

Unit -1

For class 12th physics
BSEH BOARD EXAMS

SPECIAL THANKS TO

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FOR PROVIDING ME CONSENT OF USING THEIR BOOK
(AK BASICS OF PHYSICS POWERFUL QUESTION BANK)
MATTER IN THIS PPT/VIDEO

1. Coulomb is the S.I. unit of:

- a) current
- b) charge
- c) force
- d) none of these

2. The cause of charging is _____.

3. The minimum energy required to free an electron is called

- a) Current
- b) Potential
- c) Work function
- d) Kinetic energy

4. Two bodies A and B are rubbed with each other. Electrons are transferred from body A to body B.
- a) Body A has higher work function than body B
 - b) Body A has lower work function than body B
 - c) Both bodies have equal work function
 - d) Work function does not matter in transfer of electrons.

5. Two bodies A and B are rubbed with each other. Electrons are transferred from body A to body B.

- a) Body A will gain $+ve$ charge and body B will gain $-ve$ charge
- b) Body B will gain $+ve$ charge and body A will gain $-ve$ charge
- c) Charging is not possible by rubbing.
- d) Body A and body B may have $+ve$ charge or $-ve$ charge.

6. Glass is rubbed with silk cloth

a) Glass will gain $+ve$ charge and Silk will gain $-ve$ charge

b) Silk will gain $+ve$ charge and Glass will gain $-ve$ charge

c) Charging is not possible by rubbing.

d) Glass and Silk may have $+ve$ charge or $-ve$ charge.

7. The minimum value of charge on any charged body is

- (a) $1.6 \times 10^{-19} \text{ C}$ (b) $1.6 \times 10^{19} \text{ C}$
(c) 1 C (d) $1 \mu\text{C}$

8. What is the charge on neutron?

- a) Zero b) 1 C [HBSE 2013]
c) $+1.6 \times 10^{-19} \text{ C}$ d) $-1.6 \times 10^{-19} \text{ C}$

9. What is the charge on a proton?

[HBSE 2014]

- A) $+1.6 \times 10^{19} \text{ C}$ B) $-1.6 \times 10^{-19} \text{ C}$
C) $-1.6 \times 10^{19} \text{ C}$ D) $+1.6 \times 10^{-19} \text{ C}$

10. What is the charge on an electron?

A) $+1.6 \times 10^{19} \text{ C}$ B) $-1.6 \times 10^{-19} \text{ C}$

C) $-1.6 \times 10^{19} \text{ C}$ D) $+1.6 \times 10^{-19} \text{ C}$

11. What is the charge on metal when 6 electrons are removed from it?

- a) $1.6 \times 10^{-19} \text{C}$ b) 0
c) $9.6 \times 10^{-19} \text{C}$ d) $16 \times 10^{-19} \text{C}$

12. During charging by conduction, two bodies are

- a) Rubbed with each other
b) made in physical contact with each other
c) placed near to each other
d) collide with each other

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- a) Rubbed with each other
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14. If distance between the charges is thrice keeping their magnitude same, then the electric force will become

- a) Four times
- b) one fourth
- c) one ninth
- d) will remain same

15. Dielectric constant of a metal is:-

[HBSE 2013]

a) 1 b) 0 C) ∞ D) indefinite

16. Value of absolute electrical permittivity will be _____ ?

17. Value of electrical permittivity of air/vacuum will be _____ ?

18. The S.I. unit of absolute electrical permittivity will be

A) Nm^2/C^2 B) C^2/Nm^2
C) Ampere D) unitless

21. The ratio of the forces between two charged bodies in a medium of dielectric constant k to in air is :

- A) $1 : k$ B) $k : 1$ C) $1 : k^2$ D) $k^2 : 1$

22. Two spherical conductors A and B having equal radii and carrying equal charges repel each other with a force F when kept apart at some distance. They are taken in a medium having dielectric constant 8. The new force between them will be:

- A) $F/4$ B) $F/6$ C) $3F/6$ D) $F/8$

23. S.I. unit of electric field are _____.

24. The dimension formula of electric Field Intensity is

- A) $[M^3 L^{-2} T^2 A^3]$ B) $[MLT^{-3} A^{-1}]$
C) $[M^{-1} L^{-3} T^4 A^2]$ D) $[M^{-1} L^{-3} T^3 A^2]$

25. The electric field lines from a *-ve* charge will be

- A) Away from the charge
B) towards the charge
C) Sometimes away from or sometimes towards the charge
D) none of these

