Marking Scheme Strictly Confidential (For Internal and Restricted use only) Senior School Certificate Examination, 2023 SUBJECT NAME PHYSICS [PAPER CODE 55(B)]	
General Instructions: -	
1	You are aware that evaluation is the most important process in the actual and correct assessment of the candidates. A small mistake in evaluation may lead to serious problems which may affect the future of the candidates, education system and teaching profession. To avoid mistakes, it is requested that before starting evaluation, you must read and understand the spot evaluation guidelines carefully.
2	**"Evaluation policy is a confidential policy as it is related to the confidentiality of the examinations conducted, Evaluation done and several other aspects. Its' leakage to public in any manner could lead to derailment of the examination system and affect the life and future of millions of candidates. Sharing this policy/document to anyone, publishing in any magazine and printing in News Paper/Website etc may invite action under various rules of the Board and IPC."**
3	Evaluation is to be done as per instructions provided in the Marking Scheme. It should not be done according to one's own interpretation or any other consideration. Marking Scheme should be strictly adhered to and religiously followed. **However, while evaluating, answers which are based on latest information or knowledge and/or are innovative, they may be assessed for their correctness otherwise and due marks be awarded to them. In class-X, while evaluating two competency-based questions, please try to understand given answer and even if reply is not from marking scheme but correct competency is enumerated by the candidate, due marks should be awarded.**
4	The Marking scheme carries only suggested value points for the answers These are in the nature of Guidelines only and do not constitute the complete answer. The students can have their own expression and if the expression is correct, the due marks should be awarded accordingly.
5	The Head-Examiner must go through the first five answer books evaluated by each evaluator on the first day, to ensure that evaluation has been carried out as per the instructions given in the Marking Scheme. If there is any variation, the same should be zero after delibration and discussion. The remaining answer books meant for evaluation shall be given only after ensuring that there is no significant variation in the marking of individual evaluators.
6	Evaluators will mark(√) wherever answer is correct. For wrong answer CROSS 'X" be marked. Evaluators will not put right (✓) while evaluating which gives an impression that answer is correct and no marks are awarded. **This is most common mistake which evaluators are committing.**
7	If a question has parts, please award marks on the right-hand side for each part. Marks awarded for different parts of the question should then be totaled up and written in the left-hand margin and encircled. This may be followed strictly.
8	If a question does not have any parts, marks must be awarded in the left-hand margin and encircled. This may also be followed strictly.
9	If a student has attempted an extra question, answer of the question deserving more marks should be retained and the other answer scored out with a note **"Extra Question"**.
10	No marks to be deducted for the cumulative effect of an error. It should be penalized only once.
11	A full scale of marks 0-70 (example 0 to 80/70/60/50/40/30 marks as given in Question Paper) has to be used. Please do not hesitate to award full marks if the answer deserves it.

12	Every examiner has to necessarily do evaluation work for full working hours i.e., 8 hours every day and evaluate 20 answer books per day in main subjects and 25 answer books per day in other subjects (Details are given in Spot Guidelines).This is in view of the reduced syllabus and number of questions in question paper.
13	Ensure that you do not make the following common types of errors committed by the Examiner in the past:- ● Leaving answer or part thereof unassessed in an answer book. ● Giving more marks for an answer than assigned to it. ● Wrong totaling of marks awarded on an answer. ● Wrong transfer of marks from the inside pages of the answer book to the title page. ● Wrong question wise totaling on the title page. ● Wrong totaling of marks of the two columns on the title page. ● Wrong grand total. ● Marks in words and figures not tallying/not same. ● Wrong transfer of marks from the answer book to online award list. ● Answers marked as correct, but marks not awarded. (Ensure that the right tick mark is correctly and clearly indicated. It should merely be a line. Same is with the X for incorrect answer.) ● Half or a part of answer marked correct and the rest as wrong, but no marks awarded.
14	While evaluating the answer books if the answer is found to be totally incorrect, it should be marked as cross (X) and awarded zero (0)Marks.
15	Any un assessed portion, non-carrying over of marks to the title page, or totaling error detected by the candidate shall damage the prestige of all the personnel engaged in the evaluation work as also of the Board. Hence, in order to uphold the prestige of all concerned, it is again reiterated that the instructions be followed meticulously and judiciously.
16	The Examiners should acquaint themselves with the guidelines given in the "**Guidelines for spot Evaluation**" before starting the actual evaluation.
17	Every Examiner shall also ensure that all the answers are evaluated, marks carried over to the title page, correctly totaled and written in figures and words.
18	The candidates are entitled to obtain photocopy of the Answer Book on request on payment of the prescribed processing fee. All Examiners/Additional Head Examiners/Head Examiners are once again reminded that they must ensure that evaluation is carried out strictly as per value points for each answer as given in the Marking Scheme.

