Solution | AHSEC-XII |Test No-02 |Vidyarthi & Shiksha

Pre-Board Examination : 2025-26

Sub : Physics

(The figures in the margin indicate full marks for the questions)

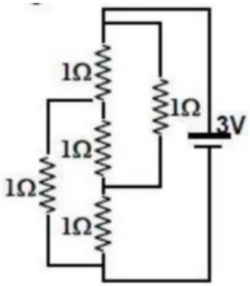
Time – 3 hours **Full marks-70**

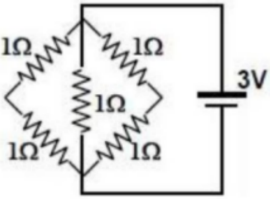
1. Answer following questions : 1x8=8

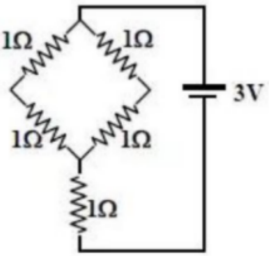
a Give SI unit and dimensional formula of absolute permitivity of vacuum . 1

b What is electrostatic shielding ? what is its use ? 1

c If P_1 , P_2 and P_3 be the power disipiated in the following figures , arreange them in ascending order 1



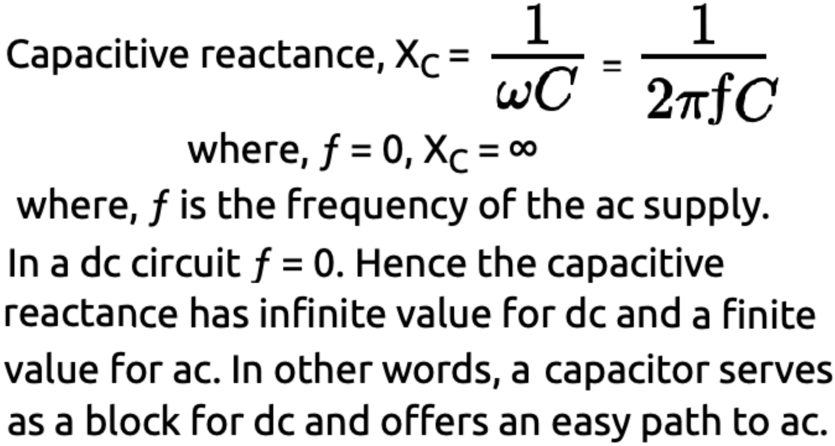




Ans The power dissipated in a resistor network is given by the formula $P = \frac{V^2}{R_{eq}}$, where $V = 3\text{V}$, $R_1 = 1\Omega$, $R_2 = 0.5\Omega$, and $R_3 = 2\Omega$:

- **P1**: $P_1 = \frac{V^2}{R_1} = \frac{(3\text{V})^2}{1\Omega} = \frac{9\text{V}^2}{1\Omega} = 9\text{W}$
- **P2**: $P_2 = \frac{V^2}{R_2} = \frac{(3\text{V})^2}{0.5\Omega} = \frac{9\text{V}^2}{0.5\Omega} = 18\text{W}$
- **P3**: $P_3 = \frac{V^2}{R_3} = \frac{(3\text{V})^2}{2\Omega} = \frac{9\text{V}^2}{2\Omega} = 4.5\text{W}$

The power dissipated in ascending order is $\mathbf{P_3 < P_1 < P_2}$

d	What is 1 tesla ? Give its relation with 1 gauss . 1
e	DC is blocked by capacitor but freely allowed by an inductor , explain why . 1
Ans	 Capacitive reactance, $X_C = \frac{1}{\omega C} = \frac{1}{2\pi f C}$ where, $f = 0$, $X_C = \infty$ where, f is the frequency of the ac supply. In a dc circuit $f = 0$. Hence the capacitive reactance has infinite value for dc and a finite value for ac. In other words, a capacitor serves as a block for dc and offers an easy path to ac.
f	Define 1 ampere . 1
g	Define 1 henry . 1
h	Draw the ray diagram showing the deviation of a ray of light produced by an equilateral prism . 1
2	Find the expression for Coulomb's law in the vector form . 2
3	Draw equipotential surface due to (i) a point charge (ii) an electric dipole . How much work is to be done in moving a point charge from one point to another over an equipotential surface . 2
4	Find expression for current through a conductor in terms of its drift velocity . 2
5	The number density of electrons in copper conductor is 8.5 x 10^{28} m^{-3}. How long an electron take to drift from one end of 3 m long wire to the other end ? The area of cross-section of the wire is

