Maharaja Agrasen Institute of Technology, Delhi

Department of Electrical and Electronics Engineering

Assignment # 2

Subject Name: Electrical Science
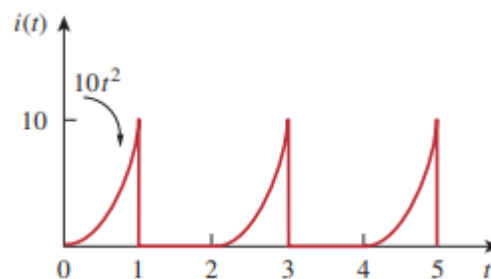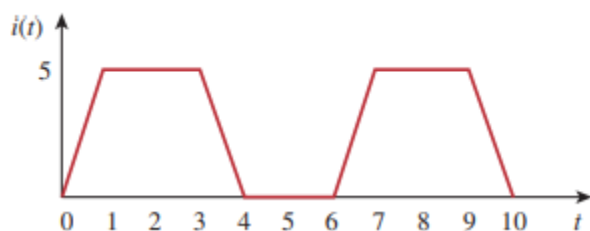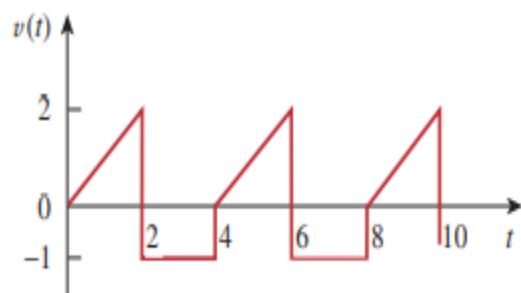Subject Code: ES-107
Class:
Faculty:

Assignment No	Date Given	Due Date	Mode of Submission	Total Marks	COs mapped
1			Hard copy	10	CO1

Q1. Compute the rms value of the waveform depicted in fig 1(a),1(b),1(c)

fig 1(a),1(b),1(c)

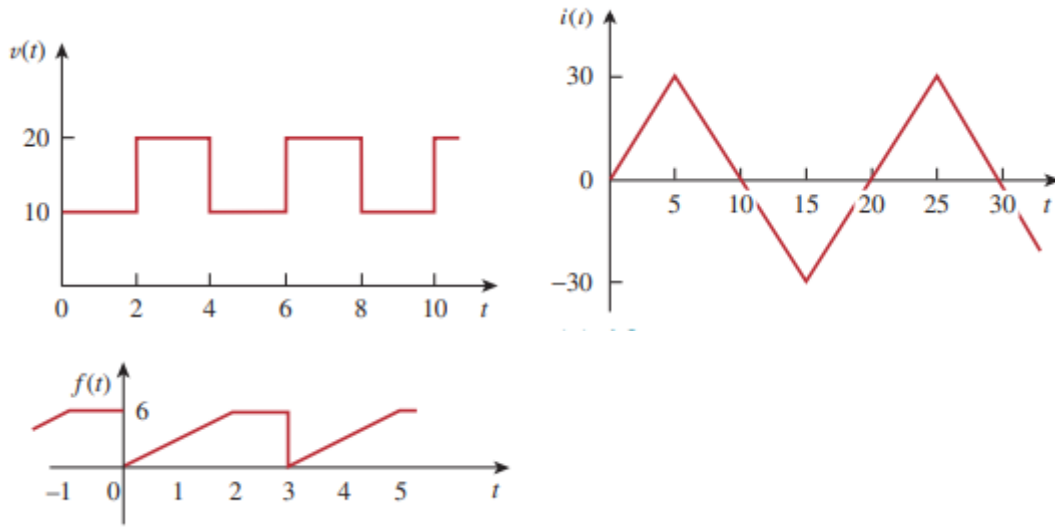Q2. Find the average value of the waveform shown in Fig. 2(a),2(b),2(c)

Fig. 2(a),2(b),2(c)

Q3. Find the input impedance of the circuit in Fig.3(a) and 3(b) . Assume that the circuit operates at ω=50 rad/sec
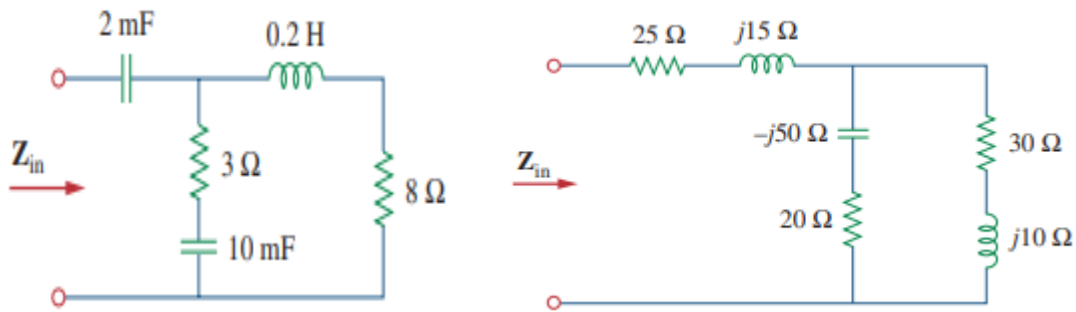

