

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

$$A \cap B \neq \emptyset, B \cap C \neq \emptyset, C \cap A \neq \emptyset \text{ but } A \cap B \cap C = \emptyset$$

d) Find derivative of $\frac{x^2 e^x}{1+x}$ 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 $\log 2 + 16 \log \left(\frac{16}{13}\right) + 12 \log \left(\frac{16}{24}\right) + 7 \log \left(\frac{21}{30}\right) = 1$

b) using Logarithms Evaluate

$$\frac{(229.7) \times (0.08354)^{1/3}}{(3.843)^3}$$

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 denotes 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.

$$xe^x \text{ w.r. to } x$$

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

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

$$\left(3x - \frac{x^2}{6}\right)^n$$

- b) The coefficients of three insensitive terms in the expansion of $(1+x)^n$ are in the ratio 1 : 7 : 42 find n

Q. 9 :a) Using Binomial theorem, find cube root of 998 upto four decimal places.

- b) Expand $(4-x^2)^{1/2}$ upto 4 terms

Where $|x| < 2$.

-----:End:-----