

Roll No.

57002**BBA 1st Semester (N.S.) 2011-14****Examination-December, 2013****Business Mathematics****Paper-BBA-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 **Five** questions in all. Question No. 1 (Section-A) is compulsory. From Section-B, attempt **Four** questions (**One** question from each unit). All questions carry equal marks.

Section-A

2×8=16

1. (a) Give examples of finite and infinite sets.
- (b) What is a power set?

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[Turn Over

- (c) Find the difference in the values of $(2^2)^3$ and 2^{2^3}

- (d) If $\log_x^{64} = 4$, find the value of x.

- (e) In how many ways, can 5 girls be arranged in a circle.

- (f) If ${}^{18}C_r = {}^{18}C_{r+2}$, find r.

- (g) Explain and illustrate diagonal matrix.

- (h) Differentiate (x^3+3x^2+3x+1) w.r.t. x

Section-B**Unit-I**

2. Discuss the meaning, presentation and types of sets. What is the importance of set theory? 16
3. (a) For any two sets A and B, prove that 8

$$(A \cup B)^1 = A^1 \cap B^1$$

- (b) If $A = \{2, 3, 4, 5, 6\}$, $B = \{2, 4, 6, 8, 10\}$ and $C = \{3, 5, 7, 9, 11\}$, then show that

$$A - (B \cup C) = (A - B) \cap (A - C) \quad 8$$

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Unit-II

4. (a) If $pqr = 1$, show that 8

$$\frac{1}{1+p+q^{-1}} + \frac{1}{1+q+r^{-1}} + \frac{1}{1+r+p^{-1}} = 1$$

- (b) Find the value of 8

$$\frac{\log \sqrt{27} + \log 80 - \log \sqrt{1000}}{\log 1.2}$$

5. Sum of 3 numbers in A.P. is 30. If 4, 10 and 26 are added to first, second and third numbers, the new numbers are in G.P. Find the numbers. 16

Unit-III

6. (a) Find the number of permutations of the word HARYANA. In how many of these will H and N be together? How many of these words will not have two consonants together? 9

- (b) Prove that ${}^nC_r + {}^nC_{r-1} = {}^{n+1}C_r$ 7

7. (a) In the expansion of $(1+x)^{43}$, the co-efficients of $(2r+1)^{\text{th}}$ term and $(r+2)^{\text{th}}$ term are same. Find r .

- (b) The absolute term in the expansion of $\left(x^2 + \frac{k}{x}\right)^{12}$ is 495. Find the value of K .

Unit-IV

8. Solve the following linear equations using Cramer's rule.

$$2x - 3y + 4z = -9$$

$$-3x + 4y + 2z = -12$$

$$4x - 2y - 3z = -3$$

9. (a) Using first principle, differentiate

$$(2x+3)^8 \text{ w.r.t. } x$$

- (b) Evaluate $\int \frac{x^2}{\sqrt{1-x}} dx$