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D Y PATIL UNIVERSITY

End Term Examinations (December 2018)

School: School of Information Technology

Program: BCA (MACT/CTIS/DS)

Course: Elementary Mathematics

Course Code: GLO115

Semester: I

Max Marks: 50

Duration (mins): 90

Section A

Q1. Answer the following. (Any Five)

10 Marks

- Rule of Differentiation for Product
- The collection of well-defined object is called
- A^{-1} of Matrix is obtained by using formula.....
- Integration is of Derivative.
- $\int e^x dx = \dots \dots \dots$

Section B

Q2. Answer the following (Any Four)

20 Marks

- Write Minors and co-factors of Matrix $A = \begin{bmatrix} 1 & 2 & 1 \\ 3 & 0 & 4 \\ 2 & 1 & 3 \end{bmatrix}$
- Represent following Relation in to Venn diagram .Write Domain, co-domain Range, and which type of function is there.
 - $\{(1, -2), (3, 7), (4, -6), (8, 1)\}$
 - $\{(a, b), (b, c), (c, b), (d, c)\}$
- If $y = \log\left(\frac{\sin x}{1 + \cos x}\right)$ Find $\frac{dy}{dx}$.
- If $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$ $A = \{2, 4, 6, 7, 8, 10\}$
And $B = \{1, 4, 5, 7, 9, 10, 12\}$

Find,

- 1) $(A \cup B)$ 2) $(A \cap B)$ 3) $(A' \cup B')$ 4) $(A' \cap B')$ 5) $n(A)$

e) Evaluate $\int \frac{1}{(x+1)(x+2)} dx$

Section C

Q3. Answer the following (Any Two)

20 Marks

a) State and Prove Rule of Derivative of Quotient.

b) Find Adj A , If $\begin{bmatrix} 1 & 3 & 2 \\ 2 & 4 & -1 \\ -1 & -2 & 0 \end{bmatrix}$

c) Write any Five Types of Matrix with Example.

d) Evaluate the following:

1) Find $\frac{dy}{dx}$ If $y = \tan^{-1} \left[\frac{\cos x - \sin x}{\cos x + \sin x} \right]$

2) If $y = \sin 5x - 3\cos 5x$, show that $\frac{d^2y}{dx^2} + 25y = 0$
