

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. 31/8/2)

General Instructions: -

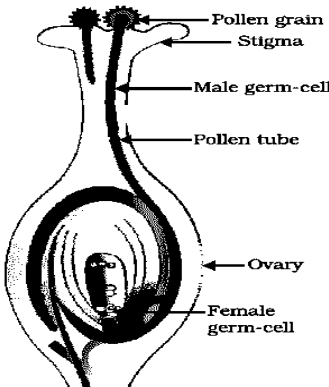
1	You are aware that evaluation is the most important process in the actual and correct assessment of the candidates. A small mistake in evaluation may lead to serious problems which may affect the future of the candidates, education system and teaching profession. To avoid mistakes, it is requested 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)
(PAPER CODE : 31/8/2)

Q. No.	EXPECTED OUTCOMES/VALUE POINTS	Marks	Total Marks
Section-A Biology			
1.	(B) (i) and (iv)	1	1
2.	(B) Algae → Small fish → Large fish → hawk	1	1
3.	(B) (i) -Red blood ; (ii)-oxygen	1	1
4.	(B) Fats, oils and ghee	1	1
5.	(A) Iodine is necessary for production of Thyroxin by pituitary gland.	1	1
6.	(D) Body → Right Atrium → Right ventricle → Lungs	1	1
7.	(D) Walking in straight line	1	1
8.	(C) (A) is true but (R) is false	1	1
9.	(C) (A) is true but (R) is false	1	1
10.	(A) (i) Night- root pressure : The effect of root pressure is more at night for transport of water because of concentration difference between root and the soil. (ii) Day-transpiration pull: During the day, the evaporation of water molecule from the cell of a leaf creates a suction (transpiration pull) which pull water from xylem cells of the root. OR (B) Plants use different strategies for excretion. • Some of their wastes are stored in dead tissues. • Many plant waste products are stored in cellular vacuole. • Waste products may be stored in leaves that fall off. • Other waste products like resins and gums are stored in old xylem. • Plants also excrete some of the waste substances into the soil around them. etc. (any four points)	$\frac{1}{2} + \frac{1}{2}$ $\frac{1}{2} + \frac{1}{2}$ $\frac{1}{2} \times 4$	2
11.	Plant cells change shape by changing the amount of water in them resulting in swelling or shrinking and therefore changing shapes.	2	2
12.	(A) Reproductive part: tiny blob –on- a-stick structure/<i>Sporangia</i>. Non reproductive part is thread like structure/ <i>hyphae</i>. (B)	$\frac{1}{2}$ $\frac{1}{2}$	

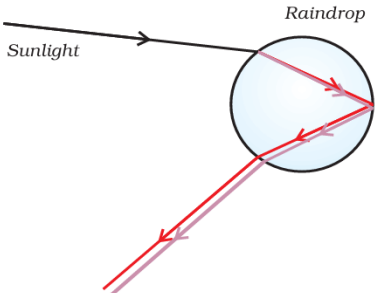
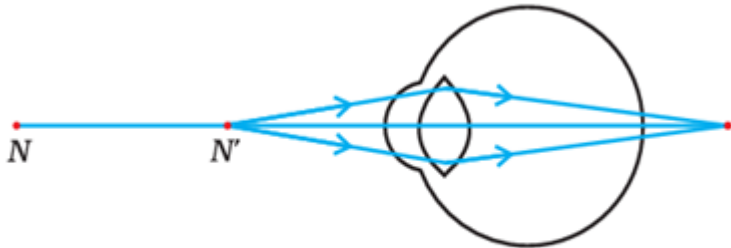
	Advantage of sexual reproduction in plants. (i) Sexual reproduction results in genetic variation which are useful for ensuring survival of species under changing environmental condition. (ii) It results in the formation of seeds that develops into seedling under appropriate condition. (or any other relevant advantage)	½ ½	2
13.	• Each cell has two copies of each chromosome one from male and other from female parent. • Each gamete takes one chromosome from each pair (either maternal or paternal). • When two gametes unite they restore the normal number of chromosomes in the progeny ensuring the stability of DNA of the species.	1 1 1	3
14.	(a) • In large fishes • Biological magnification: progressive accumulation of non-biodegradable harmful chemicals at each trophic level. (b) As energy flows progressively through the various trophic levels it is no longer available to the previous level / Energy available at each trophic level get diminished progressively due to loss of energy at each level.	1 1 1	3
15	(A) • Kidneys are located in the abdomen. • Nephrons (B) (i) Amount of water in the body. (ii) Amount of dissolved wastes that need to be excreted. (C) Urea content is high in structure Q whereas the concentration of useful substances such as glucose and amino acids and salt is less as they will be reabsorbed back into the blood.	½ ½ ½ ½ 2	

