Problems:

1-A charge of 16 C flows through a surface every 64S, determine the current in amperes.

2-Deteremine the time required for 2×10^{16} electrons to pass through a surface if the current is 2.5 mA.

3-Find the potential difference between two points in an electrical system if 160 J are expended by a charge of 120C between these two points.

4-If a current of 40A exists for 1 min how many coulombs of charge have passed through the wire?

5-Will a fuse rated at l A "blow" if 86C pass through it in 1.2 min?

6-What would you prefer? a: A piaster for ever electron that passes through a wire in 0.01 μ s at a current of 2 mA OR b: A pound for every electron that passes through a wire in 1.5 ns if the current is 100 μ A.

7-What is the voltage between 2 points if 96 mJ of energy are required to move 50×10^{18} electrons between the 2 points?

8-If the potential difference between 2 points is 42V, how much work is required to bring 6C from one point to the other?

9-If a conductor with a current of 200 m.A passing through it converts 40 J of electrical energy into heat in 30S, what is the potential drop across the conductor?

10-Charge is flowing through a conductor at the rate of 420 c/min. If 742 J of electrical energy are converted to heat in 30 sec, what is the potential drop across the conductor?

11-The potential difference between 2 points in an electric circuit is 24 V. If 0.4 J energy were dissipated in a period of 5 ms, what would the current be between the two points?

12-A portable TV using 12 V, 3-Ah battery cooperate for a period of about 5.5 h. What is the average current drawn during this? What is the energy expended by the battery in Joules?

17-What is the cost of using the following at 8 piasteres /kWhr? 110 W stereo set for 4h, 1200-W projector for 20 min, 60-W tape recorder for 1.5 hr and 150 W color television set for 3h 45 min .

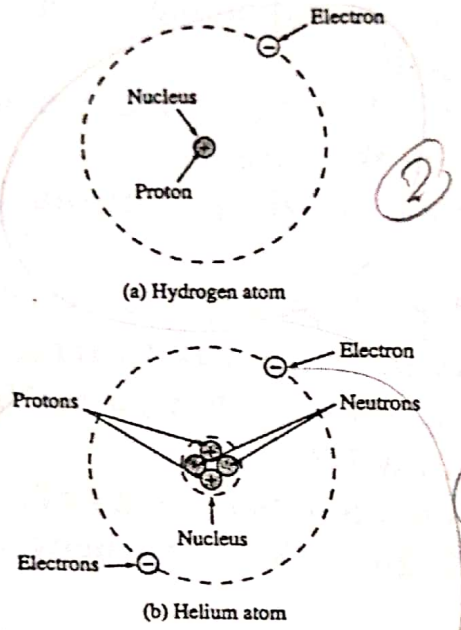

FIG. 2.1
The hydrogen and helium atoms.