

Marking Scheme
Strictly Confidential
(For Internal and Restricted use only)
Secondary School Examination, 2026 (2nd Board Examination)
SUBJECT NAME : Science 086
(Q.P. CODE / Set No. 31/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 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.
19	If a candidate attempts both alternatives/options in a question where only one option/alternative is required to be attempted, the Evaluator shall award marks in both the options. The system will take the higher of two scores and disregard the other response.
20	In a question having two options/alternatives, if a candidate has attempted only one, then the evaluator shall mark "NA" (Not attempted) against the option that has not been attempted by the candidate.

MARKING SCHEME
Science (Subject Code - 086) (2nd Exam)
(PAPER CODE : 31/B)

Q.No.	EXPECTED OUTCOMES/VALUE POINTS	Marks	Total Marks																				
Section-A (Biology)																							
1.	(D)/ It increases surface area for absorption of the food.	1	1																				
2.	(B) Absciscic acid.	1	1																				
3.	(C) Tallness is the dominant trait	1	1																				
4.	(B) Hydra.	1	1																				
5.	(B) Mitochondria	1	1																				
6.	(A) 1000 J and 10 J.	1	1																				
7.	(B) (i) and (ii)	1	1																				
8.	(C) A is true but R is false	1	1																				
9.	(A) Both A and R are true and R is the correct explanation of A.	1	1																				
10.	(i) They persist in the environment for a long time and thus damage the environment. (ii) They can cause soil, air and water pollution. (any other ways)	1 1	2																				
11.	- Auxin - When light comes from one side of the plant, auxin diffuses towards the shady side of the shoot. This concentration of auxin stimulates the cell to grow longer on the side of the shoot which is always away from light. So, the plant appears to bend towards light.	1 1	2																				
12.	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>S.No.</th><th>Characters</th><th>Dominant</th><th>Recessive</th></tr> </thead> <tbody> <tr> <td>1.</td><td>Seed shape</td><td>Round</td><td>wrinkled</td></tr> <tr> <td>2.</td><td>Flower colour</td><td>Violet</td><td>white</td></tr> <tr> <td>3.</td><td>Plant height</td><td>Tall</td><td>short</td></tr> <tr> <td>4.</td><td>Seed colour</td><td>Yellow</td><td>Green</td></tr> </tbody> </table> (Any two)	S.No.	Characters	Dominant	Recessive	1.	Seed shape	Round	wrinkled	2.	Flower colour	Violet	white	3.	Plant height	Tall	short	4.	Seed colour	Yellow	Green	$\frac{1}{2} + \frac{1}{2}$ $\frac{1}{2} + \frac{1}{2}$	2
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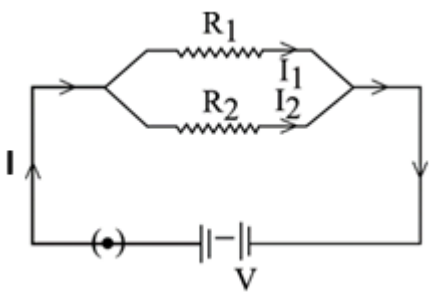
13.	(a) <table><tr><th>Pollination</th><th>Fertilization</th></tr><tr><td>1. Transfer of pollen grains from anther to the stigma of the flower is called pollination.</td><td>1. The process of fusion of male and female gametes to form zygote is called fertilization.</td></tr><tr><td>2. It is followed by fertilization in plants</td><td>2. It is followed by seed formation in plants and embryo development in animals</td></tr></table> (any other difference) (b) Inside the Ovule which is present in the ovary.	Pollination	Fertilization	1. Transfer of pollen grains from anther to the stigma of the flower is called pollination.	1. The process of fusion of male and female gametes to form zygote is called fertilization.	2. It is followed by fertilization in plants	2. It is followed by seed formation in plants and embryo development in animals	1 1 1	3
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14.	(a) Gastric glands secrete the following: HCl → It kills the bacteria that enters the stomach along with food /activates pepsin by providing acidic medium. Pepsin → It digests the protein Mucus → It protects the inner lining of the stomach from the action of the acid under normal condition. OR (b) Saliva: Saliva contains enzyme called salivary amylase that breaks down complex starch to simple sugars. Pancreas: It secretes pancreatic enzymes or juices which contains enzymes like trypsin for digestion of proteins and lipase for breakdown of emulsified fats. Peristaltic movements: The rhythmic contraction of the muscles of alimentary canal to push the food forward in a regulated manner so that it can be processed properly in each part of the alimentary canal is known as peristaltic movement.	$\frac{1}{2} + \frac{1}{2}$ $\frac{1}{2} + \frac{1}{2}$ $\frac{1}{2} + \frac{1}{2}$ 1 1 1	3						
15.	(i) The purpose of making urine is to filter out waste products from the blood. (ii) Urea and Uric acid. (iii) (a) Amount of water reabsorbed by nephron depends on. - Quantity of water in the body. - Quantity of dissolved waste to be excreted from the body OR	1 $\frac{1}{2} + \frac{1}{2}$ 1 1							