MARKING SCHEME: PHYSICS(042)			
Code: 55(B)			
Q. No.	**VALUE POINTS/EXPECTED ANSWERS**	**Marks**	**Total Marks**
	SECTION A		
1.	(d) Lost 5×10^{7} electrons	1	1
2.	(b) 4	1	1
3.	(b) remain at rest	1	1
4.	(c) 1.6	1	1
5.	(d) Shape of loop	1	1
6.	(a) $\frac{1}{\sqrt{2}}$	1	1
7.	(d) $\frac{evr}{2}$	1	1
8.	(c) Inserting an iron core in a coil decrease its self inductance	1	1
9.	(c) 7.2 V m^{-1}	1	1
10.	(a) real and inverted, 30 cm in front of the mirror	1	1
11.	(d) 3.0×10^{-19} J	1	1
12.	(a) + 0.97eV	1	1
13.	(b) 146	1	1
14.	(c) Sn	1	1
15.	(c) $n_e = n_h = n_i$	1	1
16.	(a) [A]- True [R]- True and correct explanation	1	1
17.	(a) [A]- True [R]- True and correct explanation	1	1
18.	(d) [A]- False [R]- False	1	1
	SECTION B		
19.	Finding the emf 1 Finding the internal resistance 1 V = E-Ir 19 = E - 1.r ___________(i) 17 = E - 3.r ___________(ii) 2r = 2 $\Rightarrow$ r = 1 Ω E = 19+1 = 20V	 ½ ½ ½ ½	2

20.	**(a)** Meaning of displacement current ½ Explanation 1 Example ½ The current due to change in electric field / flux is called displacement current. During charging and discharging of a capacitor the electric field between the plates of the capacitor changes with time which results in displacement current. $$I_d = \varepsilon_o \frac{d\phi_E}{dt}$$ Displacement current is produced between the plates of a capacitor during it charging and discharging of capacitor. **OR** **(b)** Range of wavelength for IR wave ½ Explanation of heat wave 1½ Range of infrared wave is 1 mm to 700 nm. Because water molecules present in most of the materials readily absorb infrared waves. After absorption their thermal motion increases. They heat up and heat their surroundings.	½ 1 ½ ½ 1½	2
21.	Finding refractive index of water 1 Finding the speed of light in water 1 $\mu = \frac{real\ depth}{\text{apparent}\ depth}$ $\mu = \frac{9.6}{7.2} = \frac{4}{3}$ $v = \frac{c}{\mu}$ $= \frac{3\times10^8}{4}\times3 = 2.25\times10^8\ \text{ms}^{-1}$	½ ½ ½ ½	2

<table>
<tr><td>22.</td><td>
Consecutive of immersing a lens in a medium
(a) $n_2 > n_1$ 1
(b) $n_2 = n_1$ 1

Focal length of a lens in a medium
$\frac{1}{f} = (\frac{n_1}{n_2} - 1)(\frac{1}{R_1} - \frac{1}{R_2})$
$n_1 =$ refractive index od lens
$n_2 =$ refractive index of medium
(a) $n_2 > n_1$
f becomes negative
The convex lens will behave as a concave lens/diverging lens

(b) $n_2 = n_1$
$\frac{1}{f} = 0$
$f = \infty$
Lens will be invisible in the medium / behave as a glass plate.
</td><td>1

1</td><td>2</td></tr>
<tr><td>23.</td><td>
Bohr's Postulates 1½
Emission of photon by excited H-atom ½

(i)An electron in an atom revolve in certain stable orbit without emission of radiant energy.
(ii) The electron revolves around the nucleus only in those orbits for which the angular momentum is some integral multiple of $\frac{h}{2\pi}$.
i.e. $L = nh/2\pi$
(iii)When an electron jumps from excited state of energy E_2 to the lower state of energy E_1 photon having energy $h\nu = E_2 - E_1$ is emitted.
When electron jumps from higher energy level to lower energy level the energy is released in the form of photon is emitted.
</td><td>1½

