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**MA 8251 Engineering Graphics- II**

**Important 13mark questions**

**Unit I**

1. Find the eigenvalues and the eigenvalues of the matrix  $\mathbf{A} = \begin{vmatrix} 8 & -6 & 2 \\ -6 & 7 & -4 \\ 2 & -4 & 3 \end{vmatrix}$ .
2. Reduce the quadratic form  $2xy - 2yz + 2xz$  into a canonical form by an orthogonal reduction.

**Unit II**

1. Solve  $(D^2 - 4D + 3)y = \sin 3x + x^2$ .
2. Using method of variation of parameters, solve  $(D^2 + 1)y = \sec x$ .

**Unit III**

1. Using Convolution theorem. Find the inverse Laplace transform of  $\frac{1}{(s+1)(s^2+1)}$ .
2. Show that the real and imaginary parts of an analytic functions are harmonic.

**Unit IV**

1. Find the image in the w plane of the region of the z plane bounded by the straight lines  $x = 1, y = 1, x + y = 1$  under the transformation  $w = z^2$ .
2. Find the analytic function whose imaginary part in  $e^x(x\sin y + y\cos y)$ .

**Unit V**

1. Evaluate  $\int_0^{2\pi} \frac{d\theta}{13+5\sin\theta}$  using Contour integration.
2. Find  $L\left[\frac{\cos 2t - \cos 3t}{t}\right]$ .