

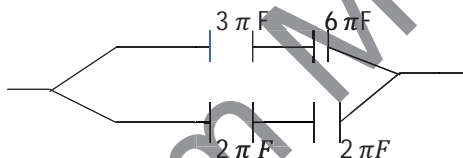


## PART-I

## 1. CHOOSE THE CORRECT ANSWER:

15 x 1=15

- An electric dipole is placed at an alignment angle of  $30^\circ$  with an electric field of  $2 \times 10^5$  NC. It expends a torque equal to 8 nm. The charge on the dipole if the dipole length is 1 cm is.
  - 4 mc
  - 8 mc
  - 5 mc
  - 7 mc
- Which charge configuration produces a uniform electric field?
  - point charge
  - uniformly charged infinite plane
  - uniformly charged infinite plane
  - uniformly charged spherical shell
- The number of electron in 1 mc of negative charge is .....
  - $6.25 \times 10^{18}$  electron
  - $0.625 \times 10^{12}$  electron.
  - $6.25 \times 10^{12}$  electron
  - $6.25 \times 10^{13}$  electron.
- The NMT of permittivity of free space, is ( $\epsilon_0$ )
  - $C^{-2} N m^{+2}$
  - $C^2 N m^{-2}$
  - $C^2 N^{-1} m^{-2}$
  - $C^2 N^{-1} m^2$
- Example of non-polar molecule is ...
  - $CO_2$
  - $HO_2$
  - $NO_2$
  - HCL
- Dielectric strength of air is ... (V/m)
  - $3 \times 10^8$
  - $3 \times 10^6$
  - $3 \times 10^3$
  - $3 \times 10^5$
- If voltage applied on a capacity is increased from V to 2V, choose the correct conclusion.
  - Q remains the same, C is doubled
  - Q is doubled, C double
  - C remains Same, Q doubled
  - Both Q and C remain same
- A parallel plate Capacitor stores a charge Q at a voltage V, Suppose the area of the parallel plate capacitor and the distance between the plates are each doubled then which is the quantity that will change?
  - Capacitance
  - Charge
  - voltage
  - Energy density.
- Electric field between two parallel charged infinite sheets is ....
  - $E = 0$
  - $E = \frac{\sigma}{2\epsilon_0}$
  - $\frac{\sigma}{\epsilon_0}$
  - $E = k \frac{Q}{r^2}$
- The electric dipole moment for the following charge configuration.
  - $q a \hat{i}$
  - $2 q a \hat{i}$
  - zero
  - $-q a \hat{i}$
- A point charge, the electric field varies as
  - $\frac{1}{r^3}$
  - $r^3$
  - $\frac{1}{r^2}$
  - $r^2$
- The work done in moving 400 mc charge between two points on equipotential surface is
  - finite +ve
  - finite -ve
  - infinite
  - Zero.
- A point charge, the electric field varies as
  - $\frac{1}{r^3}$
  - $r^3$
  - $\frac{1}{r^2}$
  - $r^2$
- The work done in moving 400 mc charge between two points on equipotential surface is
  - finite +ve
  - finite -ve
  - infinite
  - zero
- In the given circuit, the effective capacitance between A and B will be....



- $3 \pi F$
  - $36 / 13 \pi F$
  - $13 \pi F$
  - $7 \pi F$
- The lower comb of value Graeff generator is maintained at a positive potential of
    - 10 KV
    - $10^7 v$
    - 100 v
    - $10^3 v$
  - In timing radio we use
    - LED
    - diodes
    - transistors
    - capacitors

## PART-II

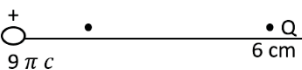
**ANSWER ANY SIX QUESTIONS. QUESTIONS NUMBER 24 IS COMPULSORY:**

- 16. What is corona discharge? 6x2=12  
(21/P.No.74)
- 17. Define electric flux. (15/P.No.73)
- 18. State-conservation of charges. (I/P.No.3)
- 19. what is polarization? (18/P.No:74)
- 20. Write a short note electrostatic shielding (17/P.No: 74)
- 21. Define electric field (5/P.73)
- 22. Define coulomb's law (P.No:4)
- 23. Write the relation between electric field and potential (P.No:32)
- 24. A parallel plate capacity has square plates of side 4 cm and separated by a distance of 1 mm. Calculate the capacitance of this capacitor. (Ex 1.20/55)

