

9. If $f(x) = x^2 + 2x + 3$ then what is the value of $f(3)$
- a. 11
 - b. 81
 - c. 10
 - d. 18
10. Write down the value of $\lim_{n \rightarrow \infty} \left(1 + \frac{1}{n}\right)^n$
- a. 1
 - b. e
 - c. 0
 - d. None

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(PART-B : Descriptive)

Time : 1 hrs. 10 min.

Marks : 25

[Answer question no.1 & any Two (2) from the rest]

1. Evaluate the following $\lim_{h \rightarrow 0} \frac{\sqrt{x+h} - \sqrt{x}}{h}$ 5
2. a. Solve the following system of linear equations by using Cramer's Rule 7+3=10
 $5x - 7y + z = 11$
 $6x - 8y - z = 15$
 $3x + 2y - 6z = 7$
- b. Find the value of $\log 25 + \log 36 - 2\log 30 = ?$
3. a. If $A = \begin{bmatrix} 1 & 2 & 3 \\ 3 & 5 & 7 \end{bmatrix}$ and $B = \begin{bmatrix} -3 & 1 & 2 \\ 5 & -3 & -1 \end{bmatrix}$, find the value of $A + B$. 3+7=10
- b. Express $\begin{bmatrix} -3 & 4 & 1 \\ 2 & 3 & 0 \\ 1 & 4 & 5 \end{bmatrix}$ as a sum of a symmetric and skew symmetric matrix.
4. a. Find the area of triangle ABC whose vertices are $A(0,0)$, $B(1,0)$, $C(1,1)$ 5+5=10
- b. Resolve $\frac{2x+11}{x^2-7x+10}$ into partial fraction
5. a. Find $\frac{dy}{dx}$ if $y = \frac{1-\cos x}{1+\cos x}$ 5+5=10
- b. Find the Integrals value of $\int \frac{x^2+5x+2}{x+2} dx$