KEC

K Education Centre

AS Electrical Physics

Resistance

Assignment Questions

Resistance :

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

Q1 : A hairdryer contains a heating element with resistance of 60 Ω . The hair dryer is connected to a mains at 230 V. How much energy is transferred by hair dryer in one minute ?

Q2 : If the cross sectional area of a wire is 1.4×10^{-5} m^2 and its length is 0.8 m . Calculate its resistivity if resistance is 12 Ω .

Q3 : A potential difference of 4.0 V is supplied by the variable power supply to a LED. The resistance of the LED is 0.5 Ω. Calculate the number of charge carriers that flow through the LED in exactly one minute.

Q4 : Explain what is super conductivity and how it can be used to minimise the power losses in power cables.

Q5 : Calculate the length of a wire needed to produce resistance of 0.050Ω . The wire has a diameter of 0.50 mm and its resistivity is 2.3×10^{-8} Ωm.

Q6 : Calculate the resistance of a rectangular strip of copper of length 0.04 m , thickness 20 mm and width 0.60 mm. The resistivity of the copper = 1.7×10^{-8}Ωm .

Q7 : A metal wire with resistance *R* , length *L* and cross-sectional area *A* is stretched in such a way that new length of wire is 3*L* and the cross - sectional area is *A/3* . Show that resistance of stretched wire is 9 *R.*