

Roll No. 6006249

Unit-III

6. Solve the equation :

$$\sqrt{3x^2 - 7x - 30} + \sqrt{2x^2 - 7x - 5} = x + 5$$

7. First three terms in the binomial expansion

$(x + a)^n$ are 32, 740 and 720 respectively.

Find the values of x , a and n .

Unit-IV

8. Prove that

$$\begin{vmatrix} 1+a & 1 & 1 \\ 1 & 1+b & 1 \\ 1 & 1 & 1+c \end{vmatrix} = abc \left(1 + \frac{1}{a} + \frac{1}{b} + \frac{1}{c} \right)$$

9. (a) Differentiate $(2x-3)^2(3x^2-x)$

(b) Evaluate $\int \frac{1}{(a^2-x^2)^3}$

57502

B.B.A. 1st Sem. (N.S.) 2014-17

Examination- November, 2016

Business Mathematics

Paper-BBAN-102

Time : 3 hours **Max. 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 the 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) Write the elements of the set

$$A = \{x \mid x \in n \text{ and } x < 10\}$$

- (b) Find the power set of the set $A = \{1, 2, 3\}$
- (c) If $\log x^{32} = 5$ then what is the value of x ?
- (d) Find the sum of first six natural numbers.
- (e) In how many ways can 5 passengers sit in a compartment having 8 vacant seats?
- (f) Find the roots of the equation $x^2 - 4 = 0$.
- (g) What is the condition for addition of two matrices? Illustrate.
- (h) Differentiate $(2x^3 - 3x + 4)^2$ w.r.t. x

Section-B

Unit-I

2. Using suitable examples, explain and illustrate the following :
- (i) Disjoint sets, (ii) Intersection of two sets
- (iii) Complement of a set, (iv) Cartesian product $(A) \times (B)$

57502-6350-(P-4)(Q-9)/(16) (2)

3. If $n(A) = 26$, $n(C) = 48$, $n(A - B) = 23$, $n(A \cap C) = 8$, $n(B \cap C) = 8$, $n(A' \cap B' \cap C') = 24$, $n[A - (B \cup C)] = 18$ and $n(4) = 100$, then find
- (i) $n(B)$, (ii) $[(A \cap B) \cup (B \cap C)]$, (iii) $n(C - B)$ and (iv) $[(A \cap B) - C]$.

Unit-II

4. (a) If $(2.381)^x = (0.2381)^y = 10^z$ prove that
- $$\frac{1}{x} = \frac{1}{y} + \frac{1}{z}$$
- (b) Given $\log 2 = 0.3010$ and $\log 3 = 0.4771$.

Find the value of $\log \frac{(16)^{\frac{1}{2}} (5)^2}{(108)^3}$

5. (a) Find the sum of natural numbers between 100 and 300 which are divisible by 7.
- (b) Sum of three numbers in G.P. is 35 and their product is 1000. Find the numbers.

57502-6350-(P-4)(Q-9)/(16) (3) [Turn Over