# CUET 2023 Physics Question Paper with Answer Key May 21

**Question 1. Sensitivity of potentiometer can be increased by**
**(a) increasing the e.m.f of the cell**
**(b) increasing the length of the potentiometer**
**(c) decreasing the length of the potentiometer wire**
**(d) None of these**

**Answer.** (b)

**Question 2. As a current is set up in a moving coil galvanometer, then arrange the following in sequential order.**
**A. Pointer attached with the coil starts rotating.**
**B. Pointer stops moving due to equilibrium between restoring torque and torque of coil.**
**C. The spring creates a restoring torque $\tau_c = k\phi$**
**D. Pointer reads a calibrated value.**
**E. The coil of the meter experiences torque $\tau = NIAB$ and starts rotating.**
**Choose the correct answer from the options given below:**
**(a) E, C, A, D, B**
**(b) E, A, C, B, D**
**(c) E, D, B,A,C**
**(d) E,C,A, B,D**

**Answer.** (b)

**Question 3. Which of the following statements related to magnetic materials are correct?**
**A. Diamagnetic materials get strongly magnetized in an external magnetic field.**
**B. Ferromagnetic materials get strongly magnetized in an external magnetic field.**
**C. Paramagnetic materials get weakly magnetized in an external magnetic field.**
**D. Soft iron is a suitable material for the core of electro-magnets.**
**E. For diamagnetic materials, magnetic susceptibility is positive and small.**
**Choose the correct answer from the options given below:**
**(a) A, B, E only**
**(c) B, C, D only**
**(b) B, C, E only**
**(d) C, D, E only**

**Answer.** (c)

**Question 4. According to oersted, around a current carrying conductor, magnetic field exists**
**(a) as long as there is current in the wire**
**(b) even after removing the current in the wire**
**(c) only few seconds after removing the current**
**(d) None of these**

**Answer.** (a)

**Question 5. Cyclotron can be used to accelerate**
**(a) electrons**
**(b) neutrons**
**(c) positive ions**
**(d) negative ions**

**Answer.** (c)

**Question 6. The S.I. unit of electric flux is**
**(a) weber**
**(b) newton per coulomb**
**(c) volt × meter**
**(d) joule per coulomb**

**Answer.** (c)

**Question 7. Capacitors are used in electrical circuits where appliances need more**
**(a) voltage**
**(b) current**
**(c) resistance**
**(d) power**

**Answer.** (b)

**Question 8. Which of the following properties shows the property of ferromagnetic substances?**
**(a) The ferromagnetic property depends on temperature.**
**(b) The ferromagnetic property does not depend on temperature.**
**(c) At high enough temperature ferromagnet becomes a diamagnet.**
**(d) At low temperature ferromagnet becomes a paramagnet.**

**Answer.** (a)

**Question 9. Statement I- When a dielectric slab is gradually inserted between the plates of an isolated parallel-plate capacitor, the energy of the system decreases.**
**Statement II- The force between the plates decreases.**
**(a) Statement I is correct; Statement II is correct; Statement II is a correct explanation for Statement I**
**(b) A Statement I is correct; Statement II is correct; Statement II is not a correct explanation for Statement I**
**(c) Statement I is correct, Statement II is incorrect**
**(d) Statement I is incorrect; Statement II is correct.**

**Answer.** (c)

**Question 10. Materials suitable for permanent magnet, must have which of the following properties?**
**(a) High retentivity, low coercivity and high permeability.**
**(b) Low retentivity, low coercivity and low permeability.**
**(c) Low retentivity, high coercivity and low permeability.**
**(d) High retentivity, high coercivity and high permeability**

**Answer.** (d)

**Question 11. Hysteresis is the phenomenon of lagging of:**
**(a) I behind B**
**(b) B behind I**
**(c) I and B behind H**
**(d) H behind I**

**Answer.** (c)

**Question 12. Susceptibility is positive and large for a:**
**(a) paramagnetic substance**
**(b) ferromagnetic substance**
**(c) diamagnetic substance**
**(d) nonmagnetic substance**

**Answer.** (b)

**Question 13. Permanent magnets are the substances having the property of:**
**(a) ferromagnetism at room temperature for a long period of time.**
**(b) paramagnetic at room temperature for a long period of time.**
**(c) anti ferromagnetism at room temperature for a long period of time.**
**(d) diamagnetism at room temperature for a long period of time**

**Answer.** (a)

**Question 14. Len'z law provides a relation between:**
**(a) current and magnetic field.**
**(b) induced e.m.f. and the magnetic flux.**
**(c) force on a conductor in a magnetic field.**
**(d) current and induced e.m.f**

