CUET Memory Based Physics Question Paper

Q1. 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)

Q2. 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

Q3. 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.

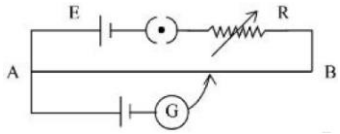
(a) Statement I is correct; Statement II is correct; Statement II is a correct explanation for Statement I

(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.

Q4. 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

Q5. 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 experience torque τ= 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

Q6. 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

Q7. 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

Q8. 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 (b) B, C, E only
(c) B, C, D only (d) C, D, E only

Q9. 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

Q10. Cyclotron can be used to accelerate

(a) electrons

(b) neutrons

(c) positive ions

(d) negative ions

Q11. The S.I. unit of electric flux is

(a) weber

(b) newton per coulomb

(c) volt × meter

(d) joule per coulomb

Q12. Capacitors are used in electrical circuits where appliances need more

(a) voltage

(b) current

(c) resistance

(d) power

Q13. Susceptibility is positive and large for a

(a) paramagnetic substance

(b) ferromagnetic substance

(c) diamagnetic substance

(d) nonmagnetic substance

Q14. Which of the following property 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.

Q15. 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

Q16. 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

Q17. 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

Q18. Statement I- Faradays laws are 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.

Q19. 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 magnetic field.

(d) current and induced e.m.f

Q20. 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

Q21. 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) $\sqrt{R + X_L - X_C}$

Q22. 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

Q23. The electromagnetic waves

(a) travel with the speed of sound

(b) travel with the same speed in all media

(c) travel in free space with the speed of light

(d) do not travel through a medium

Q24. The focal length of the objective of a telescope is 60 cm. To obtain a magnification of 20, the focal length of the eye piece should be

(a) 2 cm

(b) 3 cm

(c) 4 cm

(d) 5 cm

Q25. 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

Q26. 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

Q27. 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

Q28. 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.

Q29. Intensity of light depends on

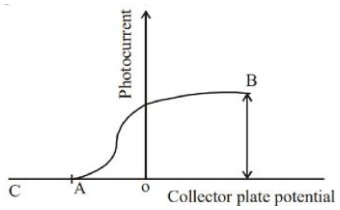
(a) amplitude

(b) frequency

(c) wavelength

(d) velocity

Q30. 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

Q31. 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

Q32. 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

Q33. 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

Q34. 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

Q35. 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

Q36. Arrange the following steps involved in working of photodiode in sequential order of their occurrence

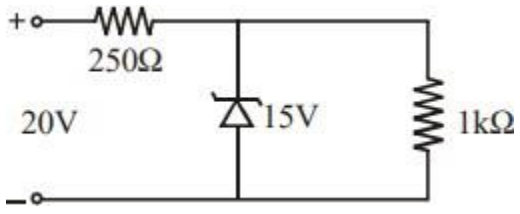
A. Electron hole pair generation

B. Absorption of photons

C. 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
(b) C, B, A, D, E
(c) C, A, D, B, E
(d) B, C, A, D, E

Q37. 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

Q38. 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.

Q39. Long range transmission of TV-signal is done by

(a) space-wave
(b) sky waves
(c) ground wave
(d) artificial satellite

Q40. What is the modulation index of an over modulated wave

(a) 1
(b) Zero
(c) < 1

(d) > 1

Answer Key-

S1. Ans. (a)

S2. Ans. (a)

S3. Ans. (c)

S4. Ans. (b)

S5. Ans. (b)

S6. Ans. (b)

S7. Ans (c)

S8. Ans. (c)

S9. Ans. (a)

S10. Ans. (c)

S11. Ans. (c)

S12. Ans. (b)

S13. Ans. (b)

S14. Ans. (a)

S15. Ans (d)

S16. Ans. (c)

S17. Ans.(a)

S18. Ans. (c)

S19. Ans. (b)

S20. Ans. (b)

S21. Ans. (a)

S22. Ans. (c)

S23. Ans. (c)

S24. Ans. (b)

S25. Ans. (d)

S26. Ans. (d)

S27. Ans. (c)

S28. Ans. (b)

S29. Ans. (a)

S30. Ans. (b)

S31. Ans. (d)

S32. Ans. (c)

S33. Ans. (a)

S34. Ans. (d)

S35. Ans. (a)

S36. Ans. (b)

S37. Ans. (d)

S38. Ans. (a)

S39. Ans. (d)

S40. Ans. (d)