Unofficial CUET Physics Answer Key 2024

Questions	Answers
The kinetic energy of an electron at ground level in hydrogen atoms is K units. The value of its potential energy and total energy respectively are _.	(i) -2K; - K
Two nuclei have mass numbers A and B respectively. The density ratio of the nuclei is	(iv) 1:1
A point source causing photoelectric emission from a metallic plate is moved away from the plate. The variation in photoelectric current with distance from the source is correctly represented by the graph	(iii) Option 3
A proton accelerated through a potential difference V has a de Broglie wavelength λ. On doubling the accelerating potential, de Broglie wavelength of the proton	(iv) Decreases
The shortest wavelengths emitted in the hydrogen spectrum corresponding to different spectral series are under:	(ii) (A), (C), (B), (D)
Silicon can be doped using one of the following elements as dopant:	(iii) (A), (B), (C), and (D)
Given below are V versus I graphs for different types of p-n junction diodes marked A, B, C, and D	(i) (D), (C), (A), and (B)
A wire carrying current 1, bent as shown in the figure, is placed in a uniform field B that emerges normally out from the plane of the figure. The force on this wire is:	(i) 4BIR, directed vertically downward

The refractive index of the material of an equilateral prism is $\sqrt{2}$. The angle of the minimum deviation of that prism is _.	(iii) 30°
The transfer of an integral number of _ is one of the evidence of quantization of electric charge.	(iii) electrons
When a slab of insulating material 4mm thick is introduced between the plates of a parallel plate capacitor of separation 4 mm, it is found that the distance between the plates has to be increased by 3.2 mm to restore the capacity to its original value. The dielectric constant of the material is:	(ii) 5
A copper ball of density 8.0g/cc and 1cm in diameter is immersed in oil of density 0.8g/cc. The charge on the ball of it remains just suspended in oil in an electric field of intensity 600 π V/m acting in the upward direction is	(ii) $2 \times 10^{-5} C$
A metal wire is subjected to a constant potential difference. When the temperature of the metal wis increases, the drift velocity of the electron in it	(ii) decreases, thermal velocity of the electrons decreases
For the given mixed combination of resistors, calculate the total resistance between points A and B	(ii) 18Ω
A cell of emf 1.1 V and internal resistance 0.5Ω is connected to a wire of resistance 0.5Ω. Another coll the same emf is now connected in series with the intention of increasing the current but the current in the wire remains the same. The internal resistance of the series is:	(i) 1Ω
P, Q, R, and S are four wires of resistances 3,3, 3 and 4Ω respectively. They are connected to form the four arms of a Wheatstone bridge circuit. The resistance with which S must be shunted in order that the bode may be balanced is _.	(ii) 1Ω

Magnetic moment of a thin bar magnet is 'M' ffit is bent into a semicircular form, its new magnetic moment will be _.	(iv) 2M/π
Ferromagnetic material used in Transformers must have _.	(ii) High permeability and Low Hysteresis loss
A conducting ring of radius r is placed in a varying magnetic field perpendicular to the plane of the ring. If the rate at which the magnetic field varies is the electric field intensity at any point of the ring is _.	(i) rx
A 50 Hz ac current of crest value. A flows through the primary of a transformer. If the mutual inductance between the primary and secondary be 0.5 H, the crest voltage induced in the secondary is _.	(iii) 100V
A long solenoid of diameter 0.1m has 2 * 10 curns per meter. At the centre of the solenoid a coil of 100, 0.1mm is placed with its axis coinciding with the solenoid axis. The current in the solenoid reduces at a constant rate to OA from 4 Ain 0.05s. If the resistance of the coil is $10\pi^2\Omega$, then the total charge flowing through the coil during this time is	(ii)32c
Lower half of a convex lens is made opaque. Which of the following statements describes the image of the object placed in front of the lens?	(iii) (C) only
Two slits are made 0.1mm apart and the screen is placed 2m away. The fringe separation when a light of wavelength 500 nm is used is _.	(i) 1 cm
For an astronomical telescope having an objective lens of focal length 10 m and an eyepiece lens of focal length 10 cm telescope the tube length and magnification respectively are _.	(iv) 1010cm, 100