½</td><td>2</td></tr>
<tr><td>24.</td><td>
Definition of
(i) Knee voltage 1
(ii) Reverse saturation current 1

(i) In forward bias of a p-n junction diode the external applied voltage beyond which the current begins to flow rapidly is called Knee Voltage.
</td><td>1</td><td></td></tr>
</table>

	(ii) In reverse bias of a p-n junction diode the current is due to minority carriers which is not very much dependent on the applied voltage. This current is called reverse saturation current.	1	2
25.	**(a)** Effect on potential barrier and width of depletion region in (i) Forward bias ½ + ½ (ii)Reverse bias ½ + ½ (i) In forward bias Potential barrier decreases Width of depletion layer decreases (ii) In reverse bias Potential barrier increases Width of depletion layer increases **OR** **(b)** Explanation of doping 1 Necessity of doping 1 Doping is the process of adding impurity atom in an intrinsic semiconductor deliberately. An intrinsic semiconductor has low conductivity. By doping, conductivity of semiconductor is increased	 ½ ½ ½ ½ 1 1	2
	SECTION C		
26.	Factors on which electrical conductivity depends 1½ Obtaining relation between current density and conductivity 1½ Electric conductivity $\sigma = \dfrac{ne^2\tau}{m}$ Factors on which conductivity depends (i) concentration of charge carrier (ii) relaxation time (iii) mass of charge carrier In a conductor of resistance *R*, the potential difference *V* and Current *I*. $V = I R$ $El = I\rho \dfrac{l}{A}$ $j = \dfrac{I}{A} = \dfrac{E}{\rho}$ $j = \sigma E$	 ½ ½ ½ ½ ½ ½	3

27.

> (i) Difference between resistance and reactance of a series LCR circuit 1
> (ii) Explanation of how a capacitor blocks a direct current and an inductor opposes an alternating current 1+ 1

(i)

Resistance	**Reactance**	
(a) Power is dissipated in the form of heat.	No power is dissipated	
(b) Voltage and current remain in phase	The phase difference between voltage and current is $\frac{\pi}{2}$.	1

Any other one point

(ii) For a capacitor

Reactance, $X_c = \frac{1}{\omega C} = \frac{1}{2\pi f C}$ ½

For direct current frequency f=0 $\therefore X_c = \infty$ ½

Hence direct current is blocked by a capacitor.

For an inductor

Reactance, $X_L = \omega L = 2\pi f L$ ½

With the increase in frequency of alternating current X_L increases, hence alternating current is opposed by an inductor. ½

OR

(b)

> Showing that the current lags behind the voltage in phase by π/2 in pure inductor 3

Let the voltage across the source be

$$V = V_m \sin \omega t \quad \text{\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(i)}$$ ½

Using the Kirchoff's loop rule,

$$V - L\frac{di}{dt} = 0 \quad \text{\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(ii)}$$ ½

Where $L\frac{di}{dt}$ is the self induced emf in the inductor and L is self inductance of the inductor. The negative sign follows from Lenz's law.

From(ii)

$$\frac{di}{dt} = \frac{V}{L} = \frac{V_m}{L}\sin \omega t \quad \text{\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(iii)}$$ ½

From(iii) it follows that current i as a function of time must be such that $\frac{di}{dt}$ is in phase of the source voltage.

	Integrating (iii) i = $\frac{V_m}{\omega L}\cos\omega t$ + constant_______(iv) since emf oscillates symmetrical about zero, the current it sustains also oscillates symmetrically about zero. Therefore time independent current(constant term in eq. iv) is zero Therefore from eq. (iv) $i = \frac{V_m}{\omega L}\cos\omega t$ $i = i_m \sin(\omega t - \frac{\pi}{2})$ ______(v) Current amplitude $i_m = \frac{V_m}{\omega L} = \frac{V_m}{X_L}$ i lags V by $\frac{\pi}{2}$	½ ½ ½	3
28.	Definition of self-inductance 1 Expression for self inductance of a long solenoid 2 It is defined as magnetic flux through a solenoid when unit current passes through the solenoid. $L = \frac{\phi}{I}$ Flux linkage through coil of N turns $N\phi_B \propto I$ _______(i) $N\phi_B = LI$ _______(ii) Induced emf $\varepsilon = -N\frac{d\phi_B}{dt} = -NL\frac{dI}{dt}$ _______(iii) $N\phi_B = N\frac{A\mu_o NI}{l}$ _______(iv) From eq. (ii) and (iv) $L = \mu_o \frac{N^2 A}{l}$ _______(v)	1 ½ ½ ½ ½	3
29.	Einstein's Photoelectric equation 1 Explanation for observations 2 Einstein's Photoelectric equation $E_{K\max} = h\nu - \phi_o = h(\nu - \nu_o)$ Observations: (i) Kinetic energy of emitted electron depends upon frequency and is independent of intensity of incident radiation.	1 ½	

