

7. Solve the equation $\sqrt{\frac{x}{1-x}} + \sqrt{\frac{1-x}{x}} = \frac{13}{6}$

UNIT - IV

8. Using matrix notations, solve the following set of linear equations :

$$x + y + z = 7$$

$$x + 2y + 3z = 16$$

$$x + 3y + 4z = 22$$

9. (a) Differentiate $(4x + 5)^2(2x^2 - 3x + 4)$ w. r. t. x .

(b) Evaluate $\int \frac{1}{\sqrt{1+x} + \sqrt{x}} dx$.

Roll No.

57502

**BBA 1st Semester (N. S.) 2014-17
Examination – November, 2019**

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 : Attempt compulsory Question No. 1 from Section - 'A' and four questions from Section - 'B' (one question from each Unit). All questions carry equal marks.

SECTION - A

1. (a) Define a set.
- (b) What is compliment of a set ? Illustrate.
- (c) Find the value of $\log_8 128$.
- (d) Fifth term of an A.P. is 10. If the first term is 2, find common difference.

- (e) In how many ways can the letters of the word 'APPLE' be arranged ?
- (f) Find the 6th term in the expansion of $(2x + y)^9$.
- (g) Differentiate between a scalar matrix and an identity matrix.
- (h) Differentiate $(2x^2 + 3x + 4)^2$ w. r. t. x.

SECTION - B

UNIT - I

2. If $u = \{a, b, c, d, e, f\}$; $A = \{a, b, c, d\}$; $B = \{b, c, d, e\}$ and $c = \{c, d, e, f\}$, show that :

- (i) $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$
- (ii) $(A \cap B)' = A' \cup B'$
- (iii) $(A \cap B) = A' \cap B'$

Also find $(A \cup B) \cap C$

3. (a) For any three sets A, B and C, prove that $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$.
- (b) Using Venn diagram, show that $A - (B \cup C) = (A - B) \cap (A - C)$.

UNIT - II

4. (a) Simplify :

$$\frac{1}{x^b + x^{-c} + 1} + \frac{1}{x^c + x^{-a} + 1} + \frac{1}{x^a + x^{-6} + 1}$$

- (b) Show that :

$$\frac{\log \sqrt{27} + \log 8 - \log \sqrt{1000}}{\log 1.2} = \frac{3}{2}$$

5. (a) Find the sum of all numbers between 200 and 400 which are divisible by 7.
- (b) Sum of three numbers in GP is 38 and their product is 1728. Find the numbers.

UNIT - III

6. (a) How many three digit numbers can be formed with the digits 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, if no two digits are same ?
- (b) Find the absolute term in the expansion of

$$\left(\sqrt{x} - \frac{3}{x^2} \right)^{10}$$