

ASSIGNMENT
M.Sc. Sem-IV (Integral Equations) - 5

Paper - ECMATH403(C)

- 1) Convert the following differential equation into a Volterra Integral equation of second kind

$$y'' + y = 0, \quad y(0) = y'(0) = 0$$

- 2) obtain Fredholm Integral Equation of second kind corresponding to the B.V.P.

$$\frac{d^2 u}{dx^2} + Au = x$$

with boundary conditions $u(0) = 0, u'(1) = 0$
Also, recover the B.V.P. from the integral equation obtained.

- 3) Solve the homogeneous F.I.E of 2nd kind

$$u(x) = \lambda \int_0^{2\pi} \sin(x+t) u(t) dt$$

- 4) Solve the following Integral Equation

$$u(x) = \cos x + \lambda \int_0^{\pi} \sin(x-t) u(t) dt$$

- 5) Find Iterated kernel of

$$K(x,t) = e^{ax} \cos t; \quad a=0, \quad b=\pi.$$