26. The electric field intensity due to a point charge varies with distance (r) as

A) $E \propto r$ B) $E \propto \frac{1}{r}$ C) $E \propto r^2$ D) $E \propto \frac{1}{r^2}$

27. The electric field intensity due to a line charge varies with distance (r) as

A) $E \propto r$ B) $E \propto \frac{1}{r}$ C) $E \propto r^2$ D) $E \propto \frac{1}{r^2}$

28. The electric field intensity inside a spherical shell is

A) $E = \frac{\sigma R^2}{\epsilon_0 r^2}$ B) $E = \frac{\sigma}{\epsilon_0 r^2}$ C) $E = \frac{\sigma}{\epsilon_0}$ D) $E = 0$

29. The electric field intensity due to a thin infinite charge sheet is given by

A) $E = \frac{\sigma R^2}{\epsilon_0 r^2}$ B) $E = \frac{\sigma}{\epsilon_0 r^2}$ C) $E = \frac{\sigma}{2\epsilon_0}$ D) $E = \frac{\sigma}{\epsilon_0}$

30. The electric field intensity between two thin charge sheets having like charges is given by

A) $E = 0$ B) $E = \frac{\sigma}{\epsilon_0 r^2}$ C) $E = \frac{\sigma}{2\epsilon_0}$ D) $E = \frac{\sigma}{\epsilon_0}$

31. The electric field intensity between two thin charge sheets having opposite charges is given by

A) $E = 0$ B) $E = \frac{\sigma}{\epsilon_0 r^2}$ C) $E = \frac{\sigma}{2\epsilon_0}$ D) $E = \frac{\sigma}{\epsilon_0}$

32. The electric field intensity between plates of a capacitor given by

A) $E = 0$ B) $E = \frac{\sigma}{\epsilon_0 r^2}$ C) $E = \frac{\sigma}{2\epsilon_0}$ D) $E = \frac{\sigma}{\epsilon_0}$

33. Unit of electric potential is given by

- A) J/C B) Volt
C) newton D) Both A) and B)

38. S.I. unit of capacitance is

- A) Coulomb B) Farad C) Volt D) Ampere

39. Dimensions of capacitance is given by

[HBSE 2011,12]

40. The capacitance of a parallel plate capacitor is given by

- A) $\frac{\epsilon_0 A}{d}$ B) $\frac{\epsilon_0}{Ad}$ C) zero D) $\frac{\epsilon_0 A}{d^2}$

41. For capacitors in parallel combination, total capacitance C is given by: [HBSE 2014]

- A) $\frac{1}{C} = \frac{1}{C_1} + \frac{1}{C_2} + \dots$ B) $C = C_1 + C_2 + \dots$

- C) $C = C_1 C_2 + C_2 C_3 + \dots$ D) $C = \frac{1}{C_1 + C_2 + \dots}$

42. By placing a dielectric 1

42. By placing a dielectric between the plates of a capacitor, the capacitance: $C_1 + C_2 \dots$

A) no change

B) increases

C) decreases

D) none

43. By removing a dielectric placed between the plates of a capacitor, the capacitance:

A) no change

B) increases

C) decreases

D) none

44. The energy density of an electric field E is:- [HBSE 2012]

A) $\frac{1}{2} \epsilon_0 E^2$

B) $\epsilon_0 E^2$

C) $2 \epsilon_0 E^2$

D) $\epsilon_0 E$

UNIT - 1

- 1) Coulomb law - 2017
- 2) Capacitance of capacitor - 2017, 2019
- 3) Capacitance of parallel plate capacitance and effect of dielectric slab - 2017
- 4) Gauss law - 2017, 2019, 2021
- 5) expression for electric field intensity E due to uniformly charged thin spherical cell at a point outside the shell - 2018, 2019
- 6) expression for electric field intensity E near a thin uniformly charged infinite plane sheet - 2018
- 7) expression for electric field intensity E due to uniformly charged thin spherical cell at a point inside the shell - 2018, 2019
- 8) electric flux - 2018, 2021
- 9) Electric field line - 2020
- 10) derive relation b/w electric field E and potential V - 2020
- 11) derive the equation $E = -dV/dr$ - 2020
- 12) Two electrostatic field line never cross each other. Why? 2020
- 13) electrostatic potential. \rightarrow 2020
- 14) State any two important properties of electrostatic field lines - 2020
- 15) what is equipotential surface? \rightarrow 2020

THANKS
AND
ALL THE BEST
FOR YOUR EXAMINATIONS