Lecture - 26

1. A series RC circuit with R= 10 Ω, C= 100 μF has frequency of 50 Hz. Obtain expression for the voltage if the current is given by

(i) i = 30 sin (wt)

(ii) i = 30 sin (wt + 45^0)

(iii) i = 3 sin (wt - 60^0)

(iv) i = 3 sin (wt + 300^0)

2. A capacitor is used in series with a tungsten- filament bulb rated at 500W,100V, so that it gives its rated illumination when connected to a 220V,50Hz supply. Calculate the value of the capacitance, current drawn by the supply. Find the power factor.