Strictly Confidential: (For Internal and Restricted use only)
Class : X Secondary School Term II Examination, 2022
Marking Scheme – Science SUBJECT CODE -086
[Paper Code : 31/4/3]

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 totalled 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 totalling 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.

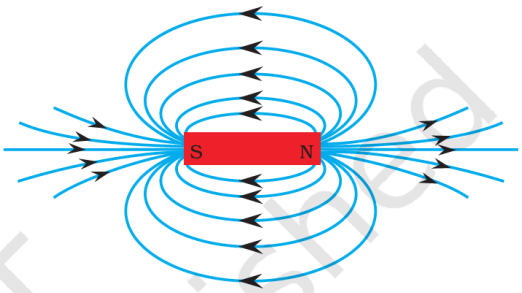
17. The Board permits candidates to obtain photocopy of the Answer Book on request in an RTI application and also separately as a part of the re-evaluation process on payment of the processing charges.

MARKING SCHEME
SECONDARY SCHOOL EXAMINATION TERM–II, 2022
SUBJECT : SCIENCE CODE–086
[PAPER CODE : 31/4/3]

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.**

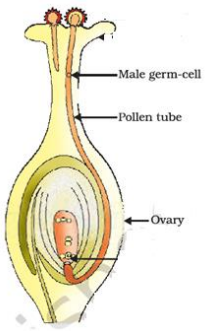
Maximum Marks : 40

Q. No.	EXPECTED ANSWER / VALUE POINTS	Marks	Total Marks
	SECTION—A		
1.	In binary fission, the parent organism divides/splits into two cells/two equal halves during divisions. e.g., *Amoeba/Leishmania/Paramecium* **(any one example)** In multiple fission, the parent organism divides into many daughter cells simultaneously. e.g., *Plasmodium* **(any one example)**	½ ½ ½ ½	2
2.	• Improvement in lifestyle has led to large consumption of resources • Demand for things with disposable nature increases the non-biodegradable wastes like plastics, metal cans etc. **(or any other)** **OR**	1 1	
2.	• The demand for increasing the shelf life of products and transporting goods over large distances is increasing, so the plastics / polyethene packing is preferred. • Less use of biodegradable products such as paper bag, cloth bag etc. (**or any other)**	1 1	2
3.	(a) • Rod AB would get displaced • Reason: When a current carrying conductor is placed in an external magnetic field perpendicularly, it experiences a force. (b) As current and magnetic field are parallel, there will be no force experienced by the conductor hence no displacement in rod.	½ ½ 1	

3.	**OR** • Field lines emerge from the north pole and merge at south pole/the direction in which a north pole of the compass needle moves inside it. • The relative strength of the magnetic field is shown by the degree of closeness of the field lines. Crowded are the field lines, stronger is the field. Or diagrammatic expression.  	1 1	2
4.	Criteria (i) Group- valence electrons (ii) Period- number of shells • Group -16 • Period -3rd	½ ½ ½ ½	2
5.	(a) One double bond (b) C_2H_2 (c) C_6H_6 (d) C_3H_8	½ ½ ½ ½	2
6.	(a) CH_3CHO (b) C_nH_{2n-2} (c) C_2H_2 (d) CH_3OH	½ ½ ½ ½	2
7.	• The plants have genes that have information to produce enzyme for growth, a lot of hormone is produced, a plant will be tall. • If the gene for that enzyme has an alteration that makes the enzyme less efficient, the amount of hormone produced will be less and a plant will be short.	1 1	

7.	**OR** **Red** **Red** F_1 Rr X Rr R ↓ r F_2 R | RR | Rr r | Rr | rr 75%—Red (RR and Rr) flowers 25%—White flowers (rr) **OR** Ratio—3 : 1 Red : White	½ ½ ½ ½ ½ ½	2
	SECTION—B		
8.	(a) $\rho = R\frac{A}{l}$ SI unit of ρ = ohm × $\frac{m^2}{m}$ = ohm × metre/ Ω m (b) $\rho = R\frac{A}{l}$ $= \frac{0 \cdot 04\Omega \times 1 \cdot 4 \times 10^{-6} m^2}{2m}$ $= 2 \cdot 8 \times 10^{-8} \Omega\,\text{m}$	½ ½ ½ 1 ½	3
9.	Power (P) = 1100 W, V = 220 V (i) Current drawn $= I = \frac{P}{V}$ $= \frac{1100\ \text{W}}{220\ \text{V}} = 5\ \text{A}$ (ii) $E = P \times t$ = 1100 W × 5 h × 6 = 33000 Wh (iii) Cost of one commercial unit = ₹ 5	½ ½ ½ ½	

9.	Energy consumed = 33 kWh = 33 unit = 118.8×10^6 J Cost of 33 unit = 33×5 = ₹ 165 **OR** (i) Effective resistance of the circuit $R_s = R_3 + R_4 = 4\Omega + 6\Omega = 10\Omega$ $\frac{1}{R_p} = \frac{1}{R_s} + \frac{1}{R_2} = \frac{1}{10\Omega} + \frac{1}{10\Omega} = \frac{2}{10\Omega} = \frac{1}{5\Omega}$ $R_p = 5\Omega$ Total resistance of the circuit = $R_1 + R_p + R_5 = 5 + 5 + 10 = 20\Omega$ (ii) Current drawn from the battery $V = 20V, R = 20\Omega$ $I = \frac{V}{R} = \frac{20V}{20\Omega}$ $I = 1$ A (iii) Reading in voltmeter connected across 5Ω Resistance $V = I\,R$ I = 1 A R = 5Ω V = 1 A × 5Ω = 5 V	½ ½ ½ ½ ½ ½ ½	3
10.	• Hydrogen and Oxygen • He selected hydrogen and oxygen as they are very reactive and formed compound with most of the elements. • The formulae of hydrides and oxides formed by an element were treated as one of the basic properties of an element for its classification.	1 1 1