	(ii) there exists a threshold energy/cut off frequency below which no electron emission is possible As $E_{K\max} > 0$ $\therefore \nu > \nu_o$ (iii)The photoelectric current depends upon intensity of incident radiation as more the intensity, more is the quanta incident and hence more photoelectrons emitted, thus more is photoelectric current. (iv) Photoelectric emission is instantaneous, as absorption of quantum by an electron is instantaneous and therefore the emission of electrons is also instantaneous.	½ ½ ½	3
30.	**(a)** Explanation of two main features of ΔE_{bn} 1+1 Two conclusions based on above two features 1 (i) Binding energy per nucleon ΔE_{bn} is $\approx 8MeV$ for nuclei of middle mass number. It is independent of size of nuclei (ii) ΔE_{bn} is lower for very light nuclei $(A \leq 10)$ and very heavy nuclei $(A \geq 170)$ First feature tells us about the strength of nuclear forces. Second feature provide the clues about the stability of the nuclei. **Any other features of the graph** **OR** **(b)** Observations Geiger Marsden experiment 1 Conclusion drawn about the structure of atom 2 Observations: (i) Most of the α-particle passed straight. (ii) A few α-particles scattered at small angle and very few scattered at an angle $\theta > 90^o$ Conclusions: (i) The positive charge and the mass of the atom are concentrated at the nucleus of the atom. (ii) Scattering of α- particle was due to the Coulomb repulsive force between the positively charged α- particle and the nucleus.	1 1 ½ ½ ½ ½ 1 1	3

	SECTION D		
31.	**(a)**		
	(i) Electric dipole-definition 1 Derivation of torque 2 (ii) Calculation of torque 2		
	(i) Electric Dipole:- An arrangement of two equal and opposite charges separated by a small distance.	1	
	Consider an electric dipole of charges $\pm q$ and length 2ℓ kept in a uniform electric field E. The dipole makes an angle θ with the uniform electric field. Forces on two charges due to uniform electric field, qE and $-qE$ are in opposite directions. The distance between the line of action of two force is $2l\sin\theta$. Torque due to the couple	½	
	$\tau =$force $\times$ perpendicular distance between the two force	½	
	$\tau = qE(2l\sin\theta)$	½	
	$\tau = q(2l).E\sin\theta = pE\sin\theta$	½	
	(ii)		
	$\tau = pE\sin\theta$	½	
	$\tau = 6\times10^{-9}\times4\times10^{4}\times\sin 30^{o}$	½	
	$\tau = 1.2\times10^{-4}\,\text{Nm}$	1	
	OR		
	(b)		
	(i) Statement of Gauss's law in electrostatics. 1 Derivation of electric field due to a uniformly charged thin spherical shell (i) Outside the shell 1 (ii) Inside the shell 1 (ii) Calculation of electric flux. 2		
	(i) Gauss's law in electrostatics states that net electric flux linked with a closed surface equals $\frac{1}{\varepsilon_o}$ times the charge enclosed by the surface.		
	Consider a conducting spherical shell of radius R, charge given to it is q. **(i)** For point P outside the shell construct a concentric sphere(Gaussian surface) of radius r (r>R)		
	Electric flux linked with the Gaussian sphere $\phi_E = E4\pi r^2$ ___________(i)	1	
	Charge enclosed by the Gaussian spherical surface = q Gauss's Law		

