

CUET PHYSICS MOCK TEST

Q1. The electric field at a point due to a uniformly charged infinite plane sheet is:

- (A) Directly proportional to distance
 - (B) Inversely proportional to distance
 - (C) Constant
 - (D) Zero
-

Q2. When two capacitors $C_1 = 2 \mu\text{F}$ and $C_2 = 4 \mu\text{F}$ are connected in series, the equivalent capacitance is:

- (A) $1.33 \mu\text{F}$
 - (B) $6 \mu\text{F}$
 - (C) $3 \mu\text{F}$
 - (D) $2.66 \mu\text{F}$
-

Q3. The drift velocity of electrons is of the order of:

- (A) 10^6 m/s
 - (B) 10^{-4} m/s
 - (C) 10^{-6} m/s
 - (D) 10^2 m/s
-

Q4. Magnetic field at the center of a circular coil of radius r and current I is:

- (A) $\mu_0 I / 2\pi r$
 - (B) $\mu_0 I / 4\pi r$
 - (C) $\mu_0 I / 2r$
 - (D) $\mu_0 I / r$
-

Q5. Match the following:

- | A. Capacitor | 1. Stores energy as magnetic field |
- | B. Inductor | 2. Opposes changes in current |

| C. Resistor | 3. Converts electrical energy into heat |
| D. Transformer | 4. Works on mutual induction |

Options:

- (A) A-1, B-2, C-3, D-4
 - (B) A-3, B-2, C-1, D-4
 - (C) A-1, B-3, C-2, D-4
 - (D) A-2, B-1, C-4, D-3
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Q6. A current-carrying conductor placed in a uniform magnetic field experiences maximum force when:

- (A) It is parallel to the field
 - (B) It is perpendicular to the field
 - (C) At an angle of 45°
 - (D) Force is zero always
-

Q7. The self-inductance of a coil is 2 H. The rate of change of current is 3 A/s. The induced emf is:

- (A) 6 V
 - (B) 1.5 V
 - (C) 3 V
 - (D) 0.66 V
-

Q8. In an LCR circuit at resonance, the:

- (A) Current is minimum
 - (B) Voltage is maximum
 - (C) Impedance is maximum
 - (D) Impedance is minimum
-

Q9. Arrange the following electromagnetic waves in increasing frequency:

1. Infrared
2. X-rays
3. Visible

4. Microwaves

Choose the correct order:

- (A) $4 < 1 < 3 < 2$
 - (B) $1 < 4 < 3 < 2$
 - (C) $4 < 3 < 1 < 2$
 - (D) $1 < 2 < 3 < 4$
-

Q10. The wavelength of light used in Young's double slit experiment is 500 nm. If fringe width is 1 mm, the distance between the slits is:

- (A) 0.5 mm
 - (B) 1 mm
 - (C) 0.25 mm
 - (D) 0.05 mm
-

Q11. A convex lens of focal length 20 cm is placed in contact with a concave lens of focal length 40 cm. The power of the combination is:

- (A) +2.5 D
 - (B) +5 D
 - (C) +1.25 D
 - (D) 0 D
-

Q12. According to Bohr's model, the angular momentum of electron is:

- (A) nh
 - (B) $nh/2\pi$
 - (C) $2\pi nh$
 - (D) $h/2\pi$
-

Q13. Binding energy per nucleon is maximum for:

- (A) U-235
 - (B) Fe-56
 - (C) He-4
 - (D) H-1
-

Q14. In a full wave rectifier, the output frequency is:

- (A) same as input AC
 - (B) half of AC input
 - (C) double of AC input
 - (D) zero
-

Q15. Which of the following is a semiconductor?

- (A) Copper
 - (B) Germanium
 - (C) Iron
 - (D) Aluminium
-

Q16. Which of the following statements are true about wave nature of light?

