



Attempt to Answer All the Following Questions

- Q (1)** a) Describe the ionic bonding and state an example with drawing for this bond.
b) Briefly describe Hydrogen bonding.
c) A copper wire 100 m long must experience a voltage drop of less than 1.5 V when a current of 2.5 A passes through it. compute the minimum diameter of the wire. for copper $\sigma = 6.0 \times 10^7 (\Omega - m)^{-1}$.
- Q (2)** a) List six different property classifications (with briefly explanation) of materials.
b) Describe the Biomaterials.
c) A parallel-plate capacitor using a dielectric material having an ϵ_r of 2.5 has a plate spacing of 1 mm. If another material having a dielectric constant of 4.0 is used and the capacitance is to be unchanged, what must be the new spacing between the plates?
- Q (3)** a) Explain with the Hall effect experiment and state the purpose of this experiment.
b) A d.c. motor consists of an armature winding of 400 turns (equivalent to 800 conductors). The effective lengths of conductor in the field is 160 mm and the conductors are situated at a radius of 100 mm from the Centre of the motor shaft. The magnetic flux density is 0.6 Wb/m^2 and a current of 25 A flows through the winding. Calculate the torque available at the motor shaft.

With our Best Wishes