P-725

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BBA-102

Business Mathematics

Bachelor of Business Administration (BBA)

1st Semester Examination, 2023 (June)

Time : 2 Hours] **[Max. Marks : 70**

Note : This paper is of Seventy (70) marks divided into two (02) Sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein. Candidates should limit their answer to the questions on the given answer sheet. No additional (B) answer sheet will be issued.

SECTION–A
(Long Answer Type Questions)

Note : Section 'A' contains Five (05) long answer type questions of Nineteen (19) marks each. Learners are required to answer any Two (02) questions only.

(2×19=38)

1. Define matrix and its type with example.

2. Find the inverse matrix by using elementary column operation

$$A = \begin{bmatrix} 1 & -1 & 2 \\ 0 & 2 & -3 \\ 3 & -2 & 4 \end{bmatrix}.$$

3. (a) Explain the geometric progression (G.P.).

(b) Define the sum of first 'n' terms of G.P.

(c) Sum of infinite terms of G.P. when $|r| < 1$ and geometric mean.

4. Explain complement of the sets and Cartesian product of sets with example.

5. Find the number of permutations of n different objects taken 'r' at a time where $0 < r \leq n$ and the objects do not repeat is $n(n-1)(n-2)..... (n-r+1)$ which is also donated by ${}^{n}P_{r}$.

SECTION–B

(Short Answer Type Questions)

Note : Section 'B' contains Eight (08) short answer type questions of Eight (08) marks each. Learners are required to answer any Four (04) questions only. (4×8=32)

1. If $A = \begin{bmatrix} 3 & \sqrt{3} & 2 \\ 4 & 2 & 0 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & -1 & 2 \\ 1 & 2 & 4 \end{bmatrix}$ verify that

(a) $(A')' = A$.

(b) $(A + B)' = A' + B'$.

2. Explain the addition properties of matrix with example.

3. Write the uses of matrix in business context.

4. How many arrangements can be made with the letters of the word MATHEMATICS. And how many of them vowels occur together.

5. What is the number of ways to choosing 4 cards from pack of 52 playing cards? In how many of these :

(a) 4 cards are of the same suit.

(b) 4 cards belong the 4 different suits.

6. If the pth, qth and rth terms of an A.P. be a, b, c respectively, then show that :

$$a(q - r) + b(r - p) + c(p - q) = 0$$

7. Which term of the A.P. 49, 44, 33 is 9 ?

8. Explain the intersection of sets and its properties.