1. It exhibits interference
2. It shows diffraction
3. It does not exhibit polarization
4. It shows photoelectric effect

Options:

- (A) 1 and 2 only
 - (B) 2 and 3 only
 - (C) 1, 2, and 3
 - (D) 1 and 4 only
-

Q17. In photoelectric effect, stopping potential depends on:

- (A) Intensity of light
 - (B) Frequency of light
 - (C) Nature of metal
 - (D) Surface area of metal
-

Q18. The number of fringes in a Young's double slit experiment will increase if:

- (A) Wavelength decreases
 - (B) Distance between slits increases
 - (C) Distance between slits and screen decreases
 - (D) Wavelength increases
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Q19. Identify the correct pair:

- (A) Lenz's Law – Conservation of energy
 - (B) Ampere's Law – Electrostatics
 - (C) Ohm's Law – Magnetic circuits
 - (D) Fleming's Right Hand Rule – Electric motors
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Q20. The torque on a dipole placed in a uniform electric field is maximum when the angle between dipole and field is:

- (A) 0°
- (B) 45°
- (C) 90°
- (D) 180°

Q21. Which of the following is correct about electrostatics?

1. Electric field is a vector quantity.
2. Electric field lines never intersect.
3. Electric field is zero inside a conductor.
4. Electric potential is maximum at the surface of conductor.

- (A) 1, 2, 3
 - (B) 2, 3, 4
 - (C) 1, 3, 4
 - (D) All of the above
-

Q22. Match the following devices with their principles:

- | A. Cyclotron | I. Mutually perpendicular electric and magnetic fields
- | B. Mass Spectrometer | II. Lorentz force

| C. Transformer | III. Electromagnetic induction
| D. Moving Coil Galvanometer | IV. Torque on current loop

Options:

- (A) A-II, B-I, C-III, D-IV
 - (B) A-I, B-II, C-III, D-IV
 - (C) A-IV, B-III, C-I, D-II
 - (D) A-III, B-IV, C-II, D-I
-

Q23. A satellite orbiting Earth has zero:

- (A) Kinetic energy
 - (B) Potential energy
 - (C) Total energy
 - (D) Momentum
-

Q24. The SI unit of Planck's constant is:

- (A) J·s
 - (B) eV
 - (C) N·m
 - (D) $\text{kg}\cdot\text{m}^2/\text{s}^2$
-

Q25. In an ideal LC circuit, the total energy:

- (A) Keeps increasing
 - (B) Gets dissipated as heat
 - (C) Oscillates between capacitor and inductor
 - (D) Is zero at all times
-

Q26. Which of the following pairs are correctly matched?

1. Diode – Rectification
2. Zener diode – Voltage regulation
3. Photodiode – Solar cell

4. LED – Light emission

- (A) 1, 2, and 4
 - (B) 2 and 3 only
 - (C) 1 and 3 only
 - (D) All of the above
-

Q27. The Bohr radius depends on:

- (A) Permittivity
 - (B) Electron mass
 - (C) Planck's constant
 - (D) All of the above
-

Q28. Which among the following will not affect the fringe width in Young's double slit experiment?

- (A) Wavelength
 - (B) Distance between slits
 - (C) Distance to the screen
 - (D) Intensity of light
-

Q29. Match the columns:

- | | |
|--------------------------------|--------------------------|
| A. n-type semiconductor | I. Trivalent impurity |
| B. p-type semiconductor | II. Pentavalent impurity |
| C. Majority carriers in n-type | III. Electrons |
| D. Majority carriers in p-type | IV. Holes |

Options:

- (A) A-II, B-I, C-III, D-IV
 - (B) A-I, B-II, C-IV, D-III
 - (C) A-III, B-IV, C-I, D-II
 - (D) A-II, B-IV, C-I, D-III
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Q30. For a moving charge in magnetic field, which statement is true?

- (A) Work done is always zero
- (B) Work done depends on speed

- (C) Work is maximum when charge moves parallel
 - (D) Magnetic force changes speed
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Q31. The unit of magnetic permeability μ_0 is:

- (A) T·m/A
 - (B) N/A²
 - (C) H/m
 - (D) All of the above
-

Q32. Which statements are true for electromagnetic waves?

