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2023

CLASS XII

Questions & Solutions

Date: 20 March 2023 | TIME : (08:30 a.m. to 11:45 a.m)

Duration: 3 hr 15 min.| Max. Marks: 56

SUBJECT: PHYSICS

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Code No. **SS/40**

Roll No. | | | | | | | |

Candidates must write the Code on the title page of the answer-book

SENIOR SECONDARY EXAMINATION, 2023
PHYSICS

Time Allowed : 3 hr, 15 Min. **Maximum Marks : 56**

GENERAL INSTRUCTIONS TO THE EXAMINEES :

1. Candidate must write first his / her Roll No. on the question paper compulsorily.
2. All the questions are compulsory.
3. Write the answer to all questions in the given answer-book only.
4. For questions having more than one part, the answers to those parts are to be written together in continuity.
5. If there is any error/difference/contradiction in Hindi & English versions of the question paper, the question of Hindi version should be treated valid.
6. Write down the serial number of the question before attempting it.
7. There are internal choices in Question Nos. 19 & 20.

SECTION A

1. Choose the correct answer from multiple choice questions (i to ix) and write in given answer book.

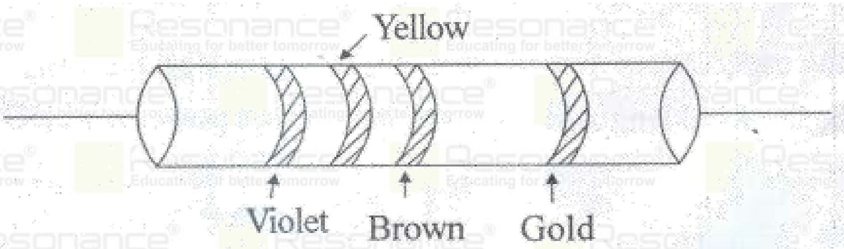
(i) The SI value of permittivity of free space or vacuum is - **[1]**

(A) 9×10^{9} $Nm^2 C^{-2}$ (B) 9×10^{-9} Nm^2C^{-2}

(C) 8.854×10^{-12} $C^2N^{-1}m^{-2}$ (D) $8.854 \times 10^{+12}C^2N^{-1}$ m^{-2}

Sol. (C) 8.854×10^{-12} $C^2N^{-1}m^{-2}$

(ii) Tolerance (%) for colour coded resistor in the following figure will be: **[1]**



(A) 10% (B) 5% (C) 20% (D) 15%

Sol. **(B)** 5%

(iii) Curie temperature of iron is **[1]**

(A) 1043K (B) 1143K (C) 893K (D) 317K

Sol. **(A)** 1043K

(iv) Frequency of electric current of alternating current I = 200 sin $\left(60\pi t+\frac{\pi}{6}\right)$ will be **[1]**

(A) 120 Hz (B) 60 Hz (C) 90 Hz (D) 30 Hz

Sol. **(D)** $\omega = 2\pi f$

$60\pi = 2\pi f$

So, f = 30Hz

(v) Communication frequency band range for FM broadcast is - **[1]**

(A) 530 – 1710 MHz (B) 540 – 890 MHz (C) 88 –108 MHz (D) 54 – 85 MHz

Sol. **(C)** 88 –108 MHz

(vi) What will be the focal length of a convex lens whose power is +2.5D ? **[1]**

(A) 50 cm (B) 25 cm (C) 250 cm (D) 40 cm

Sol. **(D)** P = +2.5D

$P = \frac{1}{f}$

$2.5 = \frac{1}{f}$

$f = \frac{100}{2.5} = 40$ cm

(vii) The path difference equivalent to 4π phase difference is -

(A) 8λ (B) 2λ (C) 6λ (D) 4λ

Sol. **(B)** path diff. $= \frac{\lambda}{2\pi}$ (phase diff.)

path diff. $= \frac{\lambda}{2\pi} \times 4\pi$

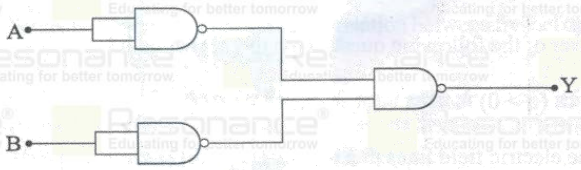
$= 2\lambda$

(viii) De-Broglie wavelength associated with an electron, accelerated through a potential difference of 100 volt is **[1]**

(A) 12.27 nm (B) 1.227 nm (C) 0.1227 nm (D) 122.7 nm

Sol. **(C)** $\lambda = \frac{12.27}{\sqrt{V}} = \frac{12.27}{\sqrt{100}} = \frac{12.27}{10} = 1.227\ \mathring{A} = 0.1227$ nm

(ix) The output (Y) of the logic circuit shown in the figure will be **[1]**



(A) Y = A+B (B) $Y = \overline{A+B}$ (C) Y = A•B (D) $Y = \overline{A \bullet B}$

Sol. **(D)** $Y = \overline{A \bullet B}$

2. Fill in the blanks (i) to (iv)

(i) A uniformly charged thin spherical shell has an electric field at all points ____________inside it. **[1]**

(ii) On increasing the temperature, the resistivity of semiconductors is ____________. **[1]**

(iii) The force between two parallel current carrying conductor is________ . **[1]**

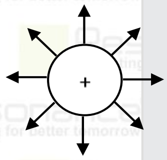
(iv) In the primary rainbow, light is refracted __________and internally reflected________ . **[1]**

Sol. (i) zero (ii) Decreases (iii) Attract (iv) Twice and once

3. Give the answer of the following questions (i to viii) in one line:

(i) Show the electric field lines due to a single positive charge (q > 0).` **[1]**

Sol.



(ii) Write the value of electric field due to an electric dipole at a point on its axis. **[1]**

Sol. $E_{axis} = \frac{2KP}{r^3}$

(iii) Write two characteristics of a material to produce a permanent magnet. **[1]**

Sol. **(i)**High value of coercivity

(ii) Rasonable (High) value of the Retentivity

(iv) Select two paramagnetic material from the following: **[1/2+1/2=1]**

Sodium (Na), Bismuth (Bi), Copper (Cu), Aluminum (Al), Lead (Pb)

Sol. Sodium (Na), Aluminum (Al)

(v) Write the name of electromagnetic wave produced by vacuum tube magnetron. **[1]**

Sol. Microwaves

(vi) The radius of curvature of a concave mirror is 28cm, its focal length will be? **[1]**

Sol. R = 28 cm

$f = \frac{R}{2} = \frac{28}{2} = 14$ cm

(vii) Write the formula which shows the relation between fresnel distance wavelength of light and size of aperture. **[1]**

Sol. $\theta = \frac{1.22\lambda}{a}$

Where, a = size of aperture

λ = wavelength of light

(viii) Write name of majority charge carriers and minority charge carries in p-type semiconductor. **[1]**

Sol. The majority charge carriers and minority charge carries in p-type semiconductor are holes and electrons respectively.

SECTION B

4. Calculate the electric potential at a point due to a charge of 2 x 10^{-9} C located 9 x 10^{-4} m away from it. **[1$^{1/2}$]**

Sol. $V = \frac{kq}{r} = \frac{9\times10^{9}\times2\times10^{-9}}{9\times10^{-4}} = 2\times10^{4}\,V$

5. Find the expression for electric potential energy of a system of three point charges. **[1$^{1/2}$]**

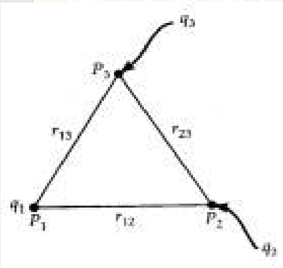
Sol. Potential energy of a system of three point charges :

Work done to bring q_1 to point P_1

$W_1 = q_1 V_{P_1} = 0 \quad (\because V = 0)$

Work done to bring q_2 at point P_2

$W_2 = q_2 = V_{P_2} = q_2\left(\frac{q_1}{4\pi\varepsilon_0 r_{12}}\right)$; $W_2 = \frac{q_1 q_2}{4\pi\varepsilon_0 r_{12}}$



P.E. of three point charges

Therefore

W_3 = Potential at point P_3 due to q_1 and q_2 × charge q_3

or $W_3 = \frac{1}{4\pi\varepsilon_0}\left[\frac{q_1}{r_{13}} + \frac{q_2}{r_{23}}\right]\times q_3 = \frac{1}{4\pi\varepsilon_0}\left[\frac{q_1q_3}{r_{13}} + \frac{q_2q_3}{r_{23}}\right]$

Hence the electrostatic potential energy of the system $q_1 + q_2 + q_3$ is

U = Total work done to assemble the three charges

$= W_1 + W_2 + W_3$ or $U = \frac{1}{4\pi\varepsilon_0}\left[\frac{q_1q_2}{r_{12}} + \frac{q_1q_3}{r_{13}} + \frac{q_2q_3}{r_{23}}\right]$

6. Current in a circuit falls from 5.0A to 1.0A in 0.1s. If an average e.m.f. of 200V induced. Give an estimate of the self-inductance of the circuit. **[1$^{1/2}$]**

Sol. $\varepsilon = \frac{-LdI}{dt}$

$L = \frac{\varepsilon}{-\frac{dI}{dt}} = \frac{200}{-\left(\frac{1-5}{0.1}\right)} = 5H$

7. Write statement for electromagnetic induction **[3/4 +3/4 = 1$^1/_2$]**

(i) Faraday's law (ii) Lenz's law

Sol. **(i) Faraday's laws of electromagnetic induction:**

First law: Whenever the magnetic flux linked with a closed circuit changes, an emf (and hence a current) is induced in it which lasts only so long as the changes in flux is taking place. This phenomenon is called electromagnetic induction.

Second law: The magnitude of the induced emf is equal to the rate of change of magnetic flux linked with the closed circuit. Mathematically,

$$|\varepsilon| = \frac{d\phi}{dt}$$

(ii) Lenz's law :

This law states that the direction of induced current is such that it opposes the cause which produces it, i.e., it opposes the change in magnetic flux.

Mathematical form of the laws of electromagnetic induction

If the coil consists of N tightly would turns. Total induced emf will be

$$|\varepsilon| = -N\frac{d\phi}{dt}$$

$$|\varepsilon| = -N\,\frac{\phi_2 - \phi_1}{t}$$

8. Find out value of power factor for following circuit **[3/4 +3/4 = 1$^1/_2$]**

(i) Purely capacitive circuit (ii) Series LCR resonance circuit

Sol. Power factor = cos ϕ

(i) for Purely capacitive circuit, $\phi = \pi/2$

So P.F. = cos $\pi/2$ = 0

(ii) For Series LCR resonance circuit

P.F. = cos ϕ = R / Z = 1 (for resonance Z = R)

9. Describe any three energy losses in transformers. How these can be minimized explain? **[1$^{1/2}$]**

Sol. **Energy losses in transformers.** The main causes of energy loss in transformers are as follows :

1. Copper loss. Some energy is lost due to heating of copper wires used in the primary and secondary windings. This power loss (= I^2R) can be minimised by using thick copper wires of low resistance.

2. Eddy current loss. The alternating magnetic flux induces eddy currents in the iron core which leads to some energy loss in the form of heat. This loss can be reduced by using laminated iron core.

3. Flux leakage. The magnetic flux produced by the primary may not fully pass through the secondary. Some of the flux may leak into air. This loss can be minimised by winding the primary and secondary coils over one another.

10. Define the following in photoelectric effect phenomenon **[3/4 +3/4 = 1$^1/_2$]**
(i) work function (ii) stopping potential

Sol. **(i)** The minimum amount of energy required to eject an electron from the metal surface is called **work function** of the metal
(ii) The value of the retarding potential at which the photoelectric current becomes zero is called **cut off or stopping potential** for the given frequency of the incident radiation.

11. If the work function of caesium metal is 2.14 eV then find its threshold frequency in Hz. **[1$^1/_2$]**

Sol. $\phi_0 = h\nu_0 \Rightarrow \nu_0 = \phi_0 / h$
$= 2.16 \times 1.6 \times 10^{-19} / 6.62 \times 10^{-34} = 0.522 \times 10^{15}$

12. The total energy of the electron in the ground state of Hydrogen atom is –13.6eV. Find the kinetic energy and potential energy of electron in this state. **[3/4 +3/4 = 1$^1/_2$]**

Sol. $E_n = -13.6$ eV
K.E $= |E_n| = 13.6$ eV
P.E. $= 2E_n = -13.6 \times 2 = -27.2$ eV

13. (i) Write two drawbacks of Rutherford's atomic model. **[1 +1/2 = 1$^1/_2$]**
(ii) Name the series of the hydrogen spectrum whose lines fall in the visible region

Sol. **(i)** Rutherford's model suffers two major drawbacks

(a) Regarding Stability of Atom
Electrons revolving around the nucleus have centripetal acceleration. According to classical electromagnetic theory. The electrons must radiate energy in the form of electromagnetic wave. Due to this continuous loss of energy of the electrons, the radii of their orbits should be continuously decreasing and ultimately the electrons should fall in the nucleus. Thus, atom cannot remain stable.

(b) Regarding Explanation of Line Spectrum
Due to continuous decrease in radii of electron's orbit, the frequency of revolution of electron will also change.
Due to continuous change in frequency of revolution of electron, it will radiate EM waves of all frequencies, i.e. the spectrum of these waves will be continuous in nature. But, this is not the case, experimentally we get line spectrum. Rutherford model was unable to explain line spectrum.

(ii) Balmer series

14. Write the law of radioactive decay. The decay constant of a radioactive substance is 0.693 per minute. Calculate its half-life time in minute. **[1/2 +1 = 1$^1/_2$]**

Sol. The number of nuclei disintegrating per second of a radioactive sample at any instant is directly proportional to the number of undecayed nuclei present in the sample at that instant.
Let
N_0 = the number of radioactive nuclei present initially at time t = 0 in a sample of radioactive substance.
N = the number of radioactive nuclei present in the sample at any instant t, and
dN = The number of radioactive nuclei which disintegrate in the small time interval dt.
According to radioactive law, the rate of decay at any instant is proportional to the number of undecayed nuclei, i.e. $-\frac{dN}{dt} \propto N$,

or $\boxed{-\frac{dN}{dt} = \lambda N}$ Mathematical form of radioactive decay law.

where λ is a proportionality constant called the decay or disintegration constant.
Decay constant (λ) = 0.693 per min.

Half life $T_{1/2} = \frac{0.693}{\lambda}$ =0.693 / 0.693 per min. = 1 min.

15. Define the following. [1/2 +1/2 +1/2 = $1^1/_2$]
(i) nuclear fusion
(ii) nuclear fission
(iii) mass defect

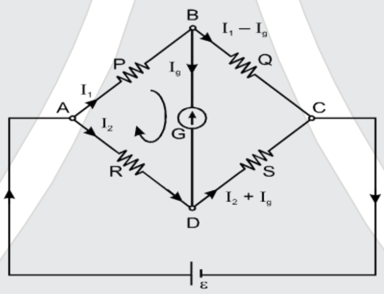
Sol. **(i) Nuclear fusion** in which two smaller nuclei combine together to form a larger nucleus, releasing a large amount of energy as in a hydrogen bomb.
(ii) Nuclear fission in which a heavy nucleus splits up into two smaller nuclei, liberating a large amount of energy as in an atom bomb.
(iii) It is found that the mass of a stable nucleus is always less than the sum of the masses of its constituent protons and neutrons (nucleons) in their free state.
The difference between the sum of the rest masses of its constituent nucleons and the rest mass of a nucleus is called its **mass defect.**

SECTION C

16. Drawing a labelled circuit diagram of Wheat stone bridge, derive condition for zero deflection in the bridge. **[1 + 2 = 3]**

Sol. The bridge is said to balanced when the potential difference (and hence current) across the galvanometer is zero or current flowing through the galvanometer is zero. In the balanced condition of the bridge.

$$\frac{P}{Q} = \frac{R}{S}$$



Wheatstone bridge

Expression of balanced condition of Wheatstone bridge :
In accordance with Kirchhoff's first law, the currents through various branches are as shown in Figure.
Applying Kirchhoff's second law to the loop ABDA, we get

$$I_1P + I_g G - I_2R = 0$$

Where G is the resistance of the galvanometer. Again applying Kirchhoff's second law to the loop BCDB, we get

$$(I_1 - I_g) Q - (I_2 + I_g) S - GI_g = 0$$

In the balanced condition of the bridge ($I_g = 0$), the above equations become

$I_1P - I_2 R = 0$ or $I_1P = I_2 R$ ... (i)
and $I_1Q - I_2 S = 0$ or $I_1Q = I_2 S$ ... (ii)

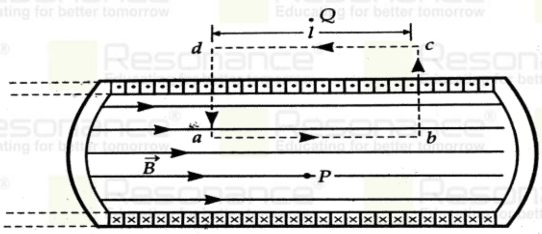
On dividing equation (i) by (ii), we get

$$\frac{P}{Q} = \frac{R}{S}$$

This proves the condition for the balanced Wheatstone bridge.

17. Obtain an expression for magnetic field on the axis of current carrying very long solenoid by Ampere's circuital law. Draw necessary diagram. **[2 +1 = 3]**

Sol.



magnetic field of a very long solenoid

The magnetic field inside a closely wound long solenoid is uniform everywhere and zero outside it. Figure shows the sectional view of a long solenoid. At various turns of the solenoid, current comes out of the plane of paper at points marked and enters the plane of paper at points marked ⊗. To determine the magnetic field $\vec{B}$ at any inside point consider a rectangular closed path (Amperian loop) abcd as the Amperian loop. According to Ampere's circuital law,

$\oint \vec{B}.d\vec{\ell} = \mu_0 \times$ Total current through the loop abcd .... (i)

Now $\oint \vec{B}.d\vec{\ell} = \int_a^b \vec{B}.d\vec{l} + \int_b^c \vec{B}.d\vec{l} + \int_a^a \vec{B}.d\vec{l} + \int_d^a \vec{B}.d\vec{l}$

But $\int_b^c \vec{B}.d\vec{l} = \int_d^c B\,dl\cos 90° = 0$

$\int_d^a \vec{B}.d\vec{l} = \int_d^a B\,dl\cos 90° = 0$

$\int_c^d \vec{B}.d\vec{l} = 0$ as B = 0 for points outside the solenoid.

$\therefore\ \oint \vec{B}.d\vec{\ell} = \int_a^b \vec{B}.d\vec{l}$

$= \int_a^b B\,dl\cos 0° = B\int_a^b dl = Bl$ .... **(ii)**

where,

l = length of the side ab of the rectangular loop abcd.

Let number of turns per unit length of the solenoid = n

Then number of turns in length l of the solenoid = nl

Thus the current I of the solenoid threads the loop abcd, nl times.

$\therefore$ Total current threading the loop abcd = n l I .... **(iii)**

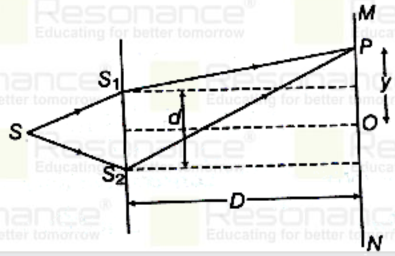
Put (ii) and (iii) in (i)

$Bl = \mu_0 n l I$

$B = \mu_0 nI$

18. To produce interference fringe pattern, draw a necessary diagram of young's double slit experiment. Derive an expression of fringe width for bright fringes.

Sol. Suppose S_1 and S_2 are two fine slits, as small distance d apart. They are illuminated by a strong source S of monochromatic light of wavelength λ. MN is a screen at a distance D from the slits.



Young's double slit arrangement to produce interference pattern

Consider a point P at a distance y from I, the centre of screen.

The path difference between two waves arriving at point P is equal to $S_2P - S_1P$.

Now,

$$(S_2P)^2 - (S_1P)^2 = \left[D^2 + \left(y + \frac{d}{2}\right)^2\right] - \left[D^2 + \left(y - \frac{d}{2}\right)^2\right] = 2yd$$

Thus, $$S_2P - S_1P = \frac{2yd}{S_2P + S_1P}$$

But $$S_2P + S_1P \approx 2D$$

$$S_2P - S_1P \approx \frac{dy}{D}$$

For constructive interference (Bright fringes)

Path difference $= \frac{dy}{D} = n\lambda$ where, n = 0,1,2,3.........

$$y = \frac{nD\lambda}{d} \qquad [\because n = 0,1,2,3, ...]$$

Hence, for n = 0, $y_0 = 0$ at O central bright fringe

for n = 1, $y_1 = \frac{D\lambda}{d}$ for 1st bright fringe

for n = 2, $y_2 = \frac{2D\lambda}{d}$ for 2 nd bright fringe

for n = n, $y_n = \frac{nD\lambda}{d}$ for nth bright fringe

The separation between two consecutive bright fringes is $\beta = \frac{nD\lambda}{d} - \frac{(n-1)D\lambda}{d} = \frac{D\lambda}{d}$

The distance between two consecutive bright or dark fringes is called fringe width W.

$\therefore$ Fringe width, $W = \frac{D\lambda}{d}$

SECTION D

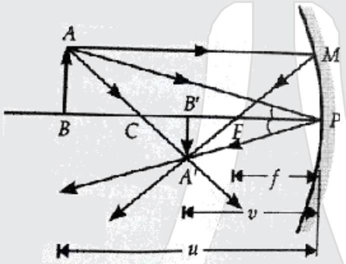
19. Draw a ray diagram for image formation by concave mirror and establish a relation between object distance (u), image distance (v) and focal length (f). **[1 + 3 = 3]**

OR

Draw a ray diagram of light passing through a triangular glass prism. If prism angle is A then deduce the relation $\mu = \dfrac{\sin\left(\dfrac{A+\delta m}{2}\right)}{\sin\left(\dfrac{A}{2}\right)}$ **[1 + 3 = 3]**

(where μ = refractive index of substance of prism and δm = minimum deviation)

Sol. Derivation of mirror formula for a concave mirror when it forms a real image. Consider an object AB placed on the principal axis beyond the centre of curvature C of a concave mirror of small aperture, as



Object distance, $BP = -u$

image distance, $B'P = -v$

Focal length, $FP = -f$

Radius of curvature, $CP = -R = -2f$

Now $\Delta A'B'C \sim \Delta ABC$

$$\therefore \frac{A'B'}{AB} = \frac{CB'}{BC} = \frac{CP - B'P}{BP - CP} = \frac{-R+v}{-u+R} \quad \text{..................(1)}$$

As $\angle A'PB' = \angle ABP$, therefore,

$\Delta A'B'P \sim \Delta ABP$

Consequently,

$$\frac{A'B'}{AB} = \frac{B'P}{BP} = \frac{-v}{-u} = \frac{v}{u} \quad \text{..................(2)}$$

From equation (i) and (2), we get

$$\frac{-R+V}{-U+R} = \frac{V}{u}$$

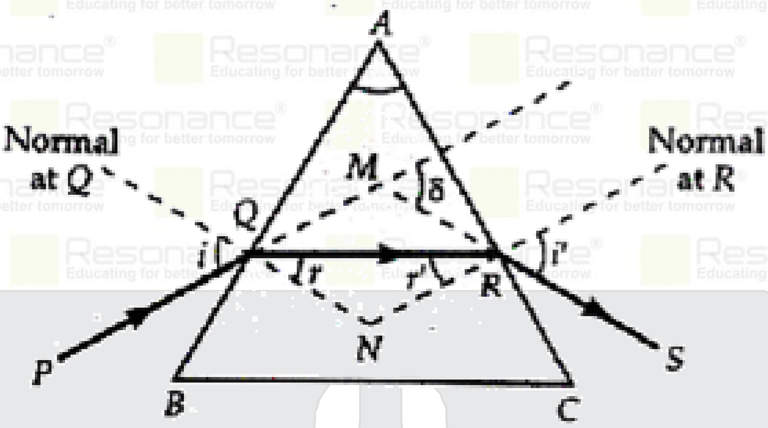
or $-uR + uv = -uv + vR$ or $vR + uR = 2uv$

Dividing both sides by uvR, we get

$$\frac{1}{u} + \frac{1}{v} = \frac{2}{R}$$

But R = 2f $\therefore \dfrac{1}{u} + \dfrac{1}{v} = \dfrac{1}{f}$

OR



From the quadrilateral AQNR,

$A + \angle QNR = 180° \Rightarrow A = 180° - \angle QNR$

$\therefore$ From the triangle QNR,

$r + r' + \angle QNR = 180° \Rightarrow r + r' = 180° - \angle QNR$

$$\therefore A = r + r'$$

$\therefore \delta = (i - r) + (i' - r') \quad \Rightarrow \delta = (i + i') - (r + r') \quad \Rightarrow \quad \delta = (i + i') - A \Rightarrow \quad \delta + A = i - i'$

Relation between refractive index and angle of minimum deviation

At $\delta = \delta_{min}$.

(i) i = i,

(ii) QR =BC So $r = r^1$

As $A + \delta = i + i'$

$\therefore \quad A_m + \delta = i + i \quad$ or $i = \dfrac{A + \delta_m}{2}$

Also A = r + r' = r + r = 2r

r = A/2

From Snell's law, the refractive index of the material of the prism will be

$\mu = \dfrac{\sin i}{\sin r}$ or $\mu = \dfrac{\sin \frac{A + \delta_m}{2}}{\sin \frac{A}{2}}$

20. What is rectification? Draw the circuit diagram of full wave rectifier and explain its working. Show the input ac voltage and output voltage waveforms from the rectifier circuit. $\frac{1}{2}+1+1\frac{1}{2}+\frac{1}{2}+\frac{1}{2}$

OR

What is intrinsic semiconductor? Explain the processes of p-n junction formation with necessary diagram Draw the symbol of the following diodes

(i) Zener diode

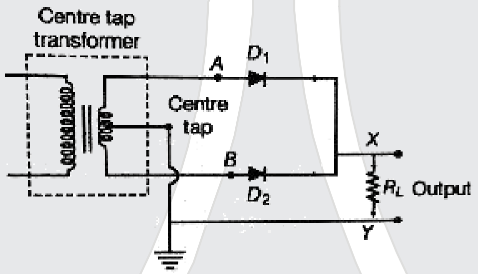
(ii) p-n junction diode

Sol. **Rectification :**

The process of converting alternating voltage/current into direct voltage / current is called rectification. Diode is used as a rectifier for converting alternating current / voltage into direct current / voltage.

Diode as a Full Wave Rectifier

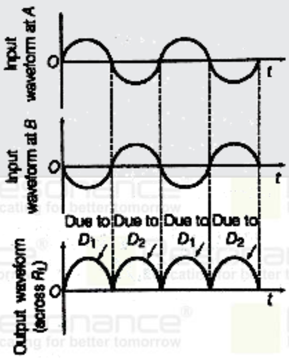
In the full wave rectifier, two p - n junction diodes, D_1 and D_2 are used. This arrangement is shown in the diagram below.



Circuit diagram of full wave rectifier

Working

During the positive half cycle of the input AC, the diode D_1 is forward biased and the diode D_2 is reverse biased. The forward current flows through diode D_1. During the negative half cycle of the input AC, the diode D_1 is reverse biased and diode D_2 is forward biased. Hence, current flows through diode D_2. Hence, we find that during both the halves, current flows in the same direction.



Input and output waveforms

OR

Intrinsic Semiconductors

Semiconductors that are chemically pure, in other words, free from impurities are known as intrinsic semiconductors. This type of semiconductor is also called an undoped semiconductor or i - type semiconductor.

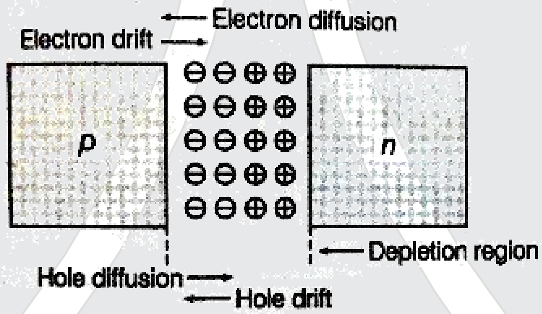
Example: Si, Ge etc.

p - n junction:

It is an arrangement made by a close contact of n - type semiconductor and p - type semiconductor. There are various methods of forming p - n junction.

Formation of Depletion Region in p - n Junction

In an n - type semiconductor, the concentration of electrons is more than that of holes. Similarly, in a p - type semiconductor, the concentration of holes is more than that of electrons. During the formation of p - n junction and due to the concentration gradient across p and n - sides, holes diffuse from p - side to n - side ($p \rightarrow n$) and electrons diffuse from n -side to p - side ($n \rightarrow p$). The diffused charge carriers combine with their counterparts in the immediate vicinity of the junction and neutralize each other. Thus, near the junction positive charge is built on n - side and negative charge on p - side.



This sets up potential difference across the junction and an internal electric field E_i directed from n - side to p - side. The equilibrium is established when the filed E_i becomes strong enough to stop further diffusion of the majority charge carriers (however, it helps the minority charge carriers to diffuse across the junction).The region on either side of the junction which becomes depleted (free) from the mobile charge carriers is called depletion region or depletion layer. The width of depletion region is of the order of 10^{-6} m.

The potential difference developed across the depletion region is called the potential barrier. It depends on dopant concentration in the semiconductor and temperature of the junction.

(i) Symbol of Zener diode 

(ii) Symbol of p-n junction diode 

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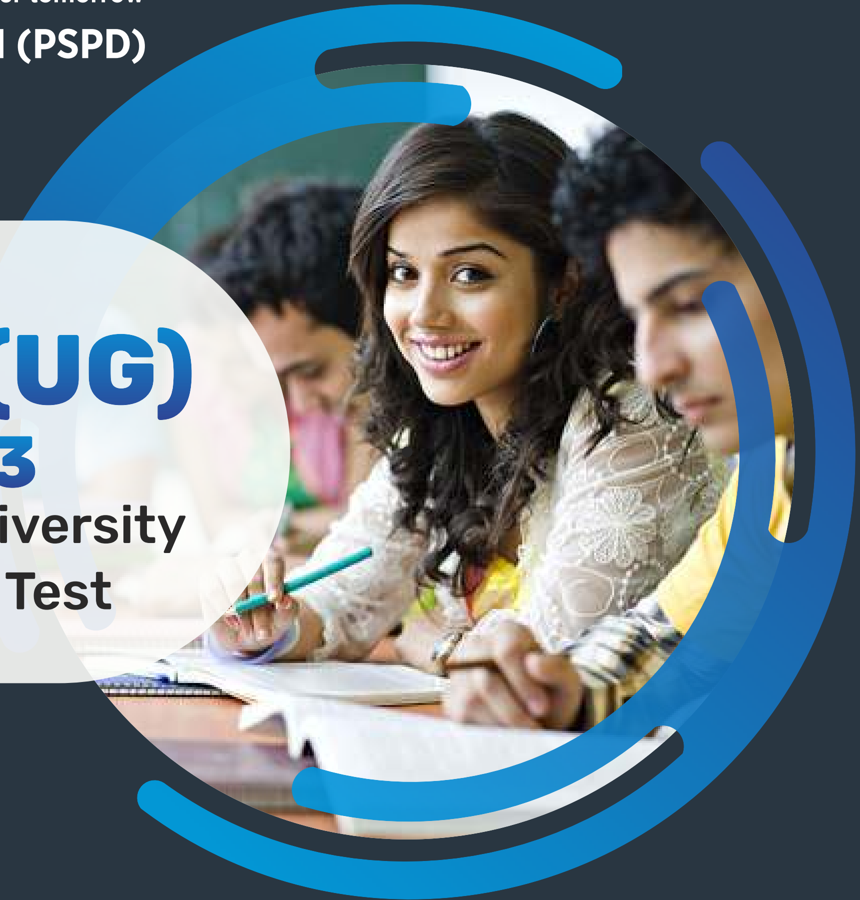

CUET (UG) 2023

Common University Entrance Test

About CUET (UG)

Common University Entrance Test (CUET) is the program that provides equal opportunity to all students from different Boards & different region.

- CUET, known as Common Universities Entrance Test (CUET), is a Computer Based All - India Test for admission to various Undergraduate Programmes in 44 Central Universities and other State Private + Deemed Universities of India.
- CUET (UG) is organized by National Testing Agency (NTA).
- Official Website: <www.samarth.cuet.ac.in> OR <www.cuet.nta.ac.in>

Points to Remember: CUET (UG) 2023

- Candidates can choose any Language/Domain Specific Subjects/General Test or a combination as per the requirements of the course in the specific University.
- The choice of Tests/Subjects depend on the course/s chosen by the candidate and the University/ies where admission is sought.
- A Candidate can take a maximum of **10 tests**.

S.No.	SECTION	NO. OF QUESTIONS	QUESTIONS TO ATTEMPT	DURATION
1.	SECTION-I (A+B)	50	40	45 Minutes
2.	SECTION-II	50/45	40/35	45 Minutes*
3.	SECTION-III	60	50	45 Minutes*

*Not yet announced by NTA.

- **Section IA – 13 Languages (As a medium and "Language")**

  Assamese | Bengali | English | Gujarati | Hindi | Kannada | Malayalam | Marathi | Odia | Punjabi | Tamil | Telugu | Urdu

- **Section IB – 20 Languages**

  Arabic | Bodo | Chinese | Dogri | French | German | Persian | Russian | Sindhi | Tibetan | Italian | Japanese | Kashmiri | Konkani | Maithili | Manipuri | Nepali | Santhali | Spanish | Sanskrit

- **Section II – 27 Domain-Specific Subjects**

  There are 27 Domains specific Subjects being offered under this Section. Candidate may choose a maximum of Six (06) Domains as desired by the applicable University/Universities.

- **Section III – General Test**

  General Knowledge, Current Affairs, General Mental Ability, Numerical Ability, Quantitative Reasoning (Simple application of basic mathematical concepts arithmetic/algebra geometry/mensuration/stat taught till Grade 8).

- Candidates, from any Stream (Arts / Commerce / Science), who are appearing in Class12th Examination in 2022-23 OR who have Passed the class 12th or equivalent examination, irrespective of their age can appear in the CUET (UG)–2023.
- Students of Science stream can explore some unique courses of B. Tech/ M. Tech / Bio-Tech courses through CUET exam at some renowned universities of India like DU / BHU etc.
- Candidates have to fulfil the age criteria if it is specified by a Particular University to which the candidate wishes to apply.

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  - **Huminities:** History, Political Science, Economics, Geography/Geology, Sociology*
  - **Other Subjects:** Physical Education, Computer Application*, Teaching Aptitude*, Psychology*, Sanskrit*
- **General Test** — General Test

* Availability of these subjects depends on number of students enrolled.

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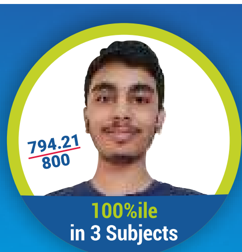

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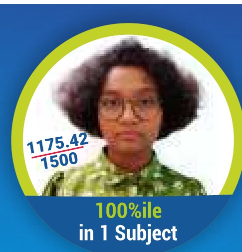

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