

11	A full scale of marks 80 (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).
13	<p>Ensure that you do not make the following common types of errors committed by the Examiner in the past:- Giving more marks for an answer than assigned to it.</p> <ul style="list-style-type: none"> ● Wrong totaling of marks awarded on an answer. ● Wrong transfer of marks from the inside pages of the answer book to the title page. <p>Wrong question wise totaling on the title page.</p> <ul style="list-style-type: none"> ● Leaving answer or part thereof unassessed in an answer book. ● ● 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.

SECONDARY SCHOOL SUPPLEMENTARY EXAMINATION, July 2024

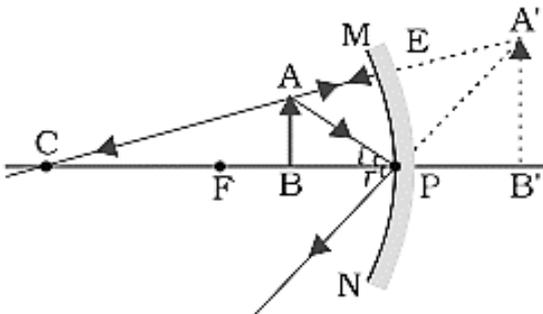
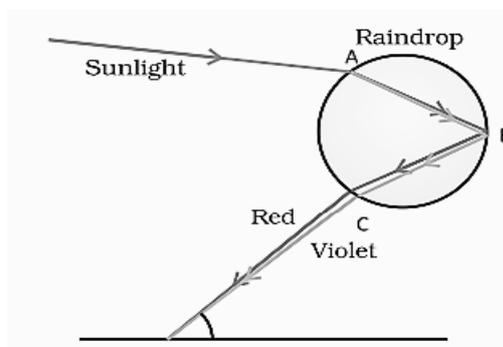
MARKING SCHEME

CLASS : X SCIENCE (Subject Code–086)

[Paper Code: 31/S/3]

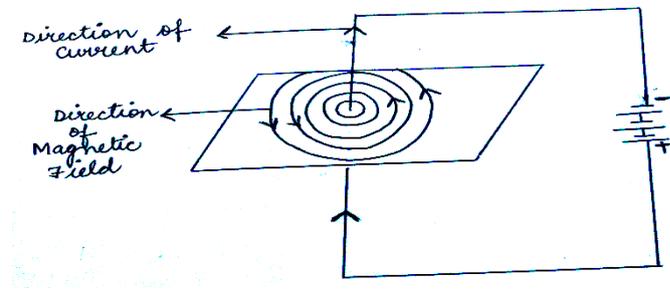
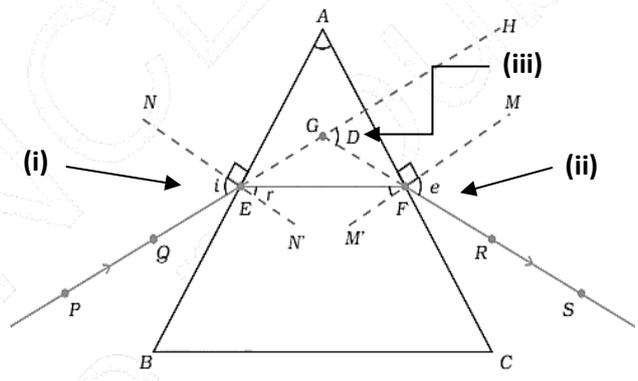
Maximum Marks: 80

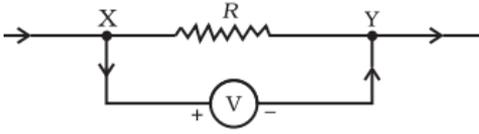
Q. No.	EXPECTED ANSWER / VALUE POINTS	Marks	Total Marks
	SECTION A		
1	(C)	1	1
2	(C)	1	1
3	(B)	1	1
4	(D)	1	1
5	(C)	1	1
6	(B)	1	1
7	(C)	1	1
8	(C)	1	1
9	(C)	1	1
10	(C)	1	1
11	(D)	1	1
12	(B)	1	1
13	(D)	1	1
14	(C)/(D) Both may happen.	1	1
15	(D)	1	1
16	(B)	1	1
17	(A)	1	1
18	(C)	1	1
19	(B)	1	1
20	(B)	1	1
	SECTION B		
21.	<ul style="list-style-type: none"> • Sodium • Sodium has more affinity for oxygen than carbon / Na is highly reactive • Electrolytic reduction 	$\frac{1}{2}$ 1 $\frac{1}{2}$	2