	OR (C) Diabetic person may not have insulin so the sugar level in the blood rises. Hence, there will be more glucose in structure Q of table-II.	2	4													
16.	(A) (i) - Placenta - This is a disc which is embedded in the uterine wall. It contains villi on the embryo side of the tissue. On the mother’s side are blood spaces which surround the villi. Functions: - Removes wastes produced by embryo. - Provides a large surface area for oxygen to pass from mother to embryo. (ii) <table><tr><td>Name of the disease</td><td></td><td>Microbial agent</td></tr><tr><td>Gonorrhoea / Syphilis</td><td>-</td><td>Bacteria</td></tr><tr><td>Warts / HIV – AIDS</td><td>-</td><td>Virus</td></tr></table> (any other) OR (B) (i)  Pollination → germination of pollen tube → Growth of pollen tube carry male germ cell → Entering the ovary and fertilizing the egg cell. (ii) <table><tr><td>Self Pollination</td><td>Cross Pollination</td></tr><tr><td> - Transfer of pollen from anther to stigma of the same flower. </td><td> - Transfer of pollen from anther to stigma of different flower. </td></tr></table> <td> 1 1 $\frac{1}{2}$ $\frac{1}{2}$ 1 1 1 2 1 </td> <td></td>	Name of the disease		Microbial agent	Gonorrhoea / Syphilis	-	Bacteria	Warts / HIV – AIDS	-	Virus	Self Pollination	Cross Pollination	Transfer of pollen from anther to stigma of the same flower.	Transfer of pollen from anther to stigma of different flower.	1 1 $\frac{1}{2}$ $\frac{1}{2}$ 1 1 1 2 1	
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	(iii) • R – Plumule • S – Radicle	$\frac{1}{2}$ $\frac{1}{2}$	5
Section B Chemistry			
17.	(B)/ 2	1	1
18.	(D)/ NaHCO ₃	1	1
19.	(B)/ C ₄ H ₈	1	1
20.	(A)/ Carboxylic acid	1	1
21.	(B)/ Clove oil	1	1
22.	(B)/ HCl	1	1
23.	(C)/ Absorb moisture from the gas	1	1
24.	(A)/ Both Assertion (A) and Reason (R) are correct and Reason (R) is the correct explanation of Assertion (A).	1	1
25.	(i) $\text{Fe}_2\text{O}_3(\text{s}) + 2\text{Al}(\text{s}) \rightarrow 2\text{Fe}(\text{l}) + \text{Al}_2\text{O}_3(\text{s}) + \text{Heat}$ (ii) $2\text{Na}(\text{s}) + 2\text{H}_2\text{O}(\text{l}) \rightarrow 2\text{NaOH}(\text{aq}) + \text{H}_2(\text{g}) + \text{Heat}$ (Balancing is optional)	1 1	2
26.	(A) • Formic acid / Methanoic acid • $\text{H}-\overset{\text{O}}{\underset{\text{ }}{\text{C}}}-\text{OH} / \text{HCOOH}$ • Rubbing the affected area with a mild base like baking soda gives relief. / any other suitable method. (B) • X will turn blue litmus red (as it is acidic) • Y will turn phenolphthalein pink (as it is basic) (Reason is optional)	$\frac{1}{2}$ $\frac{1}{2}$ 1 $\frac{1}{2}$ $\frac{1}{2}$	3
27.	(A) (i) • 1) Carbon has unique ability of catenation in which it can form bonds with other atoms of carbon. • 2) Carbon is tetravalent and small in size, due to which it	$\frac{1}{2}$	

