

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

(b) Evaluate $\int x^4(1+x^5)^{1/2} dx$.

Roll No.

57502

BBA 1st Semester (N. S.) 2014-17

Examination – November, 2017

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 No. 1 from Section – A and four questions from Section – B (one question from each Unit). All questions carry equal marks.

SECTION – A

1. Using suitable examples, explain and illustrate the following :

- (a) Equal sets
- (b) Compliment of a set
- (c) Natural numbers.
- (d) Arithmetic progression.

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- (e) 5P_2
- (f) Absolute term in a Binomial expansion.
- (g) Scalar matrix.
- (h) Integration of $(2x^2 - 3)^2$ w. r. t. x.

SECTION - B

UNIT - I

2. If $A = \{1, 3, 5, 7, 9\}$, $B = \{2, 4, 5, 8, 10\}$, $C = \{3, 6, 8, 9, 11\}$ and $u = \{0 < x \leq 12\}$ then find :

- (i) $(A \cup B)'$
- (ii) $(A \cup B) \cap C$
- (iii) $(A - C)'$
- (iv) $(A \cap B) - C$
- (v) $(A \cup B \cup C)'$
- (vi) $(B \cup C)'$

3. (a) Prove that $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$.

(b) Using venn diagram, show that for any two sets A and B, $(A \cup B)' = A' \cap B'$.

UNIT - II

4. Solve the equations :

$$2^{x+y+z} = 8^{x+z-y}$$

$$5^{3y+2} = (25)^{x+z}$$

$$3^{2x+2z-y} = 9^{3x-y}$$

5. (a) Prove that $\frac{1}{\log_a(ab)} + \frac{1}{\log_b(ab)} = 1$.

(b) Sum of three numbers in A. P. is 18 and their product is 280. Find the numbers.

UNIT - III

6. Solve $3x^2 - 18 + \sqrt{3x^2 - 4x - 6} = 4x$

7. (a) How many words can be formed with the letters LOGARITHM ? In how many of these are the vowels together ?

(b) Prove that ${}^nC_r + {}^nC_{r-1} = {}^{n+1}C_r$.

UNIT - IV

8. If $A = \begin{bmatrix} 2 & 0 & 3 \\ -3 & 1 & 2 \\ 1 & 4 & -5 \end{bmatrix}$ and $B = \begin{bmatrix} 3 & 4 & -1 \\ -6 & 2 & 5 \\ 4 & -1 & 6 \end{bmatrix}$, find a matrix C such that $(2A + 3B) - 4C$ is a null matrix.