**Answer.** (b)

**Question 15. The impedance of a LCR circuit is:**

(a) $\sqrt{R^2 + \left(X_L - X_C\right)^2}$

(b) $\sqrt{R^2 + \left(X_L - X_C\right)^2}$

(c) $\sqrt{R + \left(X_L - X_C\right)^2}$

(d) $\sqrt{R + X_L - X_C}$

**Answer.** (a)

**Question 16 . An equipotential surface is that surface:**
**(a) on which each and every point has the same potential**
**(b) which has negative potential**
**(c) which has positive potential**
**(d) which has zero potential**

**Answer.** (a)

**Question 17. Arrange the following types of electromagnetic waves in the increasing order of their frequencies:**
**A. Gamma rays**
**B. Radio waves**
**C. Visible light**
**D. Ultraviolet rays**
**Choose the correct answer from the options given below:**
**(a) A<D<C<B**
**(b) D < C < A < B**
**(c) B<C<D<A**
**(d) C < D < B < A**

**Answer.** (c)

**Question 18. The electromagnetic waves:**
**(a) travel with the speed of sound**
**(b) travel with the same speed in all media**
**(c)(c) travel in free space with the speed of light**
**(d) do not travel through a medium**

**Question 19. The focal length of the objective of a telescope is 60 cm. To obtain a magnification of 20, the focal length of the eyepiece should be**
**(a) 2 cm**
**(b) 3 cm**
**(c) 4 cm**
**(d) 5 cm**

**Answer.** (b)

**Question 20. The dispersive power of a prism depends on its**
**(a) shape**
**(b) size**
**(c) angle of prism**
**(d) refractive index of the monitorial of the prism**

**Answer.** (d)

**Question 21. The magnification by objective lens of a microscope does not depend upon:**
**I. the focal length of objective**
**II. the diameter of objective**
**III. the angle subtended by the diameter of the objective lens at the focus of the microscope**
**IV. the angle subtended by the eyepiece on the eye**
**(a) I and II**
**(b) II and III**
**(c) III only**
**(d) IV only**

**Question 22. The objective of a telescope must be of large diameter in order to:**
**(a) remove chromatic aberration**
**(b) remove spherical aberration and high magnification**
**(c) gather lighter and for high resolution**
**(d) increase its range of observation**

**Answer.** (c)

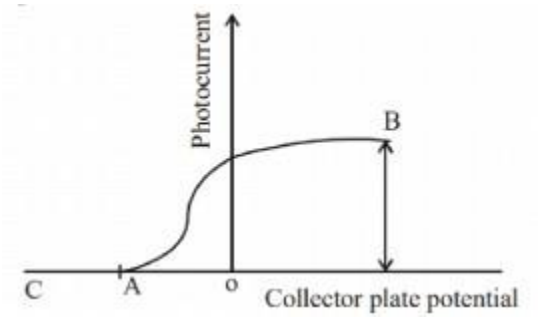
**Question 23. Statement I- Diffraction takes place for all types of waves mechanical or non-mechanical, transverse or longitudinal.**
**Statement I- Diffraction's effect is perceptible only if wavelength of wave is comparable to dimensions of diffracting device.**
**(a) Statement I is correct; Statement II is correct; Statement II is a correct explanation for Statement I**
**(b) A Statement I is correct; Statement II is correct; Statement II is not a correct explanation for Statement I**
**(c) Statement I is correct, Statement II is incorrect**
**(d) Statement I is incorrect; Statement II is correct.**

**Answer.** (b)

**Question 24. Intensity of light depends on:**
**(a) amplitude**
**(b) frequency**
**(c) wavelength**
**(d) velocity**

**Answer.** (a)

**Question 25. In the given graph of photoelectric current versus collector plate potential the quantities (A), (B), and (C) represent**




**(i) A →(1) Retarding potential**
**(ii) B → (2) Stopping potential**
**(iii) C→ (3) Saturation current**
**(a) (i) – 2; (ii) – 1; (iii) – 3**
**(b) (i) – 2; (ii) – 3; (iii) – 1**
**(c) (i) – 3; (ii) – 2; (iii) – 1**
**(d) (i) – 1; (ii) – 2; (iii) – 3**

**Answer.** (b)

**Question 26. In a photoelectric experiment the stopping potential for the incident light of wavelength 4000Å is 2 volts. If the wavelength be changed to 3000 Å, the stopping potential will be**
**(a) 2 V**
**(b) zero**
**(c) less than 2 V**
**(d) more than 2 V**

**Answer.** (d)

**Question 27. It is essential to consider light as a stream of photons to explain**
**(a) diffraction of light**
**(b) refraction of light**
**(c) photoelectric effect**
**(d) reflection of light**

**Answer.** (c)

**Question 28. The Lyman transitions involve**
**(a) largest changes of energy**
**(b) smallest changes of energy**
**(c) largest changes of potential energy**
**(d) smallest changes of potential energy**