[illegible]

25.	- The compound formed by transfer of electrons from metal to non-metal. Properties: - Generally soluble in water, - high melting point and boiling point, - good conductor of heat and electricity. (any two or any other)	1 ½+½	2
26.	(a) Brown fumes of NO ₂ gas evolves / $ \begin{array}{ccccccc} 2\text{Pb}(\text{NO}_3)_2(\text{s}) & \xrightarrow{\text{Heat}} & 2\text{PbO}(\text{s}) & + & 4\text{NO}_2(\text{g}) & + & \text{O}_2(\text{g}) \\ \text{(Lead nitrate)} & & \text{(Lead oxide)} & & \text{(Nitrogen dioxide)} & & \text{(Oxygen)} \end{array} $ (b) A white substance/ precipitate of BaSO ₄ is formed / $ \begin{array}{ccccccc} \text{Na}_2\text{SO}_4(\text{aq}) & + & \text{BaCl}_2(\text{aq}) & \rightarrow & \text{BaSO}_4(\text{s}) & + & 2\text{NaCl}(\text{aq}) \\ \text{(Sodium sulphate)} & & \text{(Barium chloride)} & & \text{(Barium sulphate)} & & \text{(Sodium chloride)} \end{array} $ (c) Black coating on surface turns brown/copper is obtained: $\text{CuO} + \text{H}_2 \xrightarrow{\text{Heat}} \text{Cu} + \text{H}_2\text{O}$ (Either statement or equation is to be marked)	1 1 1	3
27.	(a) (i) The conversion of sulphide ore into oxide by heating strongly in the presence of excess air. $2\text{ZnS}(\text{s}) + 3\text{O}_2(\text{g}) \xrightarrow{\text{Heat}} 2\text{ZnO}(\text{s}) + 2\text{SO}_2(\text{g})$ (Or any other example) (ii) - An alloy is a homogeneous mixture of two or more metals or a metal and a non-metal. - Example Brass (or any other) (iii) The slow and gradual degradation of metals due to their reaction with moisture, acids etc. present in the atmosphere is called corrosion Example: Formation of Fe ₂ O ₃ · xH ₂ O (Rust) or silver sulphide on silver articles. (any one or any other) OR (b) (i) Alloying helps in getting desired properties in metals such as alloys are hard and strong, resistant to corrosion etc.	½ ½ ½+½ ½+½	

	(ii) Because highly reactive metals have more affinity for oxygen than carbon. (iii) Due to the formation of silver sulphide	1	3
28.	(i) An indicator which shows different colours at different hydrogen ion concentration/ different pH values in a solution. (ii) 'A' (iii) (a) The reaction of an acid and a base to form salt and water. $\text{NaOH} + \text{HCl} \rightarrow \text{NaCl} + \text{H}_2\text{O} \quad (\text{or any other})$ OR (iii) (b) (I) Strongly alkaline – D (II) Strongly acidic – B	1 1 1 1 1 1	4
29.	(a) (i) To form C^{4+} ion large amount of energy is required to remove 4 electrons. For forming C^{4-} anion, it would be difficult for the nucleus with six protons to hold on to ten electrons, that is, four extra electrons. Hence energetically not feasible. Hence carbon completes its octet by sharing of electrons and forms covalent bonds. (ii) (I) Sodium ethoxide and Hydrogen gas are formed / $2\text{Na} + 2\text{CH}_3\text{CH}_2\text{OH} \rightarrow 2\text{CH}_3\text{CH}_2\text{O}^-\text{Na}^+ + \text{H}_2$ (Sodium ethoxide) (II) $\text{CH}_3\text{COOC}_2\text{H}_5$ is formed / Ester is formed / $\text{CH}_3 - \text{COOH} + \text{CH}_3 - \text{CH}_2\text{OH} \xrightarrow{\text{Acid}} \text{CH}_3 - \underset{\text{O}}{\underset{\parallel}{\text{C}}} - \text{O} - \text{CH}_2 - \text{CH}_3 + \text{H}_2\text{O}$ (Ethanoic acid) (Ethanol) (Ester) (Either statement or equation is to be marked) (iii) Sodium or Potassium salt of long chain carboxylic acid. Because soap forms scum with hard water. OR (b) (i) (I) Hydrocarbons having double bond ($\text{C} = \text{C}$) or triple bond ($\text{C} \equiv \text{C}$) are called unsaturated hydrocarbons Example alkene / alkyne. (any other example) (II) A reaction in which one type of atom or a group of atoms take the place of another. Example $\text{CH}_4 + \text{Cl}_2 \xrightarrow{\text{sunlight}} \text{CH}_3\text{Cl} + \text{HCl}$ (any other example) (III) The reaction of an ester with an alkali to give alcohol and sodium salt of carboxylic acid is called saponification. $\text{CH}_3\text{COOC}_2\text{H}_5 + \text{NaOH} \rightarrow \text{CH}_3\text{COONa} + \text{C}_2\text{H}_5\text{OH}$ (ii)	2 1 1 ½ ½ ½+½ ½+½ ½+½	5

