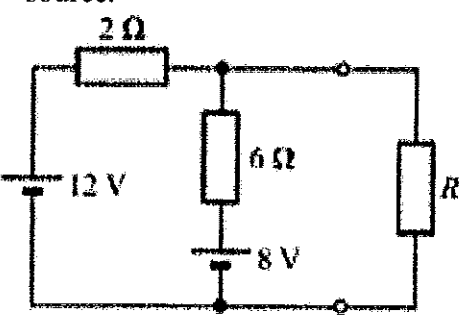
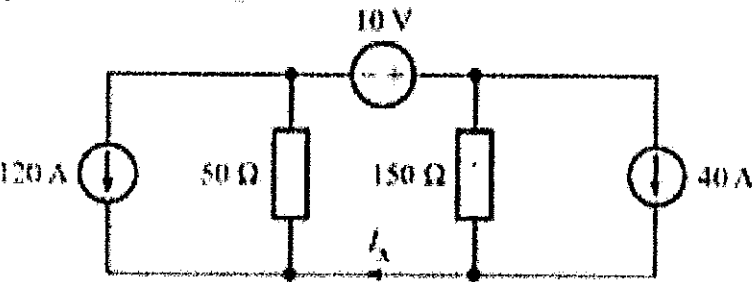
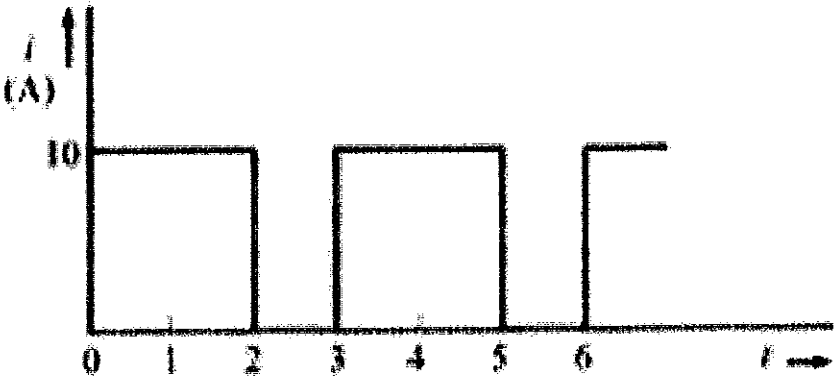
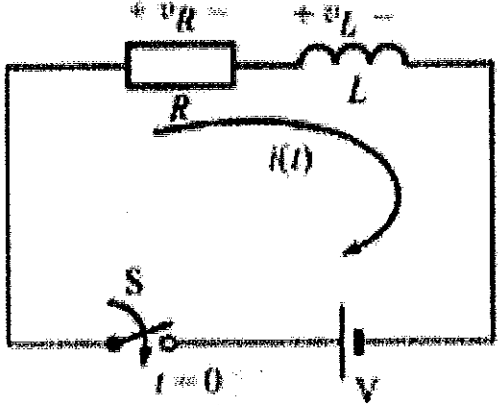
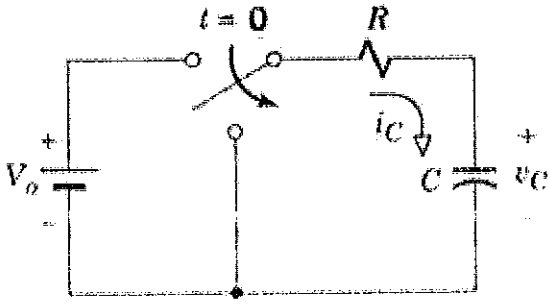


Note: (a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q.No	Question	CO	Marks
Q.1	<p>For the circuit shown in Fig.1, determine the following</p> <p>a) Find the value of R to receive the maximum power from the circuit</p> <p>b) For the value of R in part (a), find the power supplied by the 12-V source.</p>  <p style="text-align: center;">Fig.1</p>	CO-1	5
Q.2	<p>Use superposition theorem to find current I_x in the network given in Fig.2.</p>  <p style="text-align: center;">Fig.2</p>	CO-1	5
Q.3	<p>Find the angle by which i_1 lags v_1 if $v_1 = 120\cos(120\pi t - 40^\circ)$ Volt and i_1 equals :</p> <p>(a) $2.5\cos(120\pi t + 20^\circ)$ Amp</p> <p>(b) $1.4\sin(120\pi t - 70^\circ)$ Amp</p> <p>(c) $-0.8\cos(120\pi t - 110^\circ)$ Amp</p>	CO-3	3

Q.4	<p>Determine the rms value, average value, and form factor for the current waveform shown in Fig.3</p>  <p style="text-align: center;">Fig.3</p>	CO-2	3
Q.5	<p>A coil having an inductance of 14H and a resistance of 10Ω is connected to a dc voltage source of 140 V, through a switch as shown in the given Fig.4</p> <p>(a) Find the voltage drop across inductor after 0.4 sec.</p> <p>(b) Calculate the value of current in the circuit at an instant 0.4 sec.</p>  <p style="text-align: center;">Fig.4</p>	CO-2	4
Q.6	<p>Derived the expression for voltage and current across capacitor at time t for the given network as shown in Fig.5</p>  <p style="text-align: center;">Fig.5</p>	CO-2	5