	$2.0 \times 10^{-6} m^2$ and it is carrying a current of 3.0 A. 2
Ans	Number density of free electrons in a copper conductor, $n = 8.5 \times 10^{28}\ m^{-3}$ Length of the copper wire, $l = 3.0$ m Area of cross-section of the wire, $A = 2.0 \times 10^{-6}\ m^2$ Current carried by the wire, $I = 3.0$ A, which is given by the relation, $I = nAeV_d$ Where, e = Electric charge = 1.6×10^{-19} C V_d = Drift velocity $= \frac{\text{Length of the wire}(l)}{\text{Time taken to cover } l(t)}$ $I = nAe\frac{l}{t}$ $t = \frac{nAel}{I} = \frac{3\times8.5\times10^{28}\times2\times10^{-6}\times1.6\times10^{-19}}{3.0}$ $= 2.7\times10^{4}\ s$
6	Explain how moving coil galvanometer can be converted into an ammeter . 2
7	Two moving coil meters, M_1 and M_2 have the following particulars: $R_1 = 10\ \Omega$, $N_1 = 30$, $A_1 = 3.6 \times 10^{-3}\ m^2$, $B_1 = 0.25$ T $R_2 = 14\ \Omega$, $N_2 = 42$, $A_2 = 1.8 \times 10^{-3}\ m^2$, $B_2 = 0.50$ T (The spring constants are identical for the two meters). Determine the ratio of (a) current sensitivity and (b) voltage sensitivity of M_2 and M_1 . 2

Ans

For moving coil meter M_1:	For moving coil meter M_2:
Resistance, $R_1 = 10\ \Omega$	Resistance, $R_2 = 14\ \Omega$
Number of turns, $N_1 = 30$	Number of turns, $N_2 = 42$
Area of cross-section, $A_1 = 3.6 \times 10^{-3}\ m^2$	Area of cross-section, $A_2 = 1.8 \times 10^{-3}\ m^2$
Magnetic field, $B_1 = 0.25$ T	Magnetic field, $B_2 = 0.50$ T
Spring constant $K_1 = K$	Spring constant, $K_2 = K$

(a) Current sensitivity of M_1 is given as: $I_{s1} = \frac{N_1 B_1 A_1}{K_1}$

Ancurrent sensitivity of M_2 is given as: $I_{s2} = \frac{N_2 B_2 A_2}{K_2}$

$$\therefore \frac{I_{s2}}{I_{s1}} = \frac{N_2 B_2 A_2}{N_1 B_1 A_1} = \frac{42 \times 0.5 \times 1.8 \times 10^{-3} \times K}{K \times 30 \times 0.25 \times 3.6 \times 10^{-3}} = 1.4$$

(b) Voltage sensitivity for M_2 is given as: $V_{s2} = \frac{N_2 B_2 A_2}{K_2 R_2}$

And, voltage sensitivity for M_1 is given as: $V_{s1} = \frac{N_1 B_1 A_1}{K_1 R_1}$

$$\therefore Ratio \quad \frac{I_{s2}}{V_{s1}} = \frac{N_2 B_2 A_2 K_1 R_1}{N_1 B_1 A_1 K_2 R_2}$$

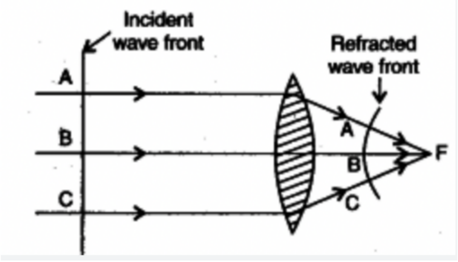
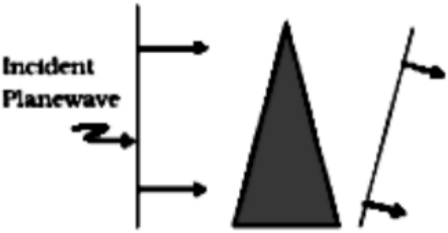
$$= \frac{42 \times 0.5 \times 1.8 \times 10^{-3} \times 10 \times K}{K \times 14 \times 30 \times 0.25 \times 3.6 \times 10^{-3}} = 1$$

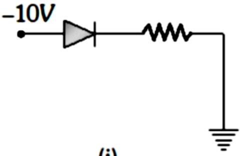
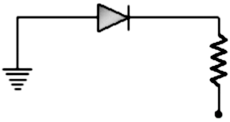
Hence, the ratio of voltage sensitivity of M_2 to M_1 is 1.