**Answer.** (a)

**Question 29. Two identical coaxial circular loops carry a current i each circulating in the same direction. If the loops approach each other, you will observe that the current in**
**(a) each increase**
**(b) each decrease**
**(c) each remains the same**
**(d) one increases whereas that in the other decreases**

**Answer.** (b)

**Question 30. The half-life of a radioactive isotope 'X' is 20 years. It decays to another element 'Y' which is stable. The two elements 'X' and 'Y' were found to be in the ratio of 1 : 7 in a sample of a the given rock. The age of the rock is estimated to be**
**(a) 60 years**
**(b) 80 years**
**(c) 100 years**
**(d) 40 years**

**Answer.** (a)

**Question 31. The wavelength of the first line of Lyman series for hydrogen atom is equal to that of the second line of Balmer series for a hydrogen like ion. The atomic number Z of hydrogen like ion is**
**(a) 3**
**(b) 4**
**(c) 1**
**(d) 2**

**Answer.** (d)

**Question 32. A Zener diode, having breakdown voltage equal to 15V, is used in a voltage regulator circuit shown in figure. The current through the diode is**
**(a) 10 mA**
**(b) 15 mA**
**(c) 20 mA**
**(d) 5 mA**

**Answer.** (d)

**Question 33. In a P-N junction**
**(a) the potential of P & N sides becomes higher alternately**
**(b) the P side is at higher electrical potential than N side.**
**(c) the N side is at higher electric potential than P side.**
**(d) both P & N sides are at same potential.**

**Answer.** (a)

**Question 34. Arrange the following steps involved in working of photodiode in sequential order of their occurrence:**
**A. Electron hole pair generation**
**B. Absorption of photonsC. Illumination with light**
**D. Separation of electron-hole pair**
**E. Collection of electrons in n-side and holes in p-side.**
**Choose the correct answer from the options given below:**
**(a) D, E, B, A, C**
**(c) C, A, D, B, E**
**(b) C, B, A, D, E**
**(d) B, C, A, D, E**

**Answer.** (b)

**Question 35. Long range transmission of TV-signal is done by**
**(a) space-wave**
**(b) sky waves**
**(c) ground wave**
**(d) artificial satellite**

**Answer.** (d)

**Question 36. What is the modulation index of an over modulated wave**
**(a) 1**
**(b) Zero**
**(c) < 1**
**(d) > 1**

**Answer.** (d)

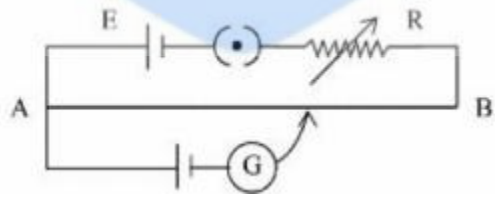
**Question 37. Match Column I and Column II.**

| Column I | Column II |
|---|---|
| (A) Linear charge density | (1) $\frac{Charge}{Volume}$ |
| (B) Surface charge density | (2) $\frac{Charge}{Length}$ |
| (C) Volume charge density | (3) $\frac{Charge}{Area}$ |
| (D) Discrete charge | (4) System consisting of distribution ultimate individual charges |

**(a)** $A\rightarrow$ **(2),** $B\rightarrow$ **(3),** $C\rightarrow$ **(1),** $D\rightarrow$ **(4)**
**(b)** $A\rightarrow$ **(1),** $B\rightarrow$ **(3),** $C\rightarrow$ **(1),** $D\rightarrow$ **(4)**
**(c)** $A\rightarrow$ **(3),** $B\rightarrow$ **(1),** $C\rightarrow$ **(2),** $D\rightarrow$ **(4) (d)**
$A\rightarrow$ **(3),** $B\rightarrow$ **(2),** $C\rightarrow$ **(1), D** $\rightarrow$ **(4)**

**Answer.** (a)

**Question 38. AB is a potentiometer wire. If the value of R is increased, then in which direction will the balance point shift?**




**(a) Towards A**
**(b) Towards B**
**(c) No change**
**(d) Will remain fixed at the mid of wire AB**

**Answer.** (b)

**Question 39. A conducting circular loop of radius r carries a constant current i. It is placed in a uniform magnetic field B such that B is perpendicular to the plane of the loop. The magnetic force acting on the loop is**
**(a) i r B**
**(b) 2 πr i B**
**(c) zero**
**(d) πr i B**

**Answer.** (c)

**Question 40. Statement I- Faraday's laws are a consequence of conservation of energy.**
**Statement II- In a purely resistive ac circuit, the current legs behind the emf in phase**
**(a) Statement I is correct; Statement II is correct; Statement II is a correct explanation for Statement I**
**(b) A Statement I is correct; Statement II is correct; Statement II is not a correct explanation for Statement I**
**(c) Statement I is correct, Statement II is incorrect**
**(d) Statement I is incorrect; Statement II is correct.**

**Answer.** (c)