	can form strong and stable bonds with other atoms. - Carbon has four electrons in its outermost shell. It cannot form C^{4+} or C^{4-} ions as they are highly unstable. So, it shares its electrons with other atoms and forms covalent bonds. (ii) C_2H_5CHO OR (B) (i) - X – Ethanol/ C_2H_5OH - Y – Ethanoic acid/ acetic acid/ CH_3COOH (ii) Carbon dioxide/ CO_2 (iii) $C_2H_5OH \xrightarrow[K_2Cr_2O_7]{\text{Acidified}} CH_3COOH$ $2CH_3COOH + Na_2CO_3 \rightarrow 2CH_3COONa + H_2O + CO_2$ (Don't deduct marks if balancing is not done)	$\frac{1}{2}$ 1 1 $\frac{1}{2}$ $\frac{1}{2}$ 1 $\frac{1}{2}$ $\frac{1}{2}$	3
28.	(A) The slow and gradual degradation of metals due to their reaction with moisture, acids etc. present in the atmosphere is called corrosion. (B) Silver articles react with sulphur in the air to form a coating of silver sulphide, which is black in colour. (C) - A – Carbon dioxide/ CO_2 - Green coating is of copper carbonate/ $CuCO_3$ OR - An alloy is a homogenous mixture of two or more metals, or a metal and a non-metal. - It is made by mixing the metals in molten state.	1 1 1 1 1 1	4
29.	(A) (a) $2AgBr(s) \xrightarrow{\text{Sunlight}} 2Ag(s) + Br_2(g)$ (b) $Pb(s) + CuCl_2(aq) \rightarrow PbCl_2(aq) + Cu(s)$ (c) $CuO(g) + H_2(g) \rightarrow Cu(g) + H_2O(g)$ (d) $CH_4(g) + 2O_2(g) \rightarrow CO_2(g) + 2H_2O(g) + \text{Heat}$ (e) $CaO(s) + H_2O(l) \rightarrow Ca(OH)_2(aq) + \text{Heat}$	1 1 1 1 1	

	OR (B) (a) $2\text{Pb}(\text{NO}_3)_2(\text{s}) \xrightarrow{\text{heat}} 2\text{PbO}(\text{s}) + 4\text{NO}_2(\text{g}) + \text{O}_2(\text{g})$ - Thermal decomposition reaction - When a reactant breaks down into two or more products by heating, it is called thermal decomposition reaction. - Colour of Products: PbO – Yellow powder NO₂ – Reddish Brown fumes O₂ – Colourless gas (NON EVALUATIVE) (b) - Double displacement reaction/ Precipitation reaction $\text{Pb}(\text{NO}_3)_2(\text{aq}) + 2\text{KI}(\text{aq}) \rightarrow \text{PbI}_2(\text{s}) \downarrow + 2\text{KNO}_3(\text{aq})$	1 ½ ½ 1 1 1	5
	Section C (Physics)		
30.	(D) / i = 50°, r = 50°	1	1
31.	(B) / 10 cm	1	1
32.	(B) / Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of the Assertion(A).	1	1
33.	(A) - P → Voltmeter - X → Variable resistance or Rheostat (B) - Q (Ammeter) is used to measure the current in the circuit. - X (Rheostat) is used to change (regulate) the current in the circuit without changing the voltage source. / X (Rheostat) is used to change the resistance in the circuit.	½ ½ ½ ½	2
34.	(A) The phenomenon in which a part of light incident on a particle is redirected in different directions is called scattering of light. (i) Shorter wavelength (blue light) is scattered. (ii) White light is scattered. OR (B)	1 ½ ½	

