Roll No. .....

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

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

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

(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 money 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 $\left(2x^3 - 3x + 4\right)^2$ *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) × (B)

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 $\log \frac{(16)^{1/5}(5)^2}{(108)^3}$

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.