BBA DEGREE (CBCS) EXAMINATION, DECEMBER 2018

First Semester

Bachelor of Business Administration

Complementary Course - BA1CMT03 - FUNDAMENTALS OF BUSINESS MATHEMATICS
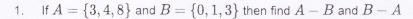
2017 Admission (Reappearance)

C26FBAE8

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

Part A

Answer any **ten** questions.

Each question carries **2** marks.

1. If $A = \{3, 4, 8\}$ and $B = \{0, 1, 3\}$ then find $A - B$ and $B - A$

2. If $A = \{1, 2, 3, 4\}$. $B = \{2, 3.4\}$ then how many elements will be there in a) $A \times B$ b) $B \times A$

3. Divide 540 among A, B and C in the ratio 6:5:7

4. What is a : b, if a - b : a + b = 7 : 11?

5. Find the value of np_n and np_0

6. How many different words can be formed with the letters of the word STATISTICS ?

7. In an examination paper on advanced aacounts, 10 questions are set. In how many ways can an examinee choose 3 questions .

8. Define symmetric matrix?Give one example

9. Find the additive inverse of $\begin{bmatrix} -3 & 1 & 6 \\ 4 & -7 & 6 \\ 2 & 8 & -2 \end{bmatrix}$

10. If $A = \begin{bmatrix} 2 & 0 & -4 \\ -6 & 2 & 8 \end{bmatrix}$ and B = $\begin{bmatrix} 8 & -4 & -2 \\ 0 & -2 & 6 \end{bmatrix}$, find 5 (B - A)

11. Show that the following matrix is singular $\begin{bmatrix} 3 & 6 \\ 1 & 2 \end{bmatrix}$

12. Find the adjoint of the matrix A= $\begin{bmatrix} 5 & 6 \\ 7 & 8 \end{bmatrix}$

(10×2=20)

Part B

Answer any **six** questions.

Each question carries **5** marks.

13. Write down the power set of $\{1, 2, 3\}$

14. If $U = \{0, 1, 2, 3, 4, 5, 6, 7, 8, 9\}, A = \{0, 1, 4, 7\}, B = \{1, 6, 7, 8\}, C = \{1, 3, 5, 7\}$ Compute
    1) $A' \cap B'$
    2) $A' \cap B' \cap C'$

    3) $(A' \cup B') - (B' \cup C')$

15. Compare rational and irrational numbers ?Give example for each.

16. If ax+by varies as cx+dy , show that x $\propto$ y.

17. Find the number of ways in which 5 people A, B, C, D, E can be seated at a round table, such that C and D must not sit together .

18. If $x^2 + y^2$ = 6xy Prove that 2 log (x + y) + log x + log y+ 3 log 2 .

19. Solve for x if $\begin{vmatrix} 2 & 4 & 10 \\ 4 & 2x & 20 \\ 6 & 2 & -4 \end{vmatrix}$ = 0

20. Determine the cofactor matrix of $\begin{bmatrix} 1 & 1 & 3 \\ 5 & 2 & 6 \\ -2 & -1 & -3 \end{bmatrix}$

21. If A= $\begin{bmatrix} 2 & -1 \\ 4 & -3 \end{bmatrix}$ and B= $\begin{bmatrix} 2 \\ -3 \end{bmatrix}$ find X such that AX=B

$(6 \times 5 = 30)$

Part C

Answer any **two** questions.

Each question carries **15** marks.

22. Let $A = \{1, 2, 3, 4\}, B = \{3, 4, 5, 6\}, C = \{2, 4, 6, 7\}$. Find
    1) $(A - B) \cup (B - A)$
    2) $(A \cup B) - C$
    3) $(A \cap C) - B$
    4) $(A - B) - C$
    5) $A - (B - C)$

23. If y be the sum of three quantities of which the first varies as the square of x , the second varies as x and third is a constant . Find the relation between y and x if y =3 ,11,38 and x = 2,4,7 respectively?

24. If $A = \begin{bmatrix} 2 & 3 & 4 \\ 1 & 1 & 2 \\ 3 & 2 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 9 & -12 & 9 \\ 11 & 4 & -3 \\ -5 & 2 & 9 \end{bmatrix}$

   find (a) A + B

   (b) A - B

   (c) prove that $AB \neq BA$

   (d) verify $(AB)^T = B^T A^T$

25. Prove that $P = \begin{bmatrix} 2 & 3 \\ 3 & 5 \end{bmatrix}$ satisfies the relation $P^2 + I = 7P$ where I is the unit matrix of order 2 and hence find the inverse of P

$$(2 \times 15 = 30)$$