8 Find the expression for rotational emf . 2

Or

A pair of adjacent coils has a mutual inductance of 1.5 H. If the current in one coil changes from 0 to 20 A in 0.5 s, hat is the change of flux linkage with the

	other coil? 2
Ans	The **flux linkage** (ϕ) in a secondary coil is directly proportional to the current (I) flowing through the primary coil. The constant of proportionality is the **mutual inductance** (M). The formula for the change in flux linkage is: $\Delta\phi=M\Delta I$ $I_1=0A$ and $I_2=20A$ $\Delta I=I_2-I_1= 20A$ given mutual inductance $M = 1.5\ \mathrm{H}$ $\Delta\phi = 1.5\ \mathrm{H} \times 20\ \mathrm{A} = 30\ \mathrm{Wb}$
9	Draw the wavefront due to (i) refraction of light through a convex lens , for an object at infinity (ii) due to dispersion of light through a prism. 1+1 =2
Ans	(i) refraction of light through a convex lens , for an object at infinity  (ii) due to dispersion of light through a prism 

10	Define distance of closest approach . Estimate the distance of closest approach to the nucleus (Z = 80) if a 10 MeV α-particle before it comes momentarily to rest & reverses its direction.2
Ans	**Given,** $Z = 80,\ E_k = 8\text{MeV}$ $K = \frac{1}{4\pi\varepsilon_0}\frac{(Ze)(2e)}{r_0}$ $\Rightarrow \quad r_0 = \frac{1}{4\pi\varepsilon_0}\frac{(Ze)(2e)}{K} = \frac{2Ze^2}{4\pi\varepsilon_0 K}$ $r_0 = \frac{9\times10^9\times2\times80\times(1.6\times10^{-19})^2}{8\times10^6\times(1.6\times10^{-19})}$ $= \frac{18\times80\times1.6\times10^{-10}}{8\times10^6}\text{m} = 2.88\times10^{-14}\text{ m}$
11	Identify the bias in the figures below  (i)  (ii) In half wave rectifier, what is the output frequency if the input frequency is 50 Hz. What is the output frequency of a full wave rectifier for the same input frequency. 1+1=2
Ans	Ans- (i) Reverse biasing (ii) Forward biasing Input frequency = 50 Hz For a half-wave rectifier, the output frequency is equal to the input frequency. :Output frequency = 50 Hz For a full-wave rectifier, the output frequency is

twice the input frequency.

:Output frequency = 2 × 50 = 100 Hz

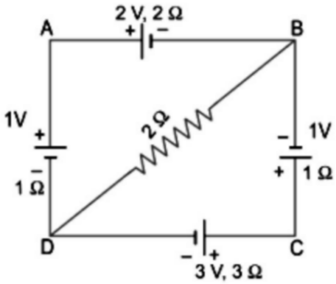
12 State Gauus's law ?

Using Gauss's law , find electric field due to point charge. 1+2= 3

Or

Find the expression for electric potential due to an electric dipole at an arbitrary point .   3

13 Find the potential difference between B and D



Ans

Applying Kirchhoff's second law to mesh BADB,

$-2(i - i_1) + 2 - 1 - 1.\ (i - i_1) + 2i_1 = 0$

$\Rightarrow 3i - 5i_1 = 1$ **...(i)**

Applying Kirchhoff's law to mesh DCBD,

$-3i + 3 - 1 - 1 \times i - 2i_1 = 0$

$\Rightarrow 4i + 2i_1 = 2 \ \Rightarrow 2i + i_1 = 1$ **...(ii)**

Multiplying equation (ii) with 5, we get

$10i + 5i_1 = 5$ **...(iii)**

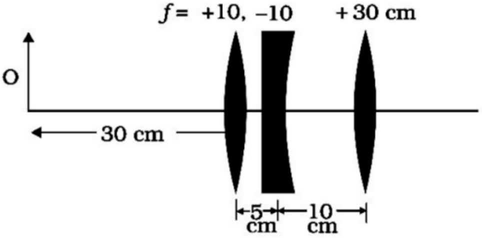
Adding (i) and (iii), we get

$i = \frac{6}{13}$ **A**

$i_1 = \frac{1}{13}$ **A**

14 Using Ampere's circuital law , find an expression

	magnetic field due to a solenoid . 3 Or Find the expression for torque acting on a rectangular coil , placed perpendicularly in a uniform magnetic field . 3
15	The magnetic field in a plane electromagnetic wave is given by $B_y = 2 \times 10^{-7} \sin (0.5\times10^{3}x+1.5\times10^{11}t)$ T (i) What is the wavelength and frequency of the wave? (ii) What is the amplitude of the electric field? (iii) Write an expression for the electric field. (iv) What is its direction of propagation ? 3 [Take $c = 3 \times 10^{8}$ m s^{-1}] Or Define displacement current . Find an expression for it. 3