	 A rainbow is a natural spectrum appearing in sky after a rain shower. The tiny water droplets present in atmosphere act like small prisms. They refract and disperse the incident sunlight, they reflect it internally and finally refract it again when it comes out of rain drop. Due to the dispersion of light and internal reflection, different colours reach the observer's eye.	1	
		1	2
35.	(A) • Use fuse of appropriate rating. • There must be earth wire in circuit. (B) • During overloading fuse melts and protect the appliances. • Earth wire protect us from electric shock due to leakage of current to metallic body of appliances by providing a low resistance path to earth.	$\frac{1}{2}$ $\frac{1}{2}$	
		1	
		1	3
36.	(A) Towards North (B) Coil B Strength of Magnetic field is directly proportional to the number of turns. (C) The given figure shows that field has two directions at O. The compass needle may point towards two directions (along OB and along OD) which is not possible. This is an unreal situation. Conclusion: Two magnetic field lines never intersect.	1	
		$\frac{1}{2}$ $\frac{1}{2}$	
		$\frac{1}{2}$	
		$\frac{1}{2}$	3
37.	• Hypermetropia • 	1	
		1	

	Causes: (i) The focal length of eye lens is too long (ii) The eye ball has become too small.	½ ½	3
38.	(A) The plug key was removed to prevent overheating of circuit components /to avoid accidental burns / to stop the battery from draining. (any one) (B) - Voltmeter reading increases. - because larger potential difference is applied. (C) - When all four cells were connected in series in the circuit. - Current is directly proportional to potential difference applied. OR - I or current will change. - Wires made of different material have different resistance.	1 ½ ½ 1 1 1 1	4
39.	(A) (i) $i = 60^\circ, \quad r = 30^\circ$ $n_{21} = \frac{\sin i}{\sin r}$ $n_{21} = \frac{\sin 60^\circ}{\sin 30^\circ}$ $= \frac{\sqrt{3}/2}{1/2}$ $n_{21} = \sqrt{3}$ (ii) $n_{21} = \frac{\text{Speed of light in medium 1}}{\text{Speed of light in medium 2}} = \frac{v_1}{v_2}$ $\sqrt{3} = \frac{3 \times 10^8}{v_2}$ $v_2 = \frac{3 \times 10^8}{\sqrt{3}} = \sqrt{3} \times 10^8 \text{ m/s} = 1.732 \times 10^8 \text{ m/s}$ (iii)	½ ½ ½ ½ ½	

	- Optical density of medium 2 is greater than the optical density of medium 1. - In medium 2, light ray is bending towards the normal. So, optical density of medium 2 is more than medium 1. OR (B) (i) It is a point on principal axis where light rays incident parallel to principal axis meet (converge) after refraction through a convex lens. (ii) (I) $u = - (50 - 8) = - 42 \text{ cm}$ $v = (92 - 50) = 42 \text{ cm}$ $\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$ $\frac{1}{42} - \left(\frac{1}{-42} \right) = \frac{1}{f}$ $f = 21 \text{ cm}$ Alternate answer for (I) $u = - (50 - 8) = - 42 \text{ cm}$ $v = (92 - 50) = 42 \text{ cm}$ Since image distance is same as object distance. So, object is placed at $2F_1$. $2 \times f = 42 \text{ cm} \qquad \text{or} \quad f = 21 \text{ cm}$ (II) $v = (71 - 50) \text{ cm} = 21 \text{ cm}$ Since, image is formed at focus F_2. So, object is at infinity. (III) $u = - (50 - 36) \text{ cm} = -14 \text{ cm}$ Since, object is kept between focus F_1 and optical centre. So, nature of image formed will be virtual and erect .	1 1 1 $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ 1 1	5
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