22.	 <p>[P : Pole, F : Principal Focus, AB : Object, A'B' : Image] [Diagram from NCERT fig 9.7(f) page 140]</p> <p>Ray diagram Labelling of pole and principal focus Direction of rays</p>	1 1/2 1/2	2
23.	<p>(a)</p>  <p>[Fig 10.8 page 16]</p> <p>Diagram Correct labelling of A,B and C</p> <p style="text-align: center;">OR</p> <p>(b)</p> <ul style="list-style-type: none"> • Ciliary muscles • Ciliary muscles adjust/change the focal length of eye lens by changing the curvature of eye lens. 	1/2 1 1/2 1 1	2
24.	<p>(a)</p> <ul style="list-style-type: none"> • X – Sensory neuron • Y – Motor neuron • Functions: X : to carry message from skin/sense organs to brain / spinal cord Y : to carry response from brain/spinal cord to muscle / body parts <p style="text-align: center;">OR</p>	1/2 1/2 1/2 1/2	

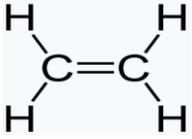
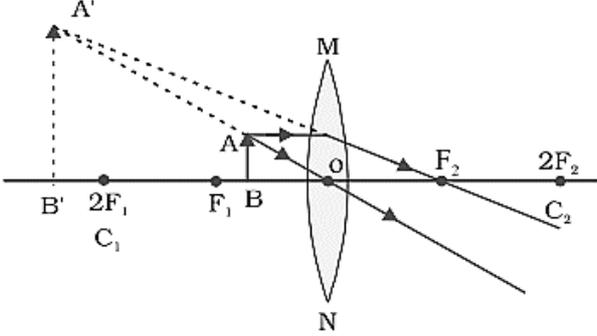
	<p>(b)</p> <p>(i) Cerebellum/Hind brain (ii) Medulla/Hind brain (iii) Fore-brain (iv) Cerebrum/ Fore-brain</p>	$\frac{1}{2} \times 4$	2
25.	<ul style="list-style-type: none"> • Two ways <ol style="list-style-type: none"> 1. Errors in DNA copying mechanism 2. Sexual reproduction • Importance: (any one of following) <ol style="list-style-type: none"> 1. Helps a species to survive 2. Helps an organism to adapt to the changing environment 3. Forms the basis of evolution <p style="text-align: right;">(or any other)</p>	$\frac{1}{2}$ $\frac{1}{2}$	2
26.	Because garden contain both biotic (grasses, trees, flowering plants, animals like frogs, insects and birds) components which interact with each other and with abiotic components (like temperature, rainfall, wind, soil and minerals) for their growth, reproduction and other activities.	2	2
SECTION C			
27.	<p>(a) $2\text{Cu} + \text{O}_2 \xrightarrow{\Delta} 2\text{CuO}$ Reddish brown Black</p> <p>(b) $\text{CaO} + \text{H}_2\text{O} \rightarrow \text{Ca(OH)}_2 + \text{heat/ rise in temperature}$</p> <p>(c) $\text{BaCl}_2 + \text{Na}_2\text{SO}_4 \rightarrow \text{BaSO}_4 + 2\text{NaCl}$ White precipitate</p> <p>(Or any other chemical reaction in each of the above cases)</p>	1 1 1	3
28.	<p>(a)</p> <ul style="list-style-type: none"> • Sodium carbonate/Na_2CO_3 • Recrystallisation of sodium carbonate / $\text{Na}_2\text{CO}_3 + 10\text{H}_2\text{O} \rightarrow \text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ • Basic. • Salt of a strong base and a weak acid. <p style="text-align: center;">OR</p> <p>(b)</p> <ul style="list-style-type: none"> • Sodium Hydroxide/NaOH/caustic soda – near cathode • Chlorine/Cl_2 – at anode • Hydrogen/H_2 – at cathode 	1 $\frac{1}{2}$ $\frac{1}{2}$ 1 $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	