Ans	By comparing the given equation with the standard wave equation $B_y = B_0 \sin(kx + \omega t)$, we identify: - **Magnetic field amplitude:** $B_0 = 2 \times 10^{-7}$ T - **wave number :** $k = 0.5 \times 10^3$ rad/m - **Angular frequency:** $\omega = 1.5 \times 10^{11}$ rad/s 1. **Wavelength (λ):** $\lambda = \frac{2\pi}{k} = \frac{2 \times 3.14}{0.5 \times 10^3}$ $\lambda \approx 0.01256 \text{ m} = 1.26 \text{ cm}$ 2. **Frequency (f):** $f = \frac{\omega}{2\pi} = \frac{1.5 \times 10^{11}}{2 \times 3.14}$ $f \approx 2.39 \times 10^{10} \text{ Hz} \approx 23.9 \text{ GHz}$ 3. $E_0 = cB_0$ $E_0 = (3 \times 10^8 \text{ m/s}) \times (2 \times 10^{-7} \text{ T}) = 60 \text{ V/m}$ Since $\vec{B}$ is along the y-axis and propagation is along $-x$ axis , the electric field must be along the **z-axis** $E_z = 60 \sin(0.5 \times 10^3 x + 1.5 \times 10^{11} t)$ V/m
16	Find the position of the image formed by the lens combination given in the diagram below  3

Ans

For the first convex lens of focal length $+10cm$

we have, $\dfrac{1}{v_1} - \dfrac{1}{u_1} = \dfrac{1}{f_1}$

$$\Rightarrow \qquad \frac{1}{v_1} = \frac{1}{10} - \frac{1}{30} = \frac{1}{15}$$

$$\Rightarrow \qquad v_1 = 15cm$$

This image formed by the first lens acts as an object for the second lens of focal length $-10cm$. It will be at a distance of $(15-5) = 10cm$ to the right of the second lens.

This real image obtained from the first lens will serve as a virtual object for the second lens, which means that the rays appear to come from it.

So, for the second lens, $\dfrac{1}{v_2} - \dfrac{1}{u_2} = \dfrac{1}{f_2}$

$$\Rightarrow \qquad \frac{1}{v_2} - \frac{1}{10} = -\frac{1}{10} \qquad \Rightarrow v_2 = \infty$$

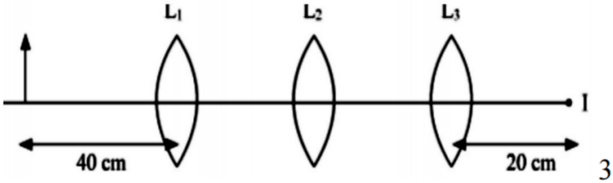
The virtual image is formed at an infinite distance to the right of the second lens. This will act as an object for the third lens. So,

$\therefore$ This final image is formed at a distance of 30 cm to the right of the third lens.

$$\frac{1}{v_3} - \frac{1}{u_2} = \frac{1}{f_3} \Rightarrow \frac{1}{v_3} - \frac{1}{\infty} = \frac{1}{30} \Rightarrow v_3 = 30cm$$

Or

You are given three lenses L_1, L_2 and L_3 each of focal length 20 cm. A object is kept at 40 cm in front of L_1, as shown. The final real image is formed at the focus I of L_3. Find the separation between L_1,