1. They are transverse
2. They do not require a medium
3. They carry energy
4. Electric and magnetic fields are perpendicular

- (A) 1, 2, and 3
 - (B) 2, 3, and 4
 - (C) 1, 2, and 4
 - (D) All of the above
-

Q33. The focal length of a mirror is +20 cm. It is a:

- (A) Convex mirror
 - (B) Concave mirror
 - (C) Plane mirror
 - (D) Not enough data
-

Q34. A 220 V AC supply is connected to a 100 Ω resistor. The RMS current is:

- (A) 2.2 A
- (B) 22 A

- (C) 1.1 A
 - (D) 0.45 A
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Q35. In nuclear fission, energy is released because:

- (A) Total mass of products is more
 - (B) Binding energy per nucleon increases
 - (C) Neutron absorption increases mass
 - (D) Protons split
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Q36. Depletion layer in a P-N junction is formed due to:

- (A) Majority carriers moving freely
 - (B) Recombination of electrons and holes
 - (C) Battery connection
 - (D) Holes moving to N side only
-

Q37. The ratio of intensities of two coherent sources producing dark and bright fringes is 1:9. The contrast ratio (visibility) is:

- (A) 0.9
 - (B) 0.5
 - (C) 1
 - (D) 0.8
-

Q38. What is the potential energy of a dipole in an electric field if angle between \mathbf{p} and \mathbf{E} is 180° ?

- (A) 0
 - (B) pE
 - (C) $-pE$
 - (D) $2pE$
-

Q39. In Rayleigh scattering, intensity is inversely proportional to:

- (A) λ
- (B) λ^2

- (C) λ^3
 - (D) λ^4
-

Q40. A lens forms an image 20 cm from itself of an object placed 30 cm from it. What is the focal length?

- (A) 10 cm
- (B) 12 cm
- (C) 15 cm
- (D) 25 cm

Q41. Which of the following statements are correct about the transformer?

- 1) It works only on AC.
- 2) It obeys the principle of electromagnetic induction.
- 3) Efficiency is 100% in ideal case.
- 4) It increases or decreases DC voltages.

Options:

- (A) 1, 2, and 3 only
 - (B) 1 and 4 only
 - (C) 2 and 4 only
 - (D) All of the above
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Q42. Match the following physical quantities with their SI units:

- | A. Electric field | I. V/m
- | B. Magnetic flux | II. Weber
- | C. Capacitance | III. Farad
- | D. Resistance | IV. Ohm

Options:

- (A) A-I, B-II, C-III, D-IV
 - (B) A-II, B-III, C-IV, D-I
 - (C) A-I, B-III, C-IV, D-II
 - (D) A-IV, B-I, C-II, D-III
-

Q43. The velocity of sound is maximum in:

- (A) Air
 - (B) Water
 - (C) Iron
 - (D) Mercury
-

Q44. Which pair is correctly matched?

- (A) Beta decay – Emission of electron
 - (B) Alpha decay – Emission of positron
 - (C) Gamma decay – Neutrino emission
 - (D) Fission – Hydrogen nuclei fusion
-

Q45. The maximum kinetic energy of photoelectrons depends on:

- (A) Intensity of incident light
 - (B) Work function of the metal
 - (C) Frequency of incident light
 - (D) Both B and C
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Q46. The focal length of a lens depends on:

1. Radius of curvature
2. Refractive index
3. Colour of light
4. Shape of lens

Options:

- (A) 1 and 2 only
 - (B) 1, 2, and 3 only
 - (C) All of the above
 - (D) 2 and 4 only
-

Q47. If an electron and a proton are moving with same kinetic energy, which has longer de Broglie wavelength?

- (A) Electron
 - (B) Proton
 - (C) Both equal
 - (D) Cannot be compared
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Q48. Which statement is true about nuclear forces?

- (A) They are electrostatic in nature
 - (B) They obey inverse square law
 - (C) They are short-range but very strong
 - (D) They depend on the charge of nucleons
-

Q49. When a magnetic material is placed in a magnetic field, which of the following changes?

- (A) Magnetic flux
 - (B) Magnetic moment
 - (C) Magnetic field inside
 - (D) All of the above
-

Q50. Which of the following is not a characteristic of laser light?

- (A) Coherence
- (B) High intensity
- (C) Divergence
- (D) Monochromaticity