

Marking Scheme
Strictly Confidential
(For Internal and Restricted use only)
Secondary School Examination, 2026 (Xth)
SUBJECT NAME SCIENCE (Q.P. CODE /Set No 31/1/1)

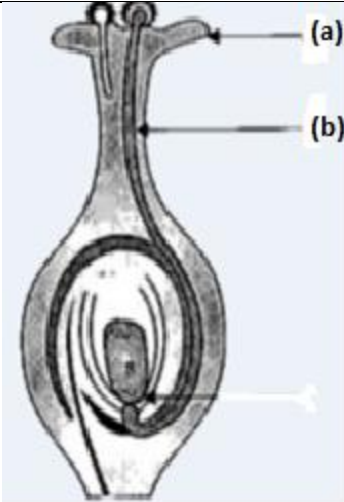
General Instructions: -

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 Newspaper/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 deliberation 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 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). 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 unassessed 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
SCIENCE (Subject Code-086)
(PAPER CODE: 31/1/1) (10-01-86K)

Q.No.	EXPECTED OUTCOMES/VALUE POINTS		Marks	Total Marks	
SECTION – A (Biology)					
1.	(B) / Stomata		1	1	
2.	(D) / Binary Fission		1	1	
3.	(D) / they reproduce asexually		1	1	
4.	(B) / Cerebellum		1	1	
5.	(B) / Trypsin digests proteins and lipase digests emulsified fats.		1	1	
6.	(A) / (ii) and (iii)		1	1	
7.	(C) / Polythene bag, rubber band, ball pen		1	1	
8.	(A) / Both, Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).		1	1	
9.	(C) / Assertion (A) is true, but Reason (R) is false.		1	1	
10.	- The main function of the diaphragm is to flatten during inhalation, which expands the chest cavity and draws the air into the lungs / helps in breathing. - It is located at the base of chest cavity.		1 1	 2	
11.	(a)		1 1		
	Chewing of food				Salivation on sight of food
	i) It is a voluntary action.				i) It is a reflex/involuntary action.
	ii) It is controlled by forebrain.				ii)It is controlled by medulla in the hind brain.
	(any other suitable difference)				OR
	Pollination		Fertilization		
	i) It is the transfer of pollen grains from anther to the suitable stigma.		i) It is the fusion of male gamete with the female gamete.	1	
	ii) It occurs in plants.		ii) It occurs in both plants and animals.	1	
	(any other suitable difference)				

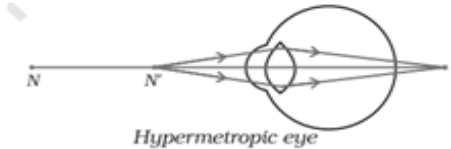
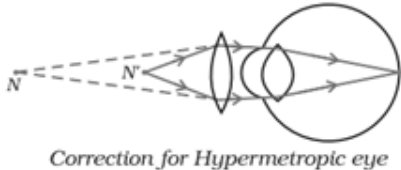
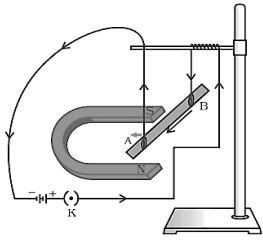
12.	 (a) Stigma (b) PollenTube Diagram (a) Stigma (b) Pollen Tube	1 $\frac{1}{2}$ $\frac{1}{2}$	2										
13.	(a) (i) Grass (ii) Deer, Rabbit (iii) Snake, Lion (iv) Lion (b) Primary consumers feed on green plants which have large amount of energy. Only 10% of its energy is available/passed for the next secondary consumer /trophic level. (c) The base is broad as the number/energy/mass of producers is usually the highest in comparison to other trophic levels of the pyramid.	1 1 1	3										
14.	(a)<table><tr><th>Nephron</th><th>Neuron</th></tr><tr><td>(i) Filtration/Structural/ Functional unit of the kidney.</td><td>(i) Structural/ Functional unit of the nervous system.</td></tr><tr><td>(ii) Filters nitrogenous wastes from the blood.</td><td>(ii) Transmits information from one part of the body to another.</td></tr></table> (any one, any other suitable difference) (b)<table><tr><th>Sensory Nerve</th><th>Motor Nerve</th></tr><tr><td>(i) Carries impulse from receptors to CNS/ Brain and Spinal cord.</td><td>(i) Carries impulse from CNS/Brain and Spinal cord to the motor area/ effector organ.</td></tr></table> (any other suitable difference)	Nephron	Neuron	(i) Filtration/Structural/ Functional unit of the kidney.	(i) Structural/ Functional unit of the nervous system.	(ii) Filters nitrogenous wastes from the blood.	(ii) Transmits information from one part of the body to another.	Sensory Nerve	Motor Nerve	(i) Carries impulse from receptors to CNS/ Brain and Spinal cord.	(i) Carries impulse from CNS/Brain and Spinal cord to the motor area/ effector organ.	1 1	
Nephron	Neuron												
(i) Filtration/Structural/ Functional unit of the kidney.	(i) Structural/ Functional unit of the nervous system.												
(ii) Filters nitrogenous wastes from the blood.	(ii) Transmits information from one part of the body to another.												
Sensory Nerve	Motor Nerve												
(i) Carries impulse from receptors to CNS/ Brain and Spinal cord.	(i) Carries impulse from CNS/Brain and Spinal cord to the motor area/ effector organ.												