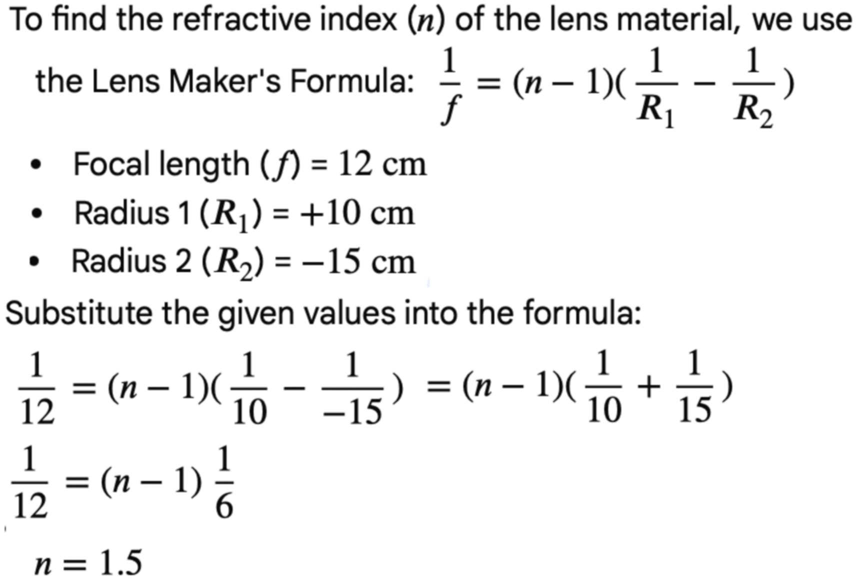
	L_2 and L_3.  3
Ans	Given $f_1 = f_2 = f_3 = 20cm$ For lens L_1 $u_1 = -40cm$ By lens formula $\frac{1}{v_1} - \frac{1}{u_1} = \frac{1}{f_1} \Rightarrow \frac{1}{v_1} = \frac{1}{20} - \frac{1}{-40}$ $\Rightarrow v_1 = 40\,cm$ For lens L_3 $f_3 = 20$ cm, $v_3 = 20$ cm, $u_3 = ?$ By lens formula, $\frac{1}{v_3} - \frac{1}{u_3} = \frac{1}{f_3} \Rightarrow \frac{1}{20} - \frac{1}{u_3} = \frac{1}{20}$ $\Rightarrow \frac{1}{u_3} = 0 \Rightarrow u_3 = \infty$ Thus lens L_2 should produce image at infinity. Hence, for L_2, its objective should be at focus. The image formed by lens L_1 is at 40cm on the right side of lens L_1 which lies at 20cm left of lens L_2 i.e., focus of lens L_2. Hence, the distance between L_1 and $L_2 = 40 + 20 = 60cm$. As the image formed by lens L_2 lies at infinity, then, the distance between lens L_2 and L_3 does not matter.
17	(i) The radii of curvature of the faces of a double convex lens are 10 cm and 15 cm. If focal length of the lens is 12 cm, find the refractive index of the

material of the lens.How its refractive index will change if it is taken to a liquid of refractive index of 1.3 . 3

Or

Find the expression for the equivalent focal length of the combination of two thin lenses in contact. 3

Ans



To find the refractive index (n) of the lens material, we use the Lens Maker's Formula: $\frac{1}{f} = (n-1)(\frac{1}{R_1} - \frac{1}{R_2})$

- Focal length (f) = 12 cm
- Radius 1 (R_1) = +10 cm
- Radius 2 (R_2) = −15 cm

Substitute the given values into the formula:

$$\frac{1}{12} = (n-1)(\frac{1}{10} - \frac{1}{-15}) = (n-1)(\frac{1}{10} + \frac{1}{15})$$