**PART-III**

**ANSWER ANY SIX QUESTIONS, QUESTION NUMBER 33 IS COMPULSORY:**

- 25. What are the difference between coulomb force and gravitational force? 6x3=18  
(3/P.No:73)
- 26. The electric field lines never Interest. Justify (7/P.No: 73)
- 27. Derive an expression for the torque expended by a dipole due to a uniform electric field. (5/P.No: 74)
- 28. Two small size identical equally charged spheres, each having mass 1 g, are having in equilibrium as shown in the figure. The length of each string is 10 cm, and the angle Q is 30° with the vertical. Calculate the magnitude of the charge in each sphere. (Ex:1.3/7)  
(P7/P.No:74)
- 29. Obtain the expression for energy stored in the parallel plate Capacitor. (20/74)
- 30. Derive the expression for resultant capacitance, when capacitors are connected in series and in parallel. (2/P.No:74)
- 31. Explain in detail coulomb's law and its various aspects. (any three) (3/P34)
- 32. Explain Important aspects of Electric field: (any three)
- 33. Calculate the electric potential at point P and Q as shown in the figure below. Find the potential difference between to points (1.12/P29)



**PART - IV**

**ANSWER ALL THE QUESTIONS:**

- 34. (a) (i) Derive an expression for the energy density in parallel plate capacitor. 5x5=25  
(18/P.74)
- (ii) Write down the special features of Gauss law (any three) (I/P.40,41)
- (OR)
- (b) Calculate the electric field due to a dipole on its axial line. (4/P.74)
- 35. (a) obtain the expression for electric field due to um infinitely long charged wire (11/P.74)
- (OR)
- (b) Explain in detail the effect of a dielectric placed in a parallel plate capacitor. (19/P.74)
- 36. (a) Explain in detail the construction and working of a Vande Graff generator. (22/P.74)
- (OR)
- (b) (i) Derive an expression for electrostatic potential due to a point charge. (6/P.74)
- (ii) definition of electric dipole and dipole moment. (8/P.73)
- 37. (a) what is Electric field lines: and link the properties of the electric filled lines in 5 points (P.17,18,19)
- (OR)
- (b) Calculate the electric field due to a dipole on its equatorial plane. (4/P.74)
- 38. (a) (i) Define electrostatic Induction. (I49)
- (ii) Obtain the expression for electric field due to a charged infinite plane sheet. (12/P.74)
- (OR)
- (b) (I) Write any three applications of capacitors. (I 57)
- (ii) Discuss the basic properties of electric Charges. (I-3,4)

\*\*\*\*\*

# +2 PHYSICS



## QUESTION BANK



\*\*\*

1. Chapterwise question paper – 11
2. Public model question paper – 5
3. Govt. public exam question paper – 5  
(April & June 2023, 2024, April 2025)

Prepared by: **P.PUVANESWARA, M.Sc., B.Ed., M.Phil.,**  
Proprietor **G. MAHALAKSHMI, M.Sc., B.Ed.,**



**OM MURUGA**  
**PUBLICATION**



+91 9663737998, +91 9384845512, +91 9788519850



50/31, Bazaar II, Velayuthampalayam, Karur D.t - 639117



ommurugapublication@gmail.com

**Rs. 60**

**"SUCCESS consists of a series of daily EFFORT"**



## OUR OTHER BOOKS

### STATE BOARD:

- 10<sup>th</sup> Maths PP Question Bank (TM & EM)
- 10<sup>th</sup> Science PP Question Bank (TM & EM)
- 10<sup>th</sup> Social Science PP Question Bank (TM & EM)
- 11<sup>th</sup> Maths PP Question Bank (TM & EM)
- 11<sup>th</sup> Physics PP Question Bank (TM & EM)
- 11<sup>th</sup> Chemistry PP Question Bank (TM & EM)
- 12<sup>th</sup> Maths PP Question Bank (TM & EM)
- 12<sup>th</sup> Physics PP Question Bank (TM & EM)
- 12<sup>th</sup> Chemistry PP Question Bank (TM & EM)

### STATE BOARD SOLUTION BOOK:

- 10<sup>th</sup> Maths PP Solution Book (TM & EM)
- 12<sup>th</sup> Maths PP Solution Book (EM)

### CBSE:

- 10<sup>th</sup> Mathematics Solution Book
- 10<sup>th</sup> Mathematics Question Bank (more than 3000 questions)

+91 9663737998, +91 9384845512, +91 9788519850

50/31, Bazaar II, Velayuthampalayam, Karur D.t - 639117

[ommurugapublication@gmail.com](mailto:ommurugapublication@gmail.com)