	(c)								
	<table><tr><th>Consumers</th><th>Decomposers</th></tr><tr><td>(i) Organisms that feed on producers and other consumers.</td><td>(i) Organisms that breakdown dead organic matter into simpler inorganic substances.</td></tr><tr><td>(ii) Transfer energy through the food chain.</td><td>(ii) Recycle nutrients back into the environment.</td></tr></table>	Consumers	Decomposers	(i) Organisms that feed on producers and other consumers.	(i) Organisms that breakdown dead organic matter into simpler inorganic substances.	(ii) Transfer energy through the food chain.	(ii) Recycle nutrients back into the environment.	1	3
Consumers	Decomposers								
(i) Organisms that feed on producers and other consumers.	(i) Organisms that breakdown dead organic matter into simpler inorganic substances.								
(ii) Transfer energy through the food chain.	(ii) Recycle nutrients back into the environment.								
	(any one, any other suitable difference)								
15.	(a) In F ₁ progeny, pea plants have 'Tt' where 'T' is dominant over 't' so all the plants of F ₁ progeny were tall. / Tall height is dominant trait over short height. (b) Self-pollination (c) (i) <table><tr><th>Dominant trait</th><th>Recessive trait</th></tr><tr><td>i) Expresses itself over recessive trait.</td><td>i) Unable to express itself in presence of a dominant trait.</td></tr><tr><td>ii) Expresses in both conditions-TT and Tt.</td><td>ii) Expresses itself only when it is 'tt' or in pure condition.</td></tr></table> (any one, any other suitable difference) OR (c) (ii) Mendel's observations: - All plants of F₁ progeny were tall. - No medium/ no short height plants observed in F₁ progeny. - F₁ progeny resembled one parent only. (any two observations)	Dominant trait	Recessive trait	i) Expresses itself over recessive trait.	i) Unable to express itself in presence of a dominant trait.	ii) Expresses in both conditions-TT and Tt.	ii) Expresses itself only when it is 'tt' or in pure condition.	1 1 2 	
Dominant trait	Recessive trait								
i) Expresses itself over recessive trait.	i) Unable to express itself in presence of a dominant trait.								
ii) Expresses in both conditions-TT and Tt.	ii) Expresses itself only when it is 'tt' or in pure condition.								

	(ii) New plants grow from the buds located in the notches of the leaf. (iii) The pollen tube will not be formed. / No fertilisation will take place. (iv) Fertilization /Pregnancy will be prevented. (v) Each fragment or piece grows into a new individual organism.	1 1 1 1	5
SECTION – B (Chemistry)			
17.	(C) / Both, (i) and (ii) are double displacement reactions and precipitation reactions.	1	1
18.	(B) / Vanilla essence	1	1
19.	(D) / NO ₂ and O ₂	1	1
20.	(B) / -CHO	1	1
21.	(A) / Pb	1	1
22.	(A) / tomato, curd, ant-sting	1	1
23.	(B) / Calcium	1	1
24.	(A) / Both, Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).	1	1
25.	(a) Metal oxides which can react with both acids as well as bases to produce salt and water. (b) ZnO – Amphoteric oxide Na ₂ O – Basic oxide CO ₂ – Acidic oxide	1 1	2
26.	(a) - Substance oxidised - C - Substance reduced - ZnO (b) $\text{Pb}(\text{NO}_3)_2 + 2 \text{KI} \rightarrow \text{PbI}_2 + 2 \text{KNO}_3$ (c) $2\text{H}_2\text{O} \xrightarrow{\text{electricity}} 2\text{H}_2 + \text{O}_2$ $2\text{AgCl} \xrightarrow{\text{sunlight}} 2\text{Ag} + \text{Cl}_2$ (any other example in each case)	$\frac{1}{2}$ $\frac{1}{2}$ 1 $\frac{1}{2}$ $\frac{1}{2}$	3
27.	(a) - When electricity is passed through brine, it decomposes to form sodium hydroxide (alkali) and chlorine, hence this process is called chlor-alkali process. $2\text{NaCl}(\text{aq}) + 2\text{H}_2\text{O}(\text{l}) \xrightarrow{\text{Electricity}} 2\text{NaOH}(\text{aq}) + \text{H}_2(\text{g}) + \text{Cl}_2(\text{g})$ - At anode: Cl₂ - At cathode: H₂ OR	1 1 $\frac{1}{2}$ $\frac{1}{2}$	