Fig.3(a) and 3(b)

Q4. (a) Determine the power factor of the entire circuit of Fig. 4as seen by the source. Calculate the average power delivered by the source.
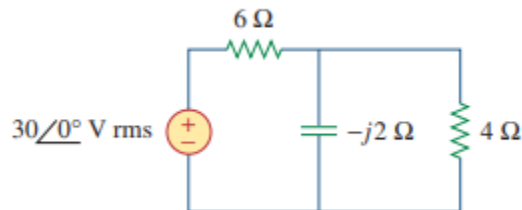

Fig 4

(b) A load Z draws 12 kVA at a power factor of 0.856 lagging from a 120-V rms sinusoidal source. Calculate: (a) the average and reactive powers delivered to the load, (b) the peak current, and (c) the load impedance

Q5. In the circuit of Fig. 5, $Z_1 = 60<-30°\Omega$ and $Z_2=40<45°\Omega$ Calculate the total: (a) apparent power, (b) real power, (c) reactive power, and (d) pf, supplied by the source and seen by the source.
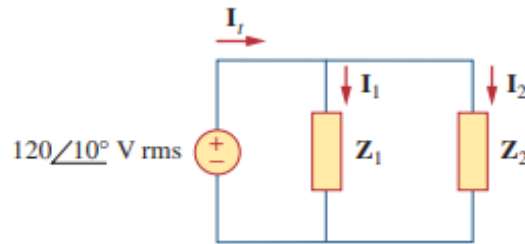

Fig. 5

Q6. Calculate the line currents in the three-wire Y-Y system of Fig 6
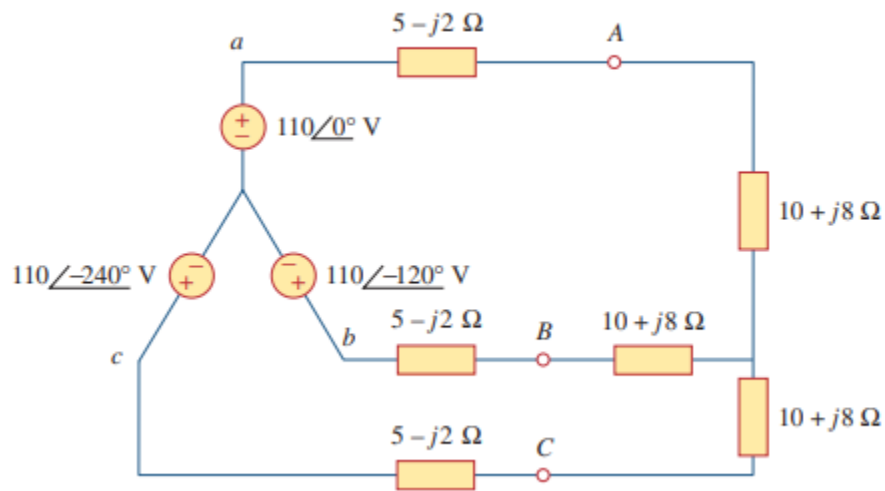

Fig 6

Q7. The three-phase balanced load in Fig. 7 has impedance per phase of $Z_y = 8+j6\ \Omega$. If the load is connected to 208-V lines, predict the readings of the wattmeters and Find P_T and Q_T
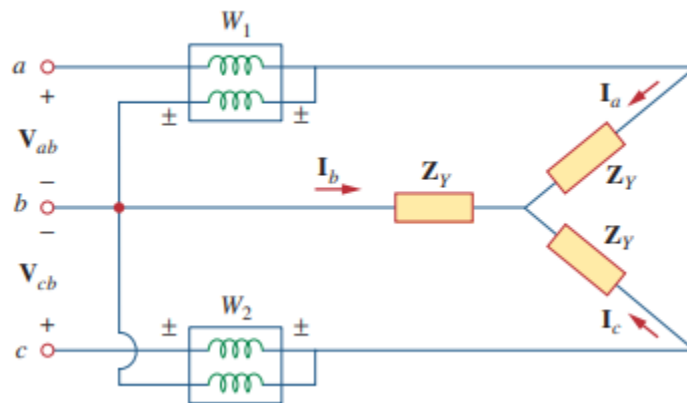

Fig. 7