	<p>Use: (any one use of each)</p> <ul style="list-style-type: none"> • NaOH: Degreasing metal/soaps and detergents/ paper making/ artificial fibres. • Chlorine: water treatment/ PVC/ pesticides/ disinfectants/ CFCs • Hydrogen: fuel/ margarine/ammonia/fertilizers. 	1/2	
		1/2	
		1/2	3
29.	(i) $R = 2\ \Omega + 4\ \Omega + 6\ \Omega = 12\ \Omega$	1	
	(ii) $I = \frac{V}{R} = \frac{6V}{12\ \Omega} = 0.5\ A$	1	
	(iii) $V = IR = 0.5A \times 4\ \Omega = 2V$	1	3
30.	<ul style="list-style-type: none"> • Probability of male child born is 50% and female child born is 50% in human beings. • <p>PARENTS : FATHER XY MOTHER XX</p> <p>GAMETES</p> <p>Zygote formed after fusion of gametes</p> <p>Offspring</p> <p>XX FEMALE XX FEMALE XY MALE XY MALE</p> <p>50% probability of a Female child 50% probability of a male child</p> <p>(Award full marks if explained in words)</p>	1	
		2	
			3
31.	(a) (i) Sepals (ii) Petals (iii) Anther (iv) Ovule.	1/2	
		1/2	
		1/2	
		1/2	
	(b)		
	• Through the pollen tube.	1/2	

	<ul style="list-style-type: none"> Male germ cell fuses with female germ cell to produce a zygote/ fertilization takes place 	1/2	3
32.	<p>(a)</p>  <p>Diagram Labelling of direction of current and corresponding field lines</p> <p>(b)</p> <p>(i) Fleming's Left Hand Rule (ii) Out of the plane of paper</p>	1 1 1/2 1/2	3
33.	 <p>Labelled diagram [Fig 10.4, page 166 of NCERT]</p> <ul style="list-style-type: none"> White light will split into a band of seven colours of spectrum. Different colours of white light bend / refract through different angles with respect to incident ray as they pass through a prism. 	1 1/2 1/2 1	3
SECTION D			
34.	<p>(i)</p> <ul style="list-style-type: none"> $R = \rho \frac{l}{A}$ 		

	$\rho = \frac{R \times A}{l}$ <ul style="list-style-type: none"> SI unit of $\rho = \frac{\text{SI unit of } R \times \text{SI unit of } A}{\text{SI unit of } l} = \frac{\Omega \times \text{m}^2}{\text{m}}$ $= \Omega \text{ m}$ <p>(ii) $R = 3\Omega$; $l = 120 \text{ cm} = 1.2 \text{ m}$; $d = 0.4 \text{ mm}$ or $r = 0.2 \text{ mm}$</p> $\rho = \frac{R \times A}{l}$ $A = 3.14 \times (0.2 \text{ mm})^2 = 3.14 \times 4 \times 10^{-8} \text{ m}^2$ $= 3\Omega \times \frac{3.14 \times 4 \times 10^{-8} \text{ m}^2}{1.2 \text{ m}}$ $= 3.14 \times 10^{-7} \Omega \text{ m}$ <p style="text-align: center;">OR</p> <p>(i)</p> <ul style="list-style-type: none"> When electric current is passed through a resistor electric energy is dissipated and appears as heat energy. When charge Q flows through a conductor of resistance R having potential difference of V , the workdone W is given by- <div style="text-align: center;">  </div> $W = V \times Q$ $= V \times I \times t$ $= IR \times I \times t = I^2 R t$ <p style="text-align: center;">($\because V = I \times R$ – Ohm's Law)</p> <p>When circuit is purely resistive electric energy is converted into heat energy.</p> $H = I^2 R t$ <p>(ii) Here $I = 2\text{A}$; $R = 10\Omega$; $t = 100\text{s}$</p> $H = I^2 R t$ $= (2\text{A})^2 \times 10\Omega \times 100\text{s}$	<p>1</p> <p>1</p> <p>½</p> <p>½</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	
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	<ul style="list-style-type: none"> The compound will dissociate into ions/ions will move freely to the opposite electrodes/electrolysis will occur. (i) Cathode: Mg^{2+} / Magnesium ion/Cation (ii) Anode: Cl^- /Chloride ion/Anion <p style="text-align: center;">OR</p> <p>(b) (i)</p> <ul style="list-style-type: none"> Zinc, Iron, Lead, Copper (any two) Zinc is more reactive than Iron/Iron is more reactive than Copper/Lead is more reactive than Copper (or any other suitable combination) <p>Demonstration:</p> <ol style="list-style-type: none"> Put iron nail in a solution of copper sulphate taken in a test tube. After sometime blue colour of $CuSO_4$ fades. <p style="text-align: right;">(Any other relevant activity)</p> <p>(ii)</p> <ul style="list-style-type: none"> Calcination Reduction using Carbon <p>Chemical Reactions</p> <ol style="list-style-type: none"> $ZnCO_3 \xrightarrow{Heat} ZnO + CO_2$ $ZnO + C \longrightarrow Zn + CO$ 	<p>1</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}, \frac{1}{2}$</p> <p>1</p> <p>1</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p>	5
	SECTION E		
37.	<p>(a)</p> $\begin{array}{c} H & H \\ & \\ H-C & -C-O-H \\ & \\ H & H \end{array} \quad / \quad CH_3CH_2OH$ <p>(b) Carbon dioxide and water / CO_2 and H_2O</p> <p>(c) (i)</p> <ul style="list-style-type: none"> Ethanol is oxidised to ethanoic acid. $\begin{array}{c} H & O \\ & \\ H-C & -C-O-H \\ & \\ H & \end{array} \quad / \quad CH_3COOH$ <ul style="list-style-type: none"> Acts as an oxidizing agent. <p style="text-align: center;">OR</p>	<p>1</p> <p>$\frac{1}{2}, \frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>1</p> <p>$\frac{1}{2}$</p>	