	(b) (i) $\text{NaCl} + \text{H}_2\text{O} + \text{NH}_3 + \text{CO}_2 \rightarrow \text{NaHCO}_3 + \text{NH}_4\text{Cl}$ (ii) $\text{Ca(OH)}_2 + \text{Cl}_2 \rightarrow \text{CaOCl}_2 + \text{H}_2\text{O}$ / $2\text{Ca(OH)}_2 + 2\text{Cl}_2 \rightarrow \text{Ca(ClO)}_2 + \text{CaCl}_2 + 2\text{H}_2\text{O}$ (iii) $\text{CaSO}_4 \cdot 2\text{H}_2\text{O} \xrightarrow{373\text{K}} \text{CaSO}_4 \cdot \frac{1}{2} \text{H}_2\text{O} + 1\frac{1}{2} \text{H}_2\text{O}$ (deduct $\frac{1}{2}$ mark for no / incorrect balancing)	1 1 1	3
28.	(a) Because it is easier to obtain metal from its oxide. / Because it is easier to reduce metal oxide to metal (b) $\text{Fe}_2\text{O}_3(\text{s}) + 2\text{Al}(\text{s}) \rightarrow 2\text{Fe}(\text{l}) + \text{Al}_2\text{O}_3(\text{s}) + \text{Heat}$ $3\text{MnO}_2(\text{s}) + 4\text{Al}(\text{s}) \rightarrow 3\text{Mn}(\text{l}) + 2\text{Al}_2\text{O}_3(\text{s}) + \text{Heat}$ (balancing is optional) (any one equation) (c) (i) $2\text{Cu}_2\text{S} + 3\text{O}_2(\text{g}) \xrightarrow{\text{Heat}} 2\text{Cu}_2\text{O}(\text{s}) + 2\text{SO}_2(\text{g})$ $2\text{Cu}_2\text{O} + \text{Cu}_2\text{S} \xrightarrow{\text{Heat}} 6\text{Cu}(\text{s}) + \text{SO}_2(\text{g})$ OR (c)(ii) (I) Because highly reactive metals have more affinity for oxygen than carbon. (II) Because of its low melting point.	1 1 1 1 1 1	4
29.	(a) (i) (I) They do not give rise to charged particles/ ions. (II) Soap reacts with calcium and magnesium salts present in hard water and forms insoluble substances called Scum. (III) C-C bonds are strong and stable whereas Si-Si bonds are relatively weak. (ii) (I) $\text{CH}_3\text{CH}_2\text{OH} \xrightarrow{\text{acidified K}_2\text{Cr}_2\text{O}_7 + \text{heat}} \text{CH}_3\text{COOH}$ (II) $\text{CH}_2=\text{CH}_2 + \text{H}_2 \xrightarrow{\text{Ni}} \text{CH}_3-\text{CH}_3$ OR (b) (i) X - CH_3COOH/ethanoic acid /acetic acid Y - $\text{CH}_3\text{COOC}_2\text{H}_5$/$\text{CH}_3\text{COOCH}_2\text{CH}_3$/ ester/ ethyl ethanoate Z - CH_3COONa/sodium ethanoate/sodium acetate (ii) Catalyst/ dehydrating agent	1 1 1 1 1 $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	

