

Roll No.

57502

**BBA 1st Semester (N.S.) 2014-17
Examination – November, 2018**

BUSINESS MATHEMATICS

Paper : BBAN-102

Time : Three Hours]

[Maximum Marks : 80

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Section – A (Question No. 1) is compulsory. Attempt one question from each Unit in Section – B. All questions carry equal marks.

SECTION – A

1. (a) Explain and illustrate equal and equivalent sets.
- (b) If $A = [p, q]$ and $B = [1, 2, 3]$, find $A \times B$.
- (c) If $\log 2 = 0.3010$, find the value of $\log 32$.
- (d) Sum of an infinite G.P. ($r < 1$) is $\frac{19}{24}$. If the first term is $\frac{1}{2}$ find the value of 'r'.
- (e) If ${}^n P_5 = 336$, find n .

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- (f) What is an absolute term ?
- (g) Differentiate between row matrix and column matrix.
- (h) Differentiate $(2x^2 - 3x + 4)^2$.

SECTION - B

UNIT - I

- 2. Out of 150 students who appeared in an examination, 100 passed in physics, 120 in chemistry and 80 in biology, 85 students passed in both physics and chemistry, 70 in both chemistry and biology, 60 in both biology and physics and 60 passed in all three subjects. Find the number of students who (i) failed in all the three subjects, (ii) passed in only one subject and (iii) passed in physics and chemistry but failed in biology.
- 3. (a) If A, B and C are any three sets, prove that $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$.
- (b) If $A = \{a, b, c, d, e, f\}$, $B = \{a, e, i, o, u\}$ and $C = \{m, n, o, p, q, r, s, t, u\}$.

Find (i) $A \cup (B - C)$, (ii) $A \cap B \cap C$ and (iii) $(A - B) \cup C$

UNIT - II

- 4. Find the value of
$$\frac{(0.3)^{\frac{1}{3}} \cdot \left(\frac{1}{27}\right)^{\frac{1}{4}} \cdot (9)^{\frac{1}{6}} \cdot (0.81)^{\frac{2}{3}}}{(0.9)^{\frac{2}{3}} \cdot (3)^{\frac{-1}{2}} \cdot \left(\frac{1}{3}\right)^{-2} \cdot (243)^{\frac{-1}{4}}}$$

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- 5. (a) Sum of three numbers in AP is 30 and their product is 960. Find the numbers.
- (b) Which term of the series 1, 2, 4, is 2048.

UNIT - III

- 6. The letters of the word ZENITH are written in all possible orders. How many words are possible if all these words are written as in a dictionary ? What the rank of the word ZENITH.
- 7. (a) Solve the equation $(x - 1)(x - 2) = 110$.
- (b) If the roots of the equation $x^2 + 3kx + 2 = 0$ are in the ratio of 1 : 2, then find the value of k.

UNIT - IV

- 8. Find the inverse of the matrix $A = \begin{bmatrix} -2 & 1 & -3 \\ 0 & -1 & 2 \\ -1 & 2 & 0 \end{bmatrix}$ and

verify that $A^{-1} \cdot A = I$.

- 9. Differentiate $\frac{(4x^2 - 3x + 2)^2(x+1)^3}{2x+3}$ w.r.t. x.

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