

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

BBA (2012 onwards Batches) / Bachelor(SIM) (2014 Batch)
/ BRDM (2014 Batch) (Sem.-2)

BUSINESS MATHEMATICS

Subject Code : BBA-203

Paper ID : [C0242]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTIONS-B consists of FOUR Sub-sections : Units-I, II, III & IV.
3. Each Sub-section contains TWO questions each, carrying TEN marks each.
4. Student has to attempt any ONE question from each Sub-section.

SECTION-A

I. Write briefly :

- (i) Let $U = \{1,2,3,4,5,6,7,8,9,10\}$ and $A = \{1,3,5,7,9\}$, find A' .
- (ii) Define logarithms.
- (iii) What are the differences between symmetric and skew-symmetric?
- (iv) For two matrices A and B verify $(AB)' = (BA)'$ $A = \begin{pmatrix} 2 & 1 & 3 \\ 4 & 1 & 0 \end{pmatrix}$ $B = \begin{pmatrix} 1 & -1 \\ 0 & 2 \\ 5 & 0 \end{pmatrix}$
- (v) Differentiate the following function w.r.t. x $(3x + 8)^{7/3}$, $(x + 7)^{-3}$
- (vi) If $y = \sqrt{\frac{1-x}{1+x}}$, prove that $(1-x^2) \frac{dy}{dx} + y = 0$.
- (vii) Expand $\left(x^2 + \frac{3}{x}\right)^4$, $x \neq 0$ using binomial theorem.
- (viii) Compute $(95)^5$.
- (ix) In class XI examination, a candidate has to pass in all the five subjects taken

in order to declared as pass. In how many ways can he fail?

- (x) In a student union meeting in a school, 16 students show up. Each shakes hands with each other exactly once. Determine the total number of handshakes.

SECTION-B

UNIT-I

2. A survey shows that 63% of the Americans like cheese whereas 76% like apples. If $x\%$ of the Americans like both cheese and apples, find the value of x .
3. What is a logarithm? Explain common logarithms. What are the properties of logarithm?

UNIT-II

4. Find whether the following system of linear equation is consistent and if so, solve it

$$x - 3y + z = -1$$

$$2x + y - 4z = -1$$

$$6x - 7y + 8z = 7$$

$$\begin{matrix} 1 & 2 & 5 \\ 1 & -1 & -1 \\ 2 & 3 & -1 \end{matrix}$$

5. Find A^{-1} , hence solve the system of following linear equations

$$x + 2y + 5z = 10$$

$$x - y - z = -2$$

$$2x + 3y - z = -11$$

UNIT-III

6. Differentiate $x^{\log x} + (\log x)^x$ w.r.t. x
7. Find the absolute maximum and minimum values of the function F given by

$$f(x) = \cos^2 x + \sin x, x \in [0, \pi].$$

UNIT-IV

8. Find the coefficient of x^{11} in the expansion of $(2x^2 + x - 3)^6$
9. Find a , b and n in the expansion of $(a + b)^n$ if first three terms of expansion are 729, 7290 and 30375 respectively.