Maths Question Paper

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Section I

Q1) Solve the following quadratic equation.

$$x^2 - 5x + 6 = 0$$

Q2) Differentiate w.r.t.x.

1) $\cos(x^2 + a^2)$

2) $\sqrt{x}$

3) $\log(tanx)$

Section II

Q3) Find the inverse of following matrices by using adjoint method.

1) $A = \begin{bmatrix} 0 & 1 & 2 \\ 1 & 2 & 3 \\ 3 & 1 & 1 \end{bmatrix}$

2) $B = \begin{bmatrix} 2 & 0 & -1 \\ 5 & 1 & 0 \\ 0 & 1 & 3 \end{bmatrix}$

Q4) Solve the following.

1) $x = \begin{vmatrix} 7 & 11 \\ 2 & 3 \end{vmatrix}$

2) $y = \begin{vmatrix} 45 & 90 \\ 1 & 0 \end{vmatrix}$

Q5) Find domain and range of the following functions.

1) $g(x) = \frac{(x+4)}{(x-2)}$

2) $h(x) = \sqrt[3]{(x+1)}$

Section III

Q6) Verify that f and g are inverse functions of each other.

$$f(x) = (x-7)/4$$
$$g(x) = 4x+7$$

Q7) Integrate the following functions w.r.t.x.

1) $\int x^2\,dx$

2) $\int_0^4 (x - x^2)\,dx$

3) $\int \sin(\log x)\,dx$

Section IV

Q8) Given is 15 X 15 scalar matrix, write the determinent of it.

$$A = \begin{bmatrix} 8 & 0 & \cdots & 0 \\ 0 & 8 & \cdots & 0 \\ \vdots & \vdots & \ddots & \vdots \\ 0 & 0 & 0 & 8 \end{bmatrix}$$