	- Pure acetic acid has low melting point and often freezes in winter and appears like glacier. - Preservative (any other use)	1 1									
	Section C (Physics)										
30.	(B) It will behave like a convex lens.	1	1								
31.	(B) Ciliary muscles	1	1								
32.	(C) Assertion (A) is true but Reason (R) is false.	1	1								
33.	(a) - Speed of light in medium X is less than the speed of light in medium Y. - Reason: Refractive index of medium X is more than medium Y hence it is optically denser than medium Y. (b) - Angle of refraction in medium X is less than in medium Y. - Reason: Refractive index of medium X is more than medium Y hence it is optically denser than medium Y.	½ ½ ½ ½	2								
34.	(a) - Rainbow formation - After the rain shower - In the sky in a direction opposite to that of Sun - Due to refraction, dispersion and internal reflection of sunlight through droplets of water suspended in air. OR (b) <table><tr><td>(1) Mirror</td><td>Reflection of light</td></tr><tr><td>(2) Lens</td><td>Refraction of light</td></tr><tr><td>(3) Prism</td><td>Dispersion of light</td></tr><tr><td>(4) Scattering of light</td><td>Tyndall effect</td></tr></table>	(1) Mirror	Reflection of light	(2) Lens	Refraction of light	(3) Prism	Dispersion of light	(4) Scattering of light	Tyndall effect	½ ½ ½ ½ ½x4	2
(1) Mirror	Reflection of light										
(2) Lens	Refraction of light										
(3) Prism	Dispersion of light										
(4) Scattering of light	Tyndall effect										
35.	(a) 15 cm (b) - Observation 3: Real and inverted image is formed. - Observation 4: Virtual and erect image is formed.	1 1 1	3								
36.	- A is suffering from Hypermetropia - B is suffering from Myopia Causes of Hypermetropia (A) (i) Focal length of eye lens is too long	½ ½ ½									

	Fleming's left hand law – Stretch the thumb, forefinger and middle finger of your left hand such that they are mutually perpendicular. If the first finger points in the direction of magnetic field and second finger in the direction of current, then thumb will point in the direction of motion or force.	1	4
39.	(a) (i) - Property of a conductor due to which it resists the motion of electrons is called as resistance.  Total current is sum of current flowing through each resistor $I = I_1 + I_2 \quad \text{--- (1)}$ Current given by battery $I = \frac{V}{R_p}$ Current $I_1 = \frac{V}{R_1}$ $I_2 = \frac{V}{R_2}$ From eqn 1 $\frac{V}{R_p} = \frac{V}{R_1} + \frac{V}{R_2}$ $\frac{1}{R_p} = \frac{1}{R_1} + \frac{1}{R_2}$ (ii) $R_s = 2\Omega + 4\Omega = 6\Omega$ Power consumed in series combination: $P = \frac{V^2}{R_s} = \frac{8^2}{6} = 10.66W$ $\frac{1}{R_p} = \frac{1}{2} + \frac{1}{4}$ $\frac{1}{R_p} = \frac{3}{4}$ $R_p = \frac{4}{3}\Omega$	1 $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ 1	

	Power consumed per second in parallel combination $P = \frac{V^2}{R_p} = \frac{8^2}{4/3} = 48W$ OR (b) (i) (I) Rheostat or variable resistance (II) Fuse (ii) • The potential difference applied across the two ends of a given metallic wire in an electric circuit is directly proportional to the current flowing through it provided that its temperature remains constant. • Resistance depends on ➤ length of conductor ➤ area of cross-section/thickness of conductor ➤ Material/Electrical Resistivity of conductor ➤ Temperature of conductor. (Any two) (iii) $R = 21 \Omega$ $r = 0.01 \times 10^{-2} \text{ m}$ $\rho = 66 \times 10^{-8} \Omega\text{m}$ $R = \rho \frac{l}{A} = \rho \frac{l}{\pi r^2}$ $21 = \frac{66 \times 10^{-8} \times l}{\frac{22}{7} \times (0.01 \times 10^{-2})^2}$ $21 = \frac{3 \times 10^{-8} \times l \times 7}{0.01 \times 0.01 \times 10^{-4}}$ $l = \frac{21 \times 1 \times 10^{-8}}{21 \times 10^{-8}}$ $l = 1 \text{ m}$	1 $\frac{1}{2}$ $\frac{1}{2}$ 1 $\frac{1}{2} + \frac{1}{2}$ $\frac{1}{2}$ 1	5
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