, h\}$ find $(A \cup B) \cup C$ and $A \cup (B \cap C)$
2. Define ordered pairs.
3. $x \propto y^2$ and $x=15$ when $y=4$. Find the relation between x and y and also find x when $y=8$
4. x^2 varies inversely as y^2 and $x=4$ when $y=25$. Find the relationship between x and y and also find x when $y=36$?
5. How many words can be made out of the letters of the word PERMUTATION taken all together ?
6. In how many ways 6 people be seated around a table .
7. Define nC_r .
8. Find two matrices A and B such that the following condition is satisfied $A + B = 3I$, but $A \neq I, B \neq I$
9. Given $A = \begin{bmatrix} 2 & 3 & 5 \\ 5 & 4 & 2 \\ 2 & 5 & 9 \end{bmatrix}$, $B = \begin{bmatrix} 5 & -9 & 6 \\ 2 & 3 & -5 \\ 4 & 9 & 7 \end{bmatrix}$ Evaluate $A - B$
10. Find the rank of $\begin{bmatrix} 3 & 6 \\ 8 & 1 \end{bmatrix}$
11. Define non-singular matrix.
12. State the formula for determining the inverse of a matrix

(10×2=20)

Part B

Answer any **six** questions.

Each question carries **5** marks.

13. Write down all the power set of $U = \{a, b, c, d, e\}$
14. Let $A = \{m, n, o, p\}$, $B = \{o, p, q, r\}$, $C = \{p, r, s, t\}$. find
1) $(A \cap B) \cap (A \cap C)$
2) $A \cup (B \cap C)$
15. Compute the rational number corresponding to 1.375375.....?
16. If $\frac{a}{b} = \frac{c}{d} = \frac{e}{f}$, then prove that each ratio is equal to $\frac{7a+3c-4e}{7b+3d-4f}$.
17. Find the number of ways in which 6 boys and 4 girls may be arranged in a row if no two of the girls are to be together.
18. Prove that $\log\left(\frac{81}{8}\right) - 2\log\left(\frac{3}{2}\right) + 3\log\left(\frac{2}{3}\right) + \log\left(\frac{3}{4}\right) = 0$.
19. Let $B = \begin{bmatrix} 5 & -2 \\ 4 & -3 \end{bmatrix}$, $C = \begin{bmatrix} 1 & 2 \\ 6 & -3 \end{bmatrix}$
find $A = \begin{bmatrix} x & y \\ z & w \end{bmatrix}$ such that $2A = 3B - 2C$
20. Verify that $A = (1/2) \begin{bmatrix} 1 & -1 \\ 1 & 1 \end{bmatrix}$ is orthogonal?
21. Verify the relation $A(\text{adj } A) = |A|I$ for the matrix $A = \begin{bmatrix} 1 & 0 & -1 \\ 3 & 4 & 5 \\ 0 & -6 & -7 \end{bmatrix}$

(6×5=30)

Part C

Answer any **two** questions.

Each question carries **15** marks.

22. Let $A = \{a, b\}$, $B = \{p, q\}$ and $C = \{q, r\}$. Find
1) $A \times (B \cup C)$
2) $(A \times B) \cup (A \times C)$
3) $A \times (B \cap C)$
4) $(A \times B) \cap (A \times C)$
5) $B \times (A \cup C)$

23. (a) The present age of a father is twice that of his son. Eight years hence their ages would be 7:4. Find the son's present age?

(b). Find $\frac{a}{c}$ if $a : b = 4 : 5$ and $b : c = 3 : 7$?

24. (1) If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$, $B = \begin{bmatrix} 1 & 0 \\ 2 & -3 \end{bmatrix}$, $C = \begin{bmatrix} 1 & -1 \\ 0 & 1 \end{bmatrix}$, show that $A(B + C) = AB + AC$

(2) If $A = \begin{bmatrix} 3 & 1 & 2 \\ 2 & 0 & 1 \\ -2 & 5 & -9 \end{bmatrix}$, verify $(AB)^T = B^T A^T$

25. Solve by matrix method the system of equations
 $x+y=0$, $y+z=1$, $z+x=3$

(2×15=30)