Strictly Confidential: (For Internal and Restricted use only)
Class : X Secondary School Term II Examination, 2022
Marking Scheme – Science SUBJECT CODE - 086
(PAPER CODE –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 News Paper/Website etc may invite action under 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 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, marks should be awarded.**
4. 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. 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.
5. Evaluators will mark(√) wherever answer is correct. For wrong answer 'X" be marked. Evaluators will not put right kind of mark while evaluating which gives an impression that answer is correct and no marks are awarded. **This is most common mistake which evaluators are committing.**
6. 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.
7. 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.
8. If a student has attempted an extra question, answer of the question deserving more marks should be retained and the other answer scored out.
9. No marks to be deducted for the cumulative effect of an error. It should be penalized only once.
10. A full scale of marks **40** has to be used. Please do not hesitate to award full marks if the answer deserves it.
11. Every examiner has to necessarily do evaluation work for full working hours i.e. 8 hours every day and evaluate 30 answer books per day in main subjects and 35 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.

12. 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 a reply.
    - Wrong transfer of marks from the inside pages of the answer book to the title page.
    - Wrong question wise totalling on the title page.
    - Wrong totalling of marks of the two columns on the title page.
    - Wrong grand total.
    - Marks in words and figures not tallying.
    - 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.

13. 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.

14. Any unassessed portion, non-carrying over of marks to the title page, or totalling 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.

15. The Examiners should acquaint themselves with the guidelines given in the Guidelines for spot Evaluation before starting the actual evaluation.

16. Every Examiner shall also ensure that all the answers are evaluated, marks carried over to the title page, correctly totalled and written in figures and words.

17. The Board permits candidates to obtain photocopy of the Answer Book on request in an RTI application and also separately as a part of the re-evaluation process on payment of the processing charges.

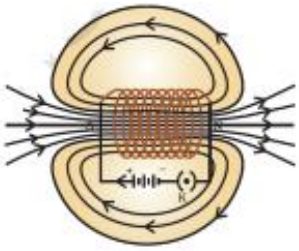
MARKING SCHEME
SECONDARY SCHOOL EXAMINATION TERM–II, 2022
SUBJECT : SCIENCE CODE–086
[PAPER CODE :31/1/1]

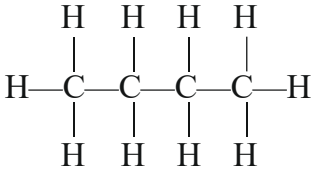
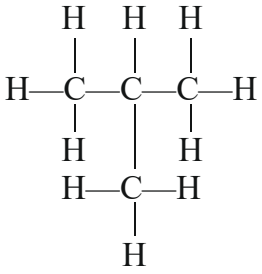
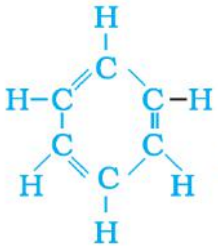
Instructions:-

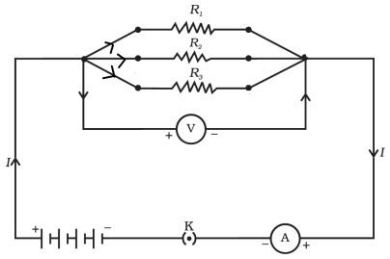
- **The marking scheme carries only suggested value points for the answers.**
- **These are only guidelines and do not constitute the complete answer.**
- **The students can have their own expression and if the expression is correct, the marks are awarded accordingly.**

