

Class test (B.Sc CH)-Phy)
Mathematical Physics-I

M.M. - 16
Time - 1hr.

Ques-1: a) Solve $x^2 \frac{d^2y}{dx^2} + x \frac{dy}{dx} + y = \sin(\log x^2)$

b) Find the particular integral of the differential equation : $\frac{d^2y}{dx^2} - 2y' + y = x e^x \sin x$

(5+5)

Ques-2: Uranium disintegrates at a rate proportional to the amount present at any instant. If m_1 and m_2 grams of uranium are present at time t_1 and t_2 respectively, show that half life of uranium is:-

$$\frac{\text{Half life}}{\text{Answer}} = \frac{(t_1 - t_2) \log 2}{\log \left(\frac{m_1}{m_2} \right)}$$

29/12/23

(6)