Roll No_____ **Total No of pg: 3**

Examination May-2014
BBA(SEM 2ND)
BBA – 203
C0242:BUSINESS-MATHEMATICS

Time : 03 Hrs. **Max. Marks : 60**

Instruction to candidates:-

1) Section - A is compulsory consisting of 10 questions carrying 02 marks each.
2) Section - B consists of 04 subsections : Units - I, II, III, IV. Each subsection contain 02 questions each carrying 10 marks each and student has to attempt 01 question from each section.

SECTION - A

Q. 1: a) State Binomial theorem for any index.

b) Find x and y if $x + y = \begin{bmatrix} 7 & 0 \\ 2 & 5 \end{bmatrix}, x - y = \begin{bmatrix} 3 & 0 \\ 0 & 3 \end{bmatrix}$

c) Give example of Sets A, B, C such that

$A \cap B \neq \emptyset, B \cap C \neq \emptyset, C \cap A \neq \emptyset$ but $A \cap B \cap C = \emptyset$

d) Find derivative of $\frac{xe^x}{1+x}$ w.r. to x

e) Define upper triangular and lower triangular matrices. Also give example in each case.

f) Find $\frac{dy}{dx}$ when $xe^y + ye^x = xy$

g) Prove that $\log_a\left(\frac{m}{n}\right) = \log_a m - \log_a n$

h) If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$, find A^{-1}

i) Expand using Binomial theorem $\left(\frac{x}{a} + \frac{a}{x}\right)^4$ where $a \neq 0$

j) Give Example of sets A, B. S.T. A – B = B – A.

SECTION - B

Unit - I

Q.2: a) Show that $log2 + 16log\left(\frac{16}{15}\right) + 12log\left(\frac{25}{24}\right) + 7log\left(\frac{81}{80}\right) = 1$

b) using Logarithms Evaluate

$$\frac{(229.7) \times (0.08354)^{1/3}}{(5.845)^{0}}$$

Q. 3: a) Prove that $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$ Also verify the relation for the sets

$A = \{2, 3, 4, 6\}, B = \{3, 4, 5, 7\}, C = \{2, 3, 5, 6, 8\}$

b) Prove that $(A \cup B)^C = A^C \cap B^C$ where A^C devotes complement of A.

Unit -II

Q. 4: Solve by matrix method the equations

$x + y + z = 7, x + 2y + 3z = 16, x + 3y + 4z = 22$

Q. 5: a) Solve by Cramer's rule

$x - 2y = 3,\ 3x + y = 16$

b) Write $A = \begin{bmatrix} 2 & 3 \\ 4 & 5 \end{bmatrix}$ as sum of Symmetric and skew symmetric matrixes

Unit - III

Q.6: a) Differentiate from definition.

xe^x w.r. to x

b) Find derivative of x^{logx} w.r. to $(logx)^x$

Q. 7 : Find maximum and minimum values of the function $f(x) = x^3 - 6x^2 + 9x + 15.$

Unit - IV

Q. 8: a) Find the middle terms in the expansion of