Maximum Marks : 40

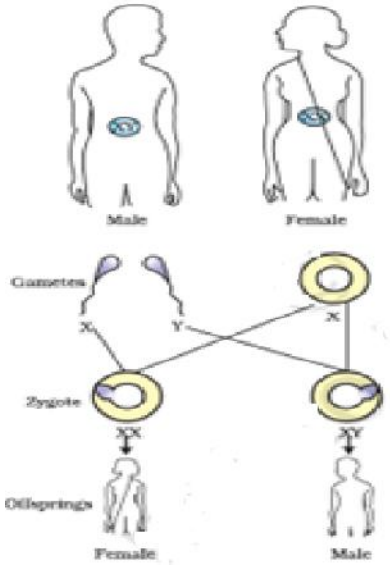
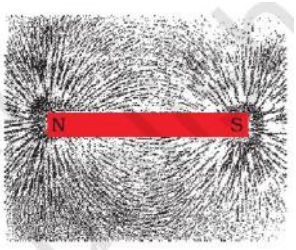
Q. No.	EXPECTED ANSWER / VALUE POINTS	Marks	Total Marks
	SECTION—A		
1.	(a) (i) CH_4 (ii) C_3H_8 (b) Intermolecular forces are weak / not strong	 ½ ½ 1	2
2.	(a) X Y Group Number 1 17 (b) XY (c) X	 ½+½ ½ ½	2
3.	a) Mustard and Hibiscus b) Stamens and Pistil / Carpel	½+½ ½ + ½	2
4.	• Planaria • Regeneration is carried out by specialised cells which are not present in spirogyra. • Hydra	½ 1 ½	2
5.	a) • The differences in the traits shown by the individuals of a species. • Two reasons : i) Inaccurate / Error in DNA copying ii) Sexual reproduction	 1 ½ ½	
5.	b) **OR** (i) F1 Progeny : Violet flowered plants (ii) F2 Progeny : Violet as well as white flowered plants (iii) 25 plants	 ½ 1 ½	2

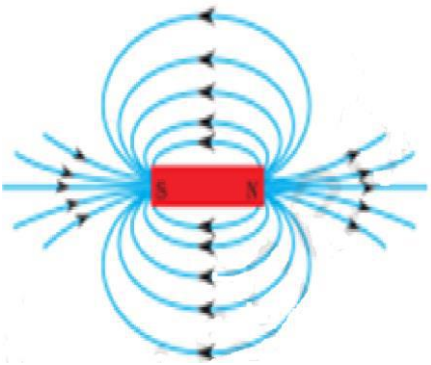
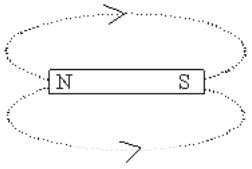
6.	(a) i) • Fleming's left-hand rule • Stretch the thumb, forefinger and middle finger of your left hand such that they are mutually perpendicular. If the first finger points in the direction of magnetic field and the second finger in the direction of current, then the thumb will point in the direction of motion or the force acting on the conductor. ii) South	½ 1 ½	
6.	**OR** b) i) A coil of many circular turns of insulated copper wire wrapped closely in the shape of a cylinder. ii) 	1 1	2
7.	a) • Ozone is a molecule formed by three atoms of oxygen. • UV radiations split some molecular oxygen (O_2) into free oxygen atoms (O + O). These atoms then combine with molecular oxygen to form ozone. / $O_2 \xrightarrow{UV} O + O$ $O + O_2 \rightarrow O_3$ (Ozone) • Ozone layer shields the surface of the earth from damaging UV radiation of the sun. / Depletion of ozone layer causes harmful effects on the organism.	½ 1 ½	
7.	**OR** b) i) Aquarium, crop field, gardens, etc. (any two) ii) A pond is a natural ecosystem. It has decomposers whereas an aquarium is an artificial ecosystem and does not contain decomposers. Therefore it needs regular cleaning for proper functioning.	½+½ 1	2
	SECTION—B		
8.	(a) • Atomic number is more fundamental property and it decides the properties of an element.		

	• Atomic number increases by one in going from one element to the next, so arrangement of elements becomes more systematic. • Prediction of properties of elements could be made with more precision when the elements are arranged in increasing order of their atomic numbers. **(Any two)**	1+1	
	(b) Electronic configuration of X - 2, 8, 3 Electronic configuration of Y - 2, 8, 8, 2	½ + ½	3
9.	a) • 	½	
	• 	½	
	• Isomers • C_4H_{10} • Butane • C_4H_6	½ ½ ½ ½	
	OR		
9.	b)		
	i) • C_6H_6	½	
	• 	½	
	ii) • Single bond 9 • Double bond 3	½ ½	
	iii) Hydrocarbons containing triple bond	1	3

