Home Work # 1

1. If a current in a wire is 6 A, **find number of electrons** that passes an arbitrary point in the wire in 0.05 s.

2. If 100,000 electrons pass a point in a wire every 5 s, find the **current in microamperes**.

3. If 120 J of work is done in 20 s in supplying energy to an element carrying a current of 40 mA, **find the terminal voltage** of the element.

4. If the voltage across an element is 120 V, **how much work** is required to move 4 C of charge through the element?

5. Charge is flowing through an element at the rate of 100 C/s and the element is absorbing energy at the rate of 40 J/min. **Find the voltage across** the element.

6. An element draws 5 A from a source of 12 V. Find the **power it absorbs** and the **number of kWh** if the power is absorbed for 20 h.

7. **Find the current** in a 2-kΩ resistor if the power dissipated is 320 W.

8. **How long** must a constant current of 5 A flow in a 10-Ω resistor to dissipate 1 kJ?

9. If a 3000-W, 240-V clothes dryer is considered as a resistor, **find its resistance and rated current**.

10. **Find the total monthly cost** of energy consumption of a house having six-2400W Air Conditions, 1.5 kW refrigerator, twenty 40 W lamps and 1500W Washing Machine. *Assume that the devices operate for a 18-hour period every day. (One kWh costs 5 Halalas)*

11. For the following cases **find the unknown variable**.

a. − 25V + 5 kΩ I	**b.** -2A − V + 12 MΩ
c. 6A − -5mV + P	**d.** + V − 30 mW -3mA
e. I − -5V + 10 kΩ	**f.** 2mA − V + 12 kΩ