Name: **ID:**

EEE 2113: Electrical Circuits

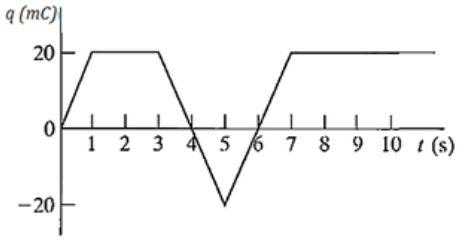
Class Test 01

Section G

Time: 35 Minutes

Total Marks: 20

1. The charge flowing through a 10 Ω resistor is given below



(a) Derive the equation of current of this resistor and sketch it as a function of time. [4]

(b) Calculate the total voltage between 3 sec and 5 sec. [2]

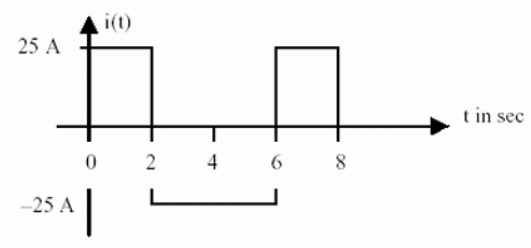
2. Determine the current if the charge flow is given by $q(t) = 20e^{-4t}\cos 50t\ \mu C$ [2]

3. Find the charge flowing through a device if the current is $i(t) = 20\cos(10t + \pi/6)\mu A,\ q(0) = 2\mu C$ [3]

4. (i) Find q(t) at t=4s, t=8s (ii) draw a graph for q vs t from the following figure: [6]

$$i = \frac{dq}{dt} = \begin{cases} 25A, & 0 < t < 2 \\ -25A, & 2 < t < 6 \\ 25A, & 6 < t < 8 \end{cases}$$

which is sketched below:



5. Find **I** and the power absorbed by each element in the network. [3]