	(iii) $\text{CH}_3 - \text{COOH} + \text{CH}_3 - \text{CH}_2\text{OH} \xrightarrow{\text{Acid}} \text{CH}_3 - \underset{\text{O}}{\underset{\parallel}{\text{C}}} - \text{O} - \text{CH}_2 - \text{CH}_3 + \text{H}_2\text{O}$ - Esterification reaction $\text{CH}_3\text{COOC}_2\text{H}_5 + \text{NaOH} \rightarrow \text{CH}_3\text{COONa} + \text{C}_2\text{H}_5\text{OH}$ - Saponification reaction/ De-esterification reaction	1 ½ 1 ½	5
SECTION – C (Physics)			
30.	(C) / - 30 cm and + 30 cm from lens	1	1
31.	(A) / Ciliary muscles of your eye contract and the eye lens become thick	1	1
32.	(C) / Assertion (A) is true, but Reason (R) is false.	1	1
33.	(a) Convex lens / Converging lens (b) $m = -2$, $v = 30$ cm $m = \frac{v}{u}$ $u = \frac{v}{m}$ $u = \frac{30}{-2}$ $u = -15\text{cm}$ / The object was placed at 15 cm in front of the lens.	1 ½ ½	2
34.	(a) $r = 0.01$ cm = 1×10^{-4} m $l = 1$ cm = 0.01 m $R = \rho \frac{l}{A}$ $\rho = \frac{RA}{l} = \frac{R \times \pi r^2}{l}$ $\rho = \frac{7 \times 22 \times 10^{-8}}{7 \times 0.01}$ $\rho = 22 \times 10^{-8} \times 10^2$ $\rho = 22 \times 10^{-6} \Omega\text{m} = 2.2 \times 10^{-5} \Omega\text{m}$ OR (b) Resistance of electric heater $R = \frac{V}{I}$ $R = \frac{220}{11}$ $R = 20 \Omega$ $P = \frac{V^2}{R}$ $P = \frac{200 \times 200}{20}$ $P = 2000\text{W} / 2 \text{ kW}$	½ 1 ½ ½ ½	2

35.	- Hypermetropia/ Far sightedness  Hypermetropic eye  Correction for Hypermetropic eye (deduct ½ mark for not showing the direction of ray of light)	1 1 1	3
36.	(a) <u>Procedure</u> Take a small aluminium rod AB and using two connecting wires suspend it horizontally from a stand. Place a strong horse-shoe magnet in such a way that the rod lies between the two poles perpendicularly. Connect the aluminium rod in series with a battery and a key. Now pass a current through the aluminium rod from one end to another. / (Procedure can also be explained with a <u>Diagram</u>)  <u>Observation</u> It is observed that the rod is displaced on passing current through it. (b) Magnetic field will be vertically downwards.	1 1 1	3

	(c) (i) $f_1 = 30 \text{ cm} = 0.3 \text{ m}, \quad f_2 = -15 \text{ cm} = -0.15 \text{ m}$ $P = \frac{1}{f}$ $P_1 = \frac{+1}{0.3} \text{ D}; \quad P_2 = \frac{-1}{0.15} \text{ D}$ Equivalent power, $P = P_1 + P_2$ $P = -3.33 \text{ D}$ Equivalent focal length, $f = \frac{1}{P}$ $f = \frac{-1}{3.33} = -0.3 \text{ m} = -30 \text{ cm}$ OR (c) (ii) • Combination Lens will behave like convex lens • $f_1 = -2 \text{ m}, \quad f_2 = 1.5 \text{ m}$ $P = \frac{1}{f}$ $P_1 = \frac{-1}{2} \text{ D}, \quad P_2 = \frac{+1}{1.5} \text{ D}$ $P = P_1 + P_2$ $P = \frac{1}{6}$ $f = +6 \text{ m}$ The focal length of combination is positive. / Alternate answer • Combination Lens will behave like convex lens. • Convex lens - Less 'f', More 'P' Concave lens - More 'f', Less 'P' Combined Power = $P_1 + P_2$, which will be positive.	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ 1 1	
39.	(a) (i) As Resistance, $R = \rho \frac{l}{A}$, it changes with change in length and area of cross section of conductor. But resistivity of conductor is the characteristic property of material and hence it does not change. (ii) The resistivity of an alloy is generally higher than that of its constituent metals. / Alloys do not oxidise (burn) readily at high temperatures. (iii) 1 Ampere is constituted by the flow of 1 Coulomb of charge per second. / $1 \text{ A} = 1 \text{ C/s}$ OR	1 1 2 1	4

	(b) (i) $V = 4V, I = 2A$ Resistance of circuit $R = \frac{V}{I}$ $R = \frac{4}{2}$ $R = 2\Omega$ Let 'n' be the number of bulbs $\frac{1}{R} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \dots - n$ $\frac{1}{R} = \frac{n}{8}$ $\frac{1}{2} = \frac{n}{8}$ $n = 4$ Therefore, 4 bulbs of resistance 8Ω should be connected in parallel. (ii) • Ammeter • In series (iii) Heat generated through a current carrying conductor is directly proportional to square of current, resistance of conductor and time for which current flows in conductor. / $H = I^2 R t$	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ 1 1 1	5
--	--	---	-----------------