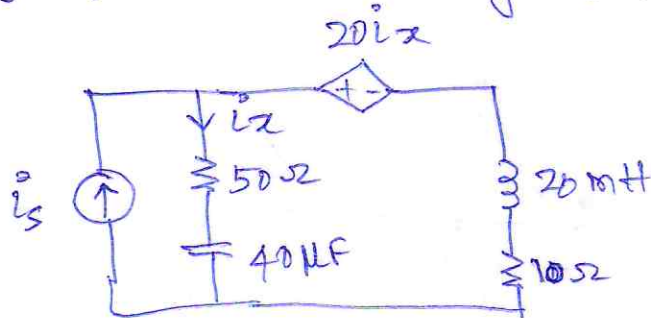


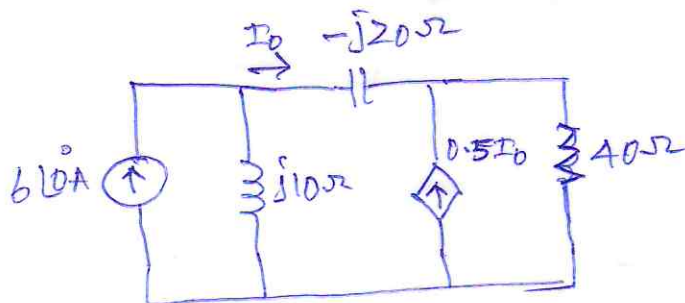
Tutorial sheet-3

①

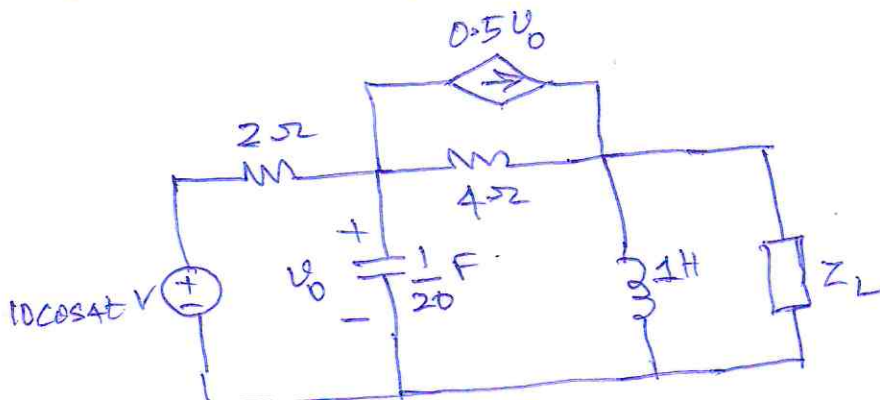
- ① For the circuit below, $i_s = 6 \cos 10^3 t$ A. Find the average power absorbed by the 50Ω -resistor.



- ② In the circuit below, determine the average power absorbed by the 40Ω -resistor

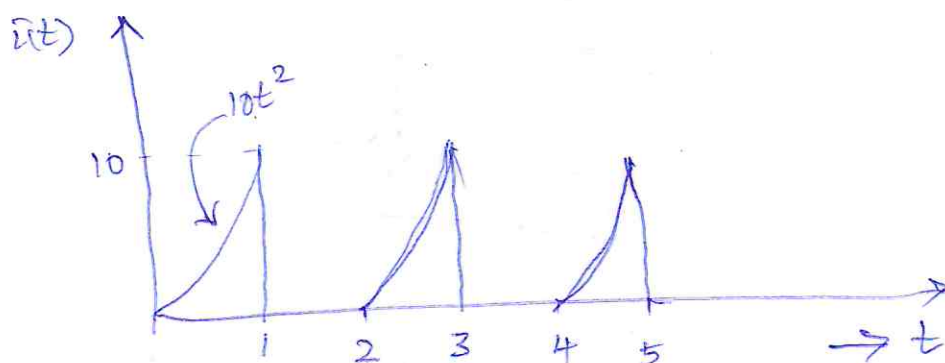


- ③ For the circuit below, find the value of Z_L that will receive the maximum power from the circuit. Then calculate the power delivered to the load Z_L .

