SIR CV RAMAN COACHING CENTRE IDAPPADI,SALEM

XlI –PHYSICS   UNIT – I MODEL EXAMINATION   TOTAL MARK : 35 M

DATE : 20.04.2024

Choose the correct best answer (5 x 1 = 5m)

1.The electric field due to the uniformly charged spherical shell is zero at all points .... the shell.

A) Inside   b) Outside   c) point   d) All

2. The total .... over a closed surface can be negative, positive or zero

a) Electric flux   b) Electric field   c) Electric charge   d) Electric dipole

3. Like charges ....

 a) repel b) Attract   c) both a and b   d) only repel

4.The charge stored in the capacitor is proportional to the .... between the plates

a) potential difference b) charge   c) both a and b   d) none of the above

5. Examples of non-polar molecules are ....

  A) $H_2 O$,   b) HCl,   c) NH_3 .   d) None of tha above

PART –B (3 x 2 = 6m)

Answer any THREE Questions

1.Calculate the number of electrons in one coulomb of negative charge

2.Consider a point charge +q placed at the origin and another point charge -2q placed at a distance of 9 m from the charge +q. Determine the point between the two charges at which electric potential is zero

3.Define 'electric field'.

4. Define 'electric dipole'.

5. Define 'electric flux

PART -B(3 x 3 = 9m)

Answer any THREE Questions

6. Derive an expression for electrostatic potential due to a point charge

7. Obtain the expression for electric field due to an charged infinite plane sheet.

8. When two objects are rubbed with each other, approximately a charge of 50 nC can be produced in each object. Calculate the number of electrons that must be transferred to produce this charge

9. Obtain Gauss law from Coulomb's law

10. Explain in detail how charges are distributed in a conductor

PART –C (3 x 5 = 15m)

Answer any THREE Questions

11. Derive the expression for resultant capacitance, when capacitors are connected in series and in parallel.

12. Obtain the expression for electric field due to an uniformly charged spherical shell

13. Calculate the electric field due to a dipole on its equatorial plane.

14. A parallel plate capacitor has square plates of side 5 cm and separated by a distance of 1 mm. (a) Calculate the capacitance of this capacitor. (b) If a 10 V battery is connected to the capacitor, what is the charge stored in any one of the plates?

15. They are separated by a distance of 1m. Calculate the force experienced by the two charges for the following cases: (a) q_1 = +2 pC and q_2 = +3 pc

PREPARED BY

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''ALL THE BEST''