	$\phi_E = \dfrac{q}{\varepsilon_o}$ $E 4\pi r^2 = \dfrac{q}{\varepsilon_o}$ $E = \dfrac{q}{4\pi\varepsilon_o r^2}$ **(ii)** For a point inside the shell Charge enclosed by the Gaussian spherical surface of radius r' (r'<R)=0 $\therefore E 4\pi r'^2 = \dfrac{q_{in}}{\varepsilon_o} = 0$ $E = 0$ (ii) Net electric flux linked with the cube $\phi'_{Enet} = \dfrac{q}{\varepsilon_o}$ Electric flux linked with one face $\phi'_E = \dfrac{\phi_{Enet}}{\varepsilon_o} = \dfrac{q}{6\varepsilon_o}$ $\phi'_E = \dfrac{4\times10^{-6}}{6\times8.854\times10^{-12}}$ $= 7.5\times10^4\ Nm^2C^{-1}$	½ ½ ½ ½ ½ ½ 1	5
32.	**(a)** (i) Obtaining expression of force/length — 1½ Definition of one ampere — 1 Condition of force to be attractive — ½ (ii) Calculation of magnetic field — 1½ Effect on magnitude of magnetic field when radius is halved — ½ **(i)** Consider two long parallel conductors P and Q, distance r apart carrying currents I_1 and I_2 respectively. magnetic field of P at a point in the position of Q $B_1 = \dfrac{\mu_o I_1}{2\pi r}$ ________________(i) Magnetic force on Q at length l $F_{QP} = B_1 I_2 l = \dfrac{\mu_o I_1 I_2}{2\pi r} l$ ___________(ii) $f_2 = \dfrac{F_{QP}}{l} = \dfrac{\mu_o I_1 I_2}{2\pi r}$ ____________(iii) Similarly force per unit length of P due to magnetic field of Q	 ½ ½	

	$$f_1 = \frac{F_{PQ}}{l} = \frac{\mu_o I_1 I_2}{2\pi r} \text{\_\_\_\_\_\_\_\_\_\_\_\_(iv)}$$	½	
	From eq. (ii) and (iv) $$f_1 = f_2 = f = \frac{\mu_o I_1 I_2}{2\pi r} \text{\_\_\_\_\_\_\_\_\_\_(v)}$$		
	Definition of one ampere One ampere is the value of the steady current which when maintained in each of the two very long straight parallel conductors of negligible cross section, placed one meter apart in vaccum, would produce on each of these conductors a force equal to 2×10^{-7} newton per meter of length.	1	
	The force between the two conductors will be attractive when they carry current in the same direction.	½	
	(ii) Magnetic field at the centre of the current carrying coil $$B = N\frac{\mu_0 I}{2a}$$	½	
	a= 6.28 cm N = 50 I = 4A		
	$$B = \frac{50\times4\pi\times10^{-7}\times4}{2\times6.28\times10^{-2}}$$	½	
	$$= 4\times10^{-3}\,\text{T}$$	½	
	When radius of the coil is halved i.e. $\frac{a}{2}$ then magnetic field becomes two times. $B = 8\times10^{-3}\,\text{T}$	½	
	OR **(b)**		
	(i) Justification of motion of the charged particles in a helical path — 1 Obtaining expression for the radius of the helix — 2 (ii) Direction of magnetic field (B) — ½ Magnitude of magnetic field — 1½		
	(i) The velocity may be resolved in two rectangular components $v_x = v\cos\theta$ along (magnetic field) x-axis and $v_y = v\sin\theta$ perpendicular to magnetic field. Due to component v_x the particle moves along straight line and due to the component v_y it moves in circular path. The resultant of straight line motion and circular motion will be on helical path.	1	
	For circular motions, centripetal force is given by magnetic force $$\frac{m{v_y}^2}{r} = qv_y B$$	1	

