LAHORE UNIVERSITY OF MANAGEMENT SCIENCES
Department of Electrical Engineering

EE240 Circuits I
Quiz 04

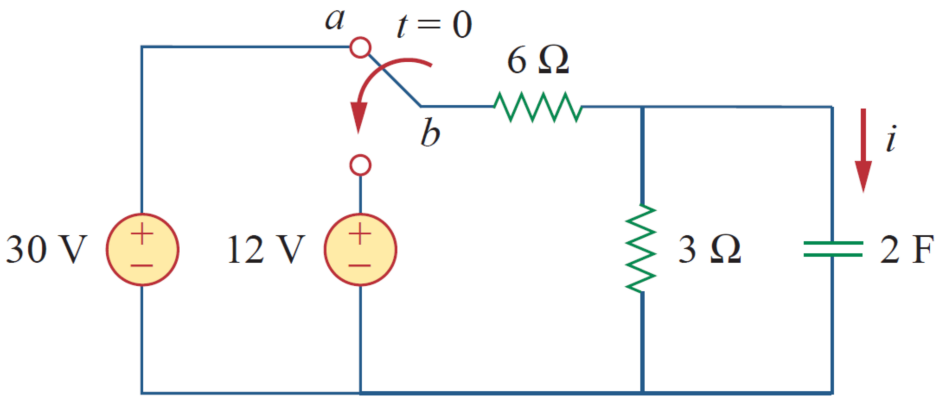
Name: _____

Campus ID: _____

Total Marks: 10
Time Duration: 20 minutes

Question 1 (10 marks)

In a first-order circuit given below, the switch is operated from position a to position b at $t = 0$.



(a) [1 mark] Determine the voltage across capacitor at $t = 0^-$.

(b) [2 marks] Determine $i(t)$ at $t = 0^+$.

(c) [2 marks] Write down the differential equation, in terms of $i(t)$, describing the circuit after the switch is operated, that is, for $t \geq 0$.

(d) [1 mark] Determine $i(t)$ at $t = \infty$.

(e) [3 marks] Determine $i(t)$ for all values of t and plot (and label) it.

(f) [1 mark] On the plot that is obtained in part (e), superimpose plot of $i(t)$ for if 2 F capacitor is replaced with 1 F capacitor.