	<p>(c) (ii)</p> <ul style="list-style-type: none"> Ethene/ C_2H_4 is formed.  $CH_2 = CH_2$ Acts as a Dehydrating agent. 	<p>$\frac{1}{2}$</p> <p>1</p> <p>$\frac{1}{2}$</p>	4
38.	<p>(a) Sexual – Seed Asexual - Roots/stem/leaves.</p> <p>(b) (i) Rose/Jasmine (or any other) (ii) Grapes/orange/banana (or any other)</p> <p>(c) (i) (Any two of the following)</p> <ul style="list-style-type: none"> Production of genetically similar plants Propagated plants bear fruits and vegetables earlier than those produced from seeds. Propagation of plants that have lost capacity to produce seeds. (Any other) <p style="text-align: center;">OR</p> <p>(c) (ii) Put the small pieces of potato into containing notches or buds in moist cotton for few days and observe. Notches or buds will give rise to fresh green shoots and roots.</p>	<p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>1, 1</p> <p>2</p>	4
39	<p>(a) More than 2cm and less than 4cm from the optical centre of the lens</p> <p>(b) Less than 6cm from the optical centre of the lens</p> <p>(c) (i)</p> 	<p>1</p> <p>1</p> <p>2</p>	

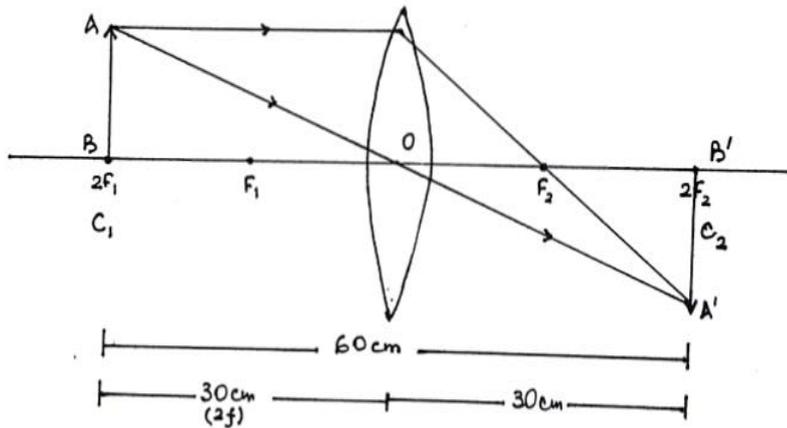
OB = 12 cm
 OF = 18 cm
 A'B' : Image

[Fig. 9.16 (f) page 155 NCERT]
 (Deduct 1/2 mark if direction of rays is not shown)

OR

(c) (ii)

As per the information given in the question, the lens lies at the centre of the object placed and image formed.



The position of the object is at 2F₁ therefore object distance = image distance = 2f

$$\therefore 2f + 2f = 60 \text{ cm}$$

$$4f = 60$$

$$f = 15 \text{ cm}$$

\therefore The focal length of the lens = 15 cm

Note : Do not deduct marks if diagram is not drawn.

1

1

4