$$\frac{1}{12} = (n-1)\,\frac{1}{6}$$

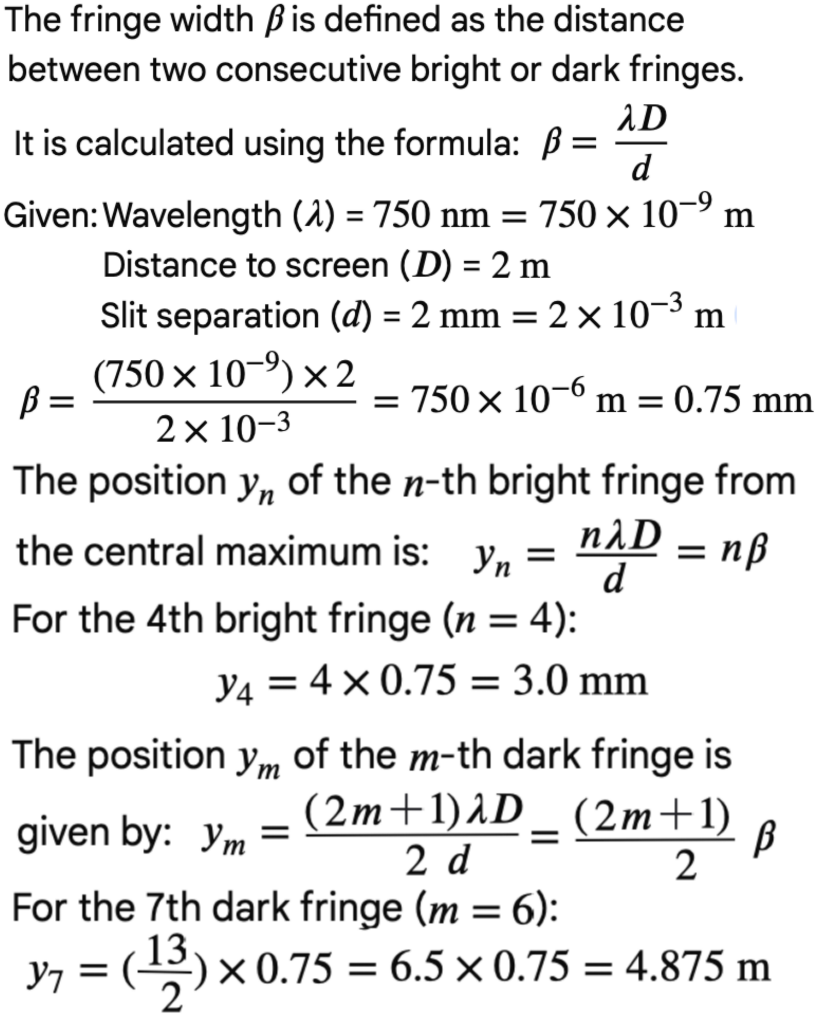
$$n = 1.5$$

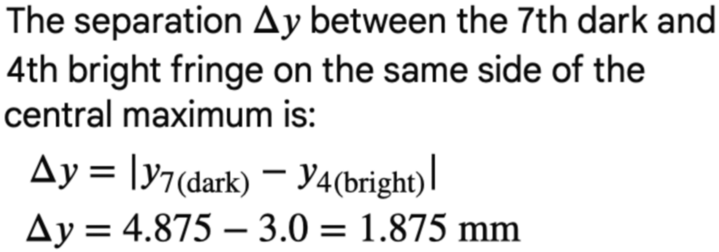
Determine Change in Liquid

When immersed in a liquid, the effective refractive index becomes the relative refractive index (n_{rel}), defined as the ratio of the lens material index to the liquid's index:

$$n_{rel} = \frac{n_{lens}}{n_{liquid}} = \frac{1.5}{1.3} \approx 1.1538$$

Since 1.1538<1.5, the refractive index of the lens **relative to its surroundings decreases**. This

	results in an increase in the focal length of the lens.
18	Establish Snell's law using Huygen's principle. 3 Or In a Young's double slit experiment, the slits are 2mm apart and a light of wavelengths 750nm is used . The screen is at a distance 2 m from the slits .Calculate the fringewidth and the seperation between 7th dark and 4th brigth fringe . 3
Ans	 The fringe width β is defined as the distance between two consecutive bright or dark fringes. It is calculated using the formula: $\beta = \frac{\lambda D}{d}$ Given: Wavelength (λ) = $750\ \text{nm} = 750 \times 10^{-9}\ \text{m}$ Distance to screen (D) = $2\ \text{m}$ Slit separation (d) = $2\ \text{mm} = 2 \times 10^{-3}\ \text{m}$ $\beta = \frac{(750 \times 10^{-9}) \times 2}{2 \times 10^{-3}} = 750 \times 10^{-6}\ \text{m} = 0.75\ \text{mm}$ The position y_n of the n-th bright fringe from the central maximum is: $y_n = \frac{n\lambda D}{d} = n\beta$ For the 4th bright fringe ($n = 4$): $y_4 = 4 \times 0.75 = 3.0\ \text{mm}$ The position y_m of the m-th dark fringe is given by: $y_m = \frac{(2m+1)\lambda D}{2\ d} = \frac{(2m+1)}{2}\ \beta$ For the 7th dark fringe ($m = 6$): $y_7 = (\frac{13}{2}) \times 0.75 = 6.5 \times 0.75 = 4.875\ \text{m}$

	 The separation Δy between the 7th dark and 4th bright fringe on the same side of the central maximum is: $\Delta y = \lvert y_{7(\text{dark})} - y_{4(\text{bright})} \rvert$ $\Delta y = 4.875 - 3.0 = 1.875$ mm
19	(i) The ground state energy of hydrogen atom is -13.6 eV. What are the kinetic and potential energies of electron in this state? (ii) What are the two limitations of the Rutherford's atomic model? 1+2=3
Ans	Ans-For an electron orbiting a nucleus under a Coulomb force (an inverse-square law),the total energy is the sum of kinetic and potential components: E=K+U According to the theorem, for this system: K= −E and U=2E The given ground state energy is E = −13.6eV Substituting this into the kinetic energy relation: K=−(−13.6eV) = +13.6eV The potential energy: U = 2×(−13.6eV)= −27.2eV The negative sign indicates that the electron is in a bound state within the electrostatic field of the proton.
	Or (i) A hydrogen atom initially in the ground state absorbs a photon which excites it to the n- 4 level. Determine the wavelength of the photon. 2

