



KEC

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AS Electrical Physics

Current Charge and Power

Assignment Questions

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Current , Charge and Power :

$$e = 1.6 \times 10^{-19} \text{ C}$$

Q1 : Calculate the number of electrons passing a point in the wire in 10 min when the current is :

a) 8.0 A b) 2.0 μA

Q2 : A battery is capable of delivering current of 0.4 A for 3000 seconds. Calculate:

a) Total charge it can deliver.

b) Maximum time it can be used if current was 1.0 A .

Q3: What are semi conductors? How their resistance change with the temperature ?

Q4: Calculate the current through 10W light bulb connected to a 6V battery . Also calculate the energy transfer to light bulb in 2000 s .

Q5 : A battery is connected to a uniform conductor. The current in the conductor is 20 mA.

a) Calculate the total charge that flows past a point in the conductor in 2 minutes.

b) Calculate the number of electron charge carriers passing through the point in conductor in this time.

c) If 10 J of energy are transferred through the conductor during this time , calculate the potential difference across the conductor.

Q6 : The current through a LED at 0.50 V is 2.0 A. Calculate the energy transfer by the LED at this voltage and current when it is lit up for exactly one minute.

b) A potential difference of 2.0 V is now supplied by the power supply. If the current now is 4 A . Calculate the number of charge carriers that flow through the LED during exactly one minute.

Q7 : How much work is done in moving a charge of 2 C through a potential difference of 10 V ?