10.	(a) (i) Testis—To produce male gametes or sperms / To produce testosterone or male sex hormone (ii) To provide lower temperature for sperm formation (iii) Vas deferens—Transport of sperms (iv) Prostate gland— Secretion of fluid for easier transport and nutrition of sperms (b) (i) Sperm (ii) Egg / Ovum	½ x 4 ½ ½	3
11.	(a)  Circuit diagram with given components Direction (b) Resistance between *C* and *D* is given by $\frac{1}{R_{CD}} = \frac{1}{10} + \frac{1}{10} = \frac{2}{10} = \frac{1}{5}$ $R_{CD} = 5\ \Omega$ *D* and *B* = $R_4 = 5\ \Omega$ ∴ Total resistance is $R_S = R_{CD} + R_1 + R_4$ $R_{total} = 5\ \Omega + 5\ \Omega + 5\ \Omega$ $= 15\ \Omega$	1 ½ ½ ½ ½	3
12.	(a) (i) The rate at which electric energy is dissipated or consumed in an electric circuit. S.I. unit—watt / V. A / joule per second (ii) • Current drawn by first bulb $I_1 = \frac{100\ \text{W}}{220\ \text{V}} = \frac{100}{220}$ ampere • Current drawn by second bulb	½ ½ ½	

	$I_2 = \frac{60\text{ W}}{220\text{ V}} = \frac{60}{220}$ ampere Both the bulbs are in parallel Total current, $I = I_1 + I_2$ $= \left(\frac{100}{220} + \frac{60}{220}\right)$ ampere $= \frac{160}{220}\text{ A} = 0{\cdot}73\text{ A}$ **(Accept any other method)**	½ ½ ½	
	OR		
12.	(b) i) This law states that heat produced in a resistor is— • directly proportional to the square of current for a given resistance / *(H α I^2)* • directly proportional to the resistance for a given current / *(H α R)* • directly proportional to the time for which the current flows through the resistor / *(H α t)* • *H = V I t* ii) $V = 6\text{ V};\ R = 5\ \Omega;\ t = 10\text{ s}$ Energy dissipated as heat in *t* = 10 s is $H = \frac{V^2}{R}t$ $= \frac{(6\text{ V})^2}{5\ \Omega} \times 10\text{ s}$ $= 72\text{ J}$	1 ½ ½ ½ ½	3
13.	(a) Producers, as they can manufacture food by the process of photosynthesis. (b) When non-degradable harmful chemicals (pesticides / DDT, etc.) enter a food chain, they get progressively accumulated at each trophic level. Human beings occupy the top level in any food chain, therefore the maximum concentration of these chemicals get accumulated in their bodies. (c) Ill effects of absence of decomposers from natural ecosystem : (i) Earth would be covered with dead bodies & foul smell (ii) Recycling of minerals will not take place	½ + ½ 1	

	(iii) Soil will not get replenished (iv) Ecosystem will get disrupted **(any other relevant point) (any one)**	1	3
	SECTION—C		
14.	(a) • XY • Y is shorter than X (b) • Mother/Female • Same kind (c) i) • Reptiles & Snails • In reptiles, the temperature at which fertilised eggs are kept determines whether the animal developing in the eggs would be a male or a female. In snails, they can change their sex during their life time. **OR** (c) ii)  Diagram Labelling	½+½ ½+½ ½ + ½ ½ ½ 1 1	4
15.	(a)  	1	

	(b) 	1	
	(c) i) • By placing a compass needle on magnetic field lines, direction of north pole will give direction of magnetic field.	1	
	• If they cross or intersect , it means that at the point of intersection the compass needle would point into two directions, which is not possible. / If they cross or intersect, it means that at the point of intersection there will be direction of two resultant fields which is not possible.	1	
	OR		
	(c) ii) • Take a small bar magnet, place it in the centre of the drawing sheet fixed on a drawing board and mark its boundary.	½	
	• Place a small compass needle near the north pole of the magnet, south pole of the compass needle points towards the north pole.	½	
	• Mark the position of two ends of the needle. Now move the needle to a new position such that the south pole of needle occupies the position previously occupied by the north pole and again mark the new position of the north pole. In this way proceed step by step till you reach the south pole of the magnet. Join the points marked to get a field line. Similarly draw one more field line on the other side of the magnet.	½	
	• 	½	4

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