According to Bohr's model (A)The radius of the orbiting electron is directly proportional to 'n'. (B) The speed of the orbiting electron is directly proportional to 'I/n'. (C) The magnitude of the total energy of the orbiting electron is directly proportional to 'I/n2'. (D) The radius of the orbiting electron is directly proportional to 'n'	(iv) B, C, and D only
For a full wave rectifier, if the input frequency is 50Hz, the output frequency will be_.	(ii) 100 Hz
For an electric dipole in a non-uniform electric field with dipole moment parallel to direction of the field, the force F and torque T on the dipole respectively are	(ii) Option 2
Two charged metallic spheres with radii R, and R2 are brought in contact and then separated. The ratio of Q2 on the two spheres respectively will be _.	(iv) Option 4
Two charged particles, placed at a distance d apart in vacuum, exert a force F on each other. Now, each of the charges is doubled. To keep the force unchanged, the distance between the charges should be changed to _.	(ii) 2D
Two parallel plate capacitors of capacitance $2\mu F \ and \ 3\mu F$ are joined in series and the combination is connected to a battery of V volts. The values of potential across the two capacitors V1 and V2 and energy stored in the two capacitors U1 and U2 respectively are related as _.	(i) Option 1
Two resistances of 100Ω and 200Ω are connected in series across a 20V battery as shown in figure below. The reading in a 200Ω voltmeter connected across the 200Ω resistance is _	(iii) 10 V

The current through a 4/3Ω external resistance connected to a parallel combination of two cells of 2V and 1V emf and internal resistance of 1Ω and 2Ω respectively is _.	(iv) 4/6 A
A metallic wire of uniform area of cross section has a resistance R, resistivity p and power rating P at V volts. The wire is uniformly stretched to reduce the radius to half the original radius. The value of resistance, resistivity, and power rating at V volts are now denoted by R, p, and P respectively. The corresponding values are correctly related as _.	(iii) Option 3
Three magnetic materials are listed below (A) paramagnetics (B) diamagnetics (C) ferromagnetics	(iii) (B), (A), and (C)
In the circuit shown below, a current 3I enters at A. The semicircular parts ABC and ADC have equal radii 'r' but resistances 2R and R respectively. The magnetic field at the center of the circular loop ABCD is _.	(i) Option 1
A square loop with each side 1 cm, carrying a current of 10A, is placed in a magnetic field of 0.2T. The direction of the magnetic field is parallel to the plane of the loop. The torque experienced by the loop is	(ii) $2 \times 10^{-4} Nm$
In an ac circuit, the current leads the voltage by $\pi/2$. The circuit is _.	(iv) purely capacitive
In a pair of adjacent coils, for a change of current in one of the coils from 0 A to 10 A in 0.25s, the magnetic flux in the adjacent coil changes by 15Wb. The mutual inductance of the coils is _.	(iii) 1.5H
A wire of irregular shape in Figure (a) and a circular loop of wire in Figure (b) are placed in different uniform magnetic fields as shown in the figures below. In Figure (a), the magnetic field is perpendicular into the plane. In Figure (b), the magnetic is perpendicular out of the plane.	.(iv) anticlockwise in (a) and clockwise in (b)

Match List-1 has four graphs showing the variation of opposition to flow of ac versus frequency with characteristic in List-II.	(i) (A) - (I), (B) - (II), (C) - (III), (D) - (IV)
Of the following, the correct arrangement of the electromagnetic spectrum in decreasing order of wavelength is	(iii) Radio Waves, microwaves, infrared waves, visible waves, x-rays
Match electromagnetic waves listed in Column I with the Production method/device in Column II.	(ii) A-II, B-III,C-II, D-I
In the figure given below, APB is a curved surface with a radius of curvature 10 cm separating air and transparent material. A point object O is placed in the air on the principal axis of the surface 20 cm from P. The distance of the image of O from P will be _.	(ii) 16 cm right of P in water
For fixed values of radii of curvature of lens, the power of the lens will be	(i) Option 1
The graph correctly representing the variation of image distance 'v' for a convex lens of focal length 'f versus object distance 'u' is _.	(ii) Option 2
Using light from the monochromatic source to study diffraction in a single slit of width 0.1 mm, the linear width of central maxima is measured to be 5 mm on a screen held 50 cm away. The wavelength of light used is	(iii) 5*10-7m
Radiation of frequency $2v_o$ is incident on a metal with threshold frequency v_o. The correct statement of the following is _.	(iii) Maximum kinetic energy of photoelectron emitted can be hv_0