Q1. The charge flowing in a wire having 20 Ω resistance is shown in Figure 1. Answer the following questions:

i) Clearly sketch the corresponding current and find current at t = 2.5 sec and t = 5.5 sec.   **[5]**
ii) Determine the time when maximum power is delivered to the element. Also, find the maximum power.   **[5]**
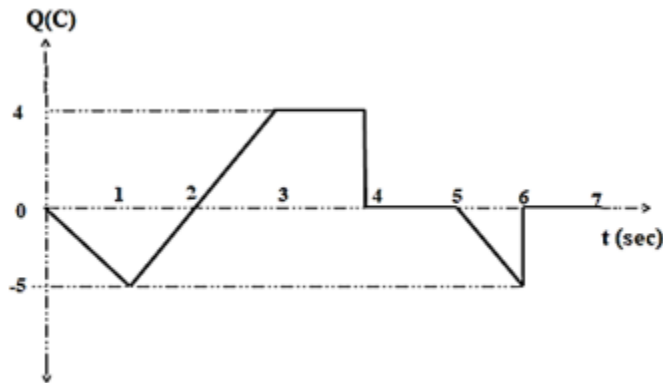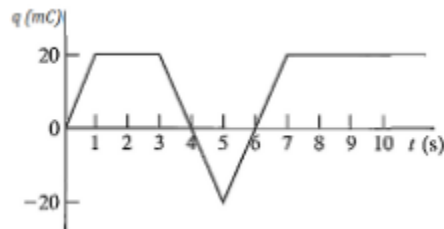

Figure 1.

Q2. The charge flowing through a **2Ω** resistor is given below:

a) Derive the equation of current of this resistor and sketch it as a function of time.   **[7]**
b) Calculate the total energy delivered between 0 sec and 3 sec.   **[3]**