	$\Rightarrow r = \frac{mv_y}{qB} = \frac{mv\sin\theta}{qB}$	½ + ½	
	(ii) Magnetic field at a point at distance 'a' from the wire $B = \frac{\mu_0 I}{2\pi a}$ I = 4 A a = 0.2 m	½	
	$B = \frac{4\pi \times 10^{-7} \times 4}{2 \times \pi \times 20 \times 10^{-2}}$	½	
	$= 4 \times 10^{-6}\,\mathrm{T}$	½	
	Direction of the magnetic field at a point below the wire is from South to North.	½	5
33.	**(a)** (i) Meaning of total internal reflection — 1 Two condition for total internal reflection — ½ + ½ One technological application — 1 (ii) Focal length of combined lens. — 1½ Nature of lens. — ½		
	(i) Total internal reflection is the phenomenon in which light waves reflected back in the same medium while travelling from denser to rarer medium without undergoing any refraction.	1	
	Two conditions:- (i) The incident ray must propagate from denser to rarer medium. (ii) The incident angle must be greater than critical angle.	½+ ½	
	Application: Telecommunication, medical application, data transmission any one or any other relevant technological application. Through optical fibre a signal goes from its one end to another by multiple total internal reflections without any loss in signal.	1	
	(ii) Focal length of combination of two lenses $\frac{1}{f} = \frac{1}{f_1} + \frac{1}{f_2}$	½	
	$f_1 = +10\,\mathrm{cm}$ $f_2 = -15\,\mathrm{cm}$ $\frac{1}{f} = \frac{1}{10} + \frac{1}{-15} = \frac{3-2}{30} = \frac{1}{30}$	½	
	$f = +30\,\mathrm{cm}$	½	
	Nature- Converging	½	

	OR **(b)** (i) (1) Reason for linear magnification 1 (2) Reason for short focal length of objective and eyepiece of a microscope 1 (3)Reason for different roles of microscope and telescope with respect resolution and magnification 1 (ii) To find the fringe width 2		
	(i) 1. Because the image is at minimum distance of distinct vision(D) and object is very close to the eye at distance d (D>d)	1	
	Angular magnification $\theta = \frac{h_2}{h_1} = \frac{D}{d} \Rightarrow h_2 > h_1$ h_1 -size of object h_2 -size of image 2. Magnification of a compound microscope		
	$\mathrm{m} = (\frac{L}{f_0})(\frac{D}{f_e})$	½	
	To achieve large magnification (m), f_0 and f_e must be short.	½	
	3. Microscope - magnifies Telescope - Resolves	½ ½	
	(ii) Fringe width $\beta = \frac{\lambda D}{d}$	1	
	$d = 1.0 \times 10^{-3}$ mm $\quad \lambda = 600 \times 10^{-9}$ m $\quad D = 2$m	½	
	$\beta = \frac{600 \times 10^{-9} \times 2}{1 \times 10^{-3}}$ $= 1200 \times 10^{-6}$ $= 1.2$ mm	½	
			5

	SECTION E		
34.	(i) Identification of sphere 1 (ii) Effect on net electric field after contact 1 (iii) Initial charge on S_1 and S_2 1+1 **OR** Charges on S_1 and S_2 after contact 1+1 (i) Electrons will be transferred from sphere S_1 to sphere S_2 when brought in contact. (ii) net electric field changes from non zero to zero at the midpoint of line joining the centres of the two spheres. (iii) $\frac{1}{4\pi\varepsilon_0}\frac{q_1q_2}{r^2}=F$ $9\times10^9\times\frac{(8q)(2q)}{1.6\times1.6}=8.1\times10^{-4}N$ $16q^2=\frac{8.1\times1.6\times1.6\times10^{-4}}{9\times10^9}$ $q^2=\frac{8.1\times1.6\times1.6\times10^{-4}}{9\times10^9\times16}$ $q^2=9\times16\times10^{-16}$ $q=12\times10^{-8}C$ Charge on S_1 = -8q = -96×10^{-8} C Charge on S_2 = 2q = 24×10^{-8} C **OR** (iii) Charges on S_1 and S_2 after were brought in contact -3q and -3q	1 1 ½ ½ ½ ½ 2	4
35.	(i) Most essential condition for diffraction of light 1 (ii) Characteristic of light used in X-ray crystallography 1 (iii) Explanation for diffraction on the basis of wave theory 2 **OR** Change in diffraction pattern when red light is replaced by blue light. 2 (i) The most essential condition for observing diffraction pattern is that the slit width has to be comparable to the wavelength of light. (ii) Wave nature characteristic of light is used in X-ray crystallography (iii) Light bends near the edges of an aperture. All points of the aperture act as new sources of light. These are known as secondary wavelets. The overlapping of the secondary wavelets results in diffraction pattern.	1 1 2	

	OR (iii) Since wavelength of blue light is lesser than that of red light, so angular width of diffraction pattern is less when blue light is used. So the diffraction pattern becomes narrower.	2	4