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Total No. of Pages: 02
Total No. of Questions: 07

BBA (Sem.-1st)
BUSINESS MATHEMATICS
Subject code: BB-102
Paper ID: [C0202]

Time: 3 Hrs.

Max. Marks: 60

SECTION –A

(10x2=20)

Q.1. (i) If A= $\{x: x = 2n, n \epsilon Z\}$ and $B = \{x: x = 3n, n \in Z\}$, then find $A \cap B$.

(ii) Evaluate: $lim_{x \to 2} \frac{x^2-4}{x+3}$

(iii) Differentiate the function w.r.t. $x(x^2 - 3x + 2)(x + 2)$

(iv) Solve the equation $(4x^2 + 9) = 0$ by factorization method.

(v) Define Law of operation?

(vi) What is Depreciation?

(vii) If $\frac{1}{9} + \frac{1}{10} = \frac{x}{11}$, find x

(viii) If $^nP_r = 720$ and $^nC_r = 120$, find r.

(ix) Evaluate 3A-4B where A = $\begin{bmatrix} 3 & -4 & 6 \\ 5 & 1 & 7 \end{bmatrix}$ and B = $\begin{bmatrix} 1 & 0 & 1 \\ 2 & 0 & 3 \end{bmatrix}$

(x) What is compound interest?

SECTION – B

(4x10=40)

Q.2. If the coefficient of x and x^2 in the expansion of $(1 + x)^m (1 + x)^n$ are 3 and -6 respectively. Find the value of m and n.

Q.3. If the first term of an A.P. is 2 and the sum of first five term is equal to one-fourth of the sum of the next five terms, find the sum of first 30 terms.

Q.4. Solve, using Cramer's rule, the following system of linear equations:
$$2x - y - z = 7$$
$$3x + y - z = 7$$
$$x + y - z = 3$$

Q.5. Show that $lim_{x\to\alpha}(\sqrt{x^2+x+1}-x) \neq lim_{x\to\alpha}(\sqrt{x^2+1}-x)$

Q.6. Find from first principal the derivative of $\sqrt{x}+\frac{1}{\sqrt{x}}$ w. r. t. x

Q.7. Given below is a set of equations. Solve then simultaneously by the Gauss-Elimination method.

$$3x_1 + 6x_2 + x_3 = 16$$
$$2x_1 + 4x_2 + 3x_3 = 13$$
$$x_1 + 3x_2 + 2x_3 = 9$$

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