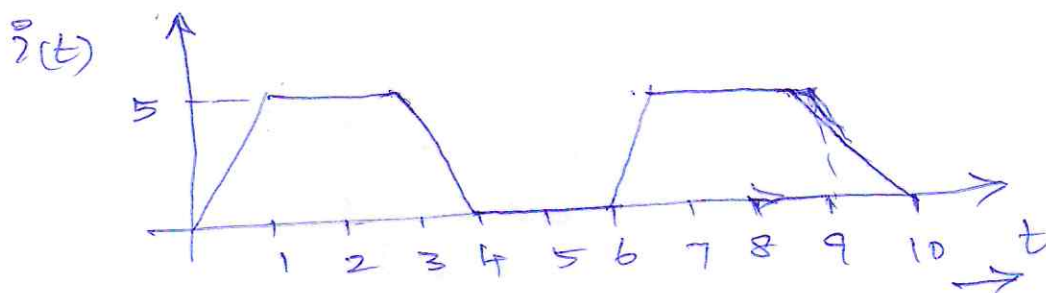


②

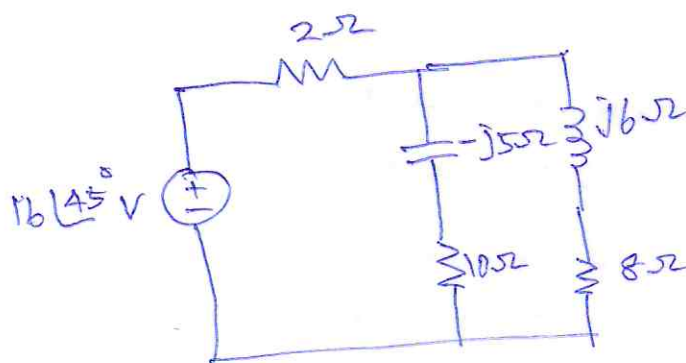
- ④ Obtain the rms value of the current waveform shown below



- ④ ~~⑤~~ Determine the rms value of the waveform shown below

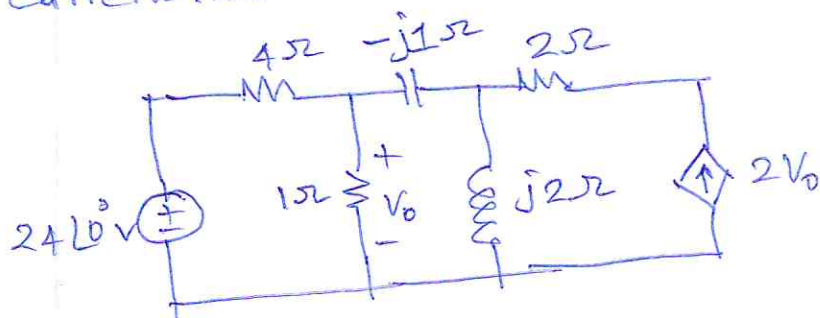


- ⑤ For the entire circuit shown below, calculate:
- the Power factor,
 - average power delivered by the source
 - reactive power
 - apparent power and
 - Complex power.



(3)

- (b) For the circuit shown below, find the average, reactive and complex power delivered by the dependent current source.



- (7) Oscilloscope measurements indicate that the peak voltage across a load and the peak current through it are respectively $210\angle 66^\circ$ V and $8\angle 25^\circ$ A. Determine:
 (a) the real power (b) the apparent power, (c) the reactive power (d) power factor.

- (8) In a TV transmitter, a series circuit has an impedance of $3k\Omega$ and a total current of 50 mA. If the voltage across the resistor is 80 V, what is the power factor of the circuit?

- (9) A certain electronic circuit is connected to a ~~110~~ ¹¹⁰ V ac line. The root-mean-square value of the current drawn is 2 A, with a phase angle of 55° . (a) Find the true power drawn by the circuit. (b) Calculate the apparent power.

- (10) An industrial heater has a nameplate that reads: 210 V 60 Hz 12 kVA 0.78 pf lagging. Determine:

- (a) the apparent and complex power
 (b) the impedance of the heater