LAHORE UNIVERSITY OF MANAGEMENT SCIENCES
Department of Electrical Engineering

EE240 Circuits I
Quiz 02 - Section 1

Name: _____

Campus ID: _____

Total Marks: 10
Time Duration: 15 minutes

Question 1 (6 marks)

The voltage across the $0.5F$ capacitor is given by $v_C(t) = 2\cos(\omega_o t)$.

(a) [1 mark] Evaluate the expression for the current $i_C(t)$ through capacitor.

(b) [1 mark] Evaluate the expression of power $p(t)$.

(c) [2 marks] Plot the current, voltage and power versus time for $0 \leq t \leq 4\pi/\omega_o$. You must appropriately label the plots.

(d) [1 mark] How does the amplitude of the current change with the increase in the frequency ω_o?

(e) [1 mark] How much energy (average power) over one period is stored in the capacitor?

Question 2 (2 marks)

Do you agree with the following statements (support your answer with the justification)?

(a) [1 mark] Ideal current sources can be connected in series.

(b) [1 mark] Ideal voltage source and ideal current source in parallel is equivalent to the current source only.

Question 3 (2 marks)

For a circuit shown in Fig. 2, if $R_1 = R_2 = R_3 = R_4 = 10\Omega$ and $R = 20\Omega$, determine the equivalent resistance of the circuit between the terminals A and B.