(ii) The radius of innermost electron orbit of a hydrogen atom is 5.3×10^{-11}m. Determine its radius in n = 4 orbit. 1

Ans

(i) The wavelength λ of the absorbed photon is given by the Rydberg formula for hydrogen:

$$\frac{1}{\lambda} = R_H\left(\frac{1}{n_1^2} - \frac{1}{n_2^2}\right)$$

Where $R_H \approx 1.097\times10^7\ \mathrm{m}^{-1}$ is the Rydberg constant

Substitute the values into the formula:

$$\frac{1}{\lambda} = 1.097\times10^7\left(\frac{1}{1^2} - \frac{1}{4^2}\right) = 1.097\times10^7\left(1 - \frac{1}{16}\right)$$

$$\approx 1.028\times10^7\ \mathrm{m}^{-1}$$

$$\lambda = \frac{1}{1.028\times10^7} \approx 9.72\times10^{-8}\ \mathrm{m} \approx \mathbf{972\ Å}$$

(ii) The radius of the innermost orbit (where $n = 1$) is given as $r_1 = 5.3\times10^{-11}$m

According to Bohr's model, the radius of the n^{th} orbit (r_n) of a hydrogen atom is $r_n = n^2 \times r_1$

where n is principal quantum number

Substitute $n = 4$ and $r_1 = 5.3\times10^{-11}$m

$$r_4 = 4^2 \times (5.3\times10^{-11}\mathrm{m}) = 8.48\times10^{-10}\mathrm{m}$$

20 The neutron separation energy is defined as the energy required to remove a neutron from the nucleus. Obtain the neutron separation energy of the nuclei $_{20}\mathbf{Ca}^{41}$ from the following data: 3

m ($_{20}\mathbf{Ca}^{40}$) = 39.962591 u

m ($_{20}\mathbf{Ca}^{41}$) = 40.962278 u and m_n = 1.008665 u

Ans	Neutron separation energy (S_n) is the minimum energy required to remove a neutron from a nucleus. For $^{41}_{20}\mathrm{Ca}$, the process is: $^{41}_{20}\mathrm{Ca} \rightarrow {}^{40}_{20}\mathrm{Ca} + {}^{1}_{0}\mathrm{n}$ The mass defect (Δm) is the difference between the mass of the products and the mass of the original nucleus. $\Delta m = [m({}^{40}_{20}\mathrm{Ca}) + m_n] - m({}^{41}_{20}\mathrm{Ca})$ $= [39.962591\ \mathrm{u} + 1.008665\ \mathrm{u}] - 40.962278\ \mathrm{u}$ $\Delta m = 0.008978\ \mathrm{u}$ $S_n = \Delta m \times 931.5\ \mathrm{MeV/u}$ $= 0.008978\ \mathrm{u} \times 931.5\ \mathrm{MeV/u} \approx 8.363\ \mathrm{MeV}$
	Or (i) Write down the expression for the radius of a nucleus . (ii) Two nuclei have mass numbers in the ratio 27 : 125. What is the ratio of their nuclear radii? (ii) Prove that nuclear density of a nucleus is constant . 3
Ans	$\frac{R_1}{R_2} = \left(\frac{A_1}{A_2}\right)^{1/3} = \left(\frac{27}{125}\right)^{1/3} = \frac{3}{5}$
21	Find the expression for impedence of LCR circuit . . The figure shows a series LCR circuit with L = 5.0 H, C = 80μF, R=40 Ω connected to a variable frequency 240 V source. Calculate resonant

	frequency and the current at resonance . 3+2 = 5
Ans	**(i) We know** **ω_r = Angular frequency at resonance** $\omega_r = \frac{1}{\sqrt{LC}} = \frac{1}{\sqrt{5\times 80\times 10^{-6}}} = 50 \text{ rad/s}$ (*ii*) Current at resonance $I_{rms} = \frac{V_{rms}}{R} = \frac{240}{40} = 6 \text{ A}$ (*iii*) V_{rms} across capacitor $V_{rms} = I_{rms}\ X_C$ $= 6\times \frac{1}{50\times 80\times 10^{-6}} = \frac{6\times 10^6}{4\times 10^3} = 1500 \text{ V}$
	Or (i) Draw a labelled diagram of a step-up transformer. Obtain the ratio of secondary to primary voltage in terms of number of turns and currents in the two coils. (ii) A power transmission line feeds input power at 2200 V to a step-down transformer with its primary windings having 3000 turns. Find the number of turns in the secondary to get the power output at 220 V. 3+2 =5

