

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

BBA (2012 & Onwards Batches)

BRDM (2014 & Onwards)

Bachelor In Service Industry Management (SİM) (2014 & Onwards)

(Sem.-2)

BUSINESS MATHEMATICS

Subject Code : BBA-203

Paper ID : [C0242]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

- 1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
- 2. SECTION-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 have to attempt any ONE question from each Sub-section.**

SECTION-A

- 1. Write briefly :**

- a) If $A = \begin{bmatrix} K & 0 \\ 1 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 0 \\ 5 & 1 \end{bmatrix}$, find the values of K for which $A^2 = B$.

- b) Draw Venn diagram for the set $A' \cap (B \cup C)$.**

- c) Find determinant of the matrix $A^2 - 2A$ if $A = \begin{bmatrix} 1 & 3 \\ 2 & 1 \end{bmatrix}$.

- d) Explain matrix inversion method to solve a system of linear equations.

- e) Find the general term of the expansion of $(1 - x)^{-3}$.

- f) Prove that $2 \log x + 2 \log x^2 + 2 \log x^3 + \dots + 2 \log x^n = n(n+1) \log x$.

- g) Find $\frac{dy}{dx}$ when $x = a \cos^3 t$, $y = a \sin^3 t$.

- h) If $x\sqrt{1+y} + y\sqrt{1+x} = 0$, prove that $\frac{dy}{dx} = -\frac{1}{(1+x)^2}$.

- i) If $\log 3 = 0.4771$, find the number of digits in 3^{43} .

- j) Explain the terms subset and proper subset by giving examples.

SECTION-B

UNIT-I

2. In a class of 25 students, 12 students have taken economics; 8 have taken economics but not politics. Find the number of students who have taken economics and politics and those who have taken politics but not economics.
3. Find the compound interest on Rs. 6950 for 3 years if interest is payable half yearly, the rate for the first two years being 6% p.a. and for the third year 9% p.a. (using logarithms).

UNIT-II

4. Compute inverse of the matrix $\begin{bmatrix} 1 & 0 & -4 \\ -2 & 2 & 5 \\ 3 & -1 & 2 \end{bmatrix}$
5. Solve the following equations by using Cramer's rule.
 $2x + y - z = 3, x + y + z = 1, x - 2y - 3z = 4.$

UNIT-III

6. a) If $y = x^x$, find $\frac{dy}{dx}$.
b) Find the differential coefficient of $(3x^3 - 5x^2 + 8)^3$ w.r.t. x .
7. Find the maximum and minimum values of the function $x^4 + 2x^3 - 3x^2 - 4x + 4$.

UNIT-IV

8. State and prove Binomial theorem for any index.
9. a) Find the term independent of x in the expansion of $\left(2x - \frac{1}{x}\right)^{10}$.
b) If a and b are the values of the second and third terms respectively in the expansion of $(1 + x)^n$, prove that $n = \frac{a^2}{a^2 - 2b}$ and $x = \frac{a^2 - 2b}{a}$.