Ans

V_p=2200 V V_s = 220 V

N_p = 3000 N_s = ?

$$\frac{V_s}{V_p} = \frac{N_s}{N_p} \Rightarrow \frac{220}{2200} = \frac{N_s}{3000}$$

$$N_s = \frac{220 \times 3000}{2200} = 300$$

22

(i) Write the Einstein's photo electric equation .
(ii) A proton and an alpha particle are accelerated through the same potential. Which one of the two has greater de Broglie wavelength ?t
(iii) Mention the outcomes of Hallwachs' and Lenerd's experiment graphically .
1½+1½+2=5

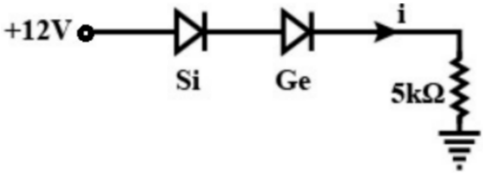
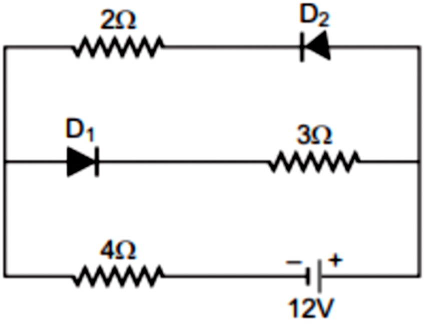
Or

(i) The following table gives the values of work functions for a few sensitive metals.

S. No.	Metal	Work function(eV)
1.	Na	1.92
2.	K	2.15
3.	Mo	4.17

If each of these metals is exposed to radiations of wavelength 3300nm, which of these will not exit Photo-electrons and why?
(ii) Give the photon picture of the electromagnetic waves.

Ans	Energy (E) of the incident radiation using the formula: $E = \frac{hc}{\lambda}$ $h = 6.63 \times 10^{-34}$ J s (Planck's constant) $c = 3 \times 10^{8}$ m/s (Speed of light) $\lambda = 3300 \text{ nm} = 3300 \times 10^{-9}$ m $E = \frac{6.63 \times 10^{-34} \times 3 \times 10^{8}}{3300 \times 10^{-9}} \approx 6.027 \times 10^{-20}$ J $E(\text{in eV}) = \frac{6.027 \times 10^{-20}}{1.6 \times 10^{-19}} \approx \mathbf{0.376}$ eV Photoelectric emission only occurs if the energy of the incident photon (E) is greater than or equal to the work function (ϕ_0) of the metal ($E \geq \phi_0$). Comparing the calculated energy (0.376 eV) with the given work functions: • **Na**: 1.92 eV > 0.376 eV • **K**: 2.15 eV > 0.376 eV • **Mo**: 4.17 eV > 0.376 eV **None of the metals (Na, K, and Mo) will emit photoelectrons.** This is because the energy of the incident radiation (0.376eV) is significantly **less than the work function** of all three metals.
23	(i) Write the distinguishing features between conductors, semiconductors and insulators on the basis of energy band diagrams. Draw their energy band diagrams . (ii) If the knee voltage of Si and Ge diodes are 0.7 V and 0.3 V respectively , then find the current through 5 KΩ resistor

	 3+2=5
Ans	Writing the voltage equation $12 - V_{Si} - V_{Ge} - i \times 5000 = 0$ $\Rightarrow 12 - 0.7 - 0.3 - 5000\,i = 0$ $\Rightarrow 5000\,i = 12 - 1 = 11$ $\Rightarrow i = 11/5000 = 0.0022$ A = 2.2 mA
	Or (i) Explain briefly with the help of necessary diagrams, the forward and the reverse biasing of a p-n junction diode. Also draw their characteristic curves in the two cases. (ii) The circuit shown in the figure has two oppositely connected ideal diodes connected in parallel. Find the current flowing through each diode in the circuit. 
Ans	D_1 is forward biased and D_2 is reversed biased , so no current will flow through through D_2 . Current in the circuit , $i = 12/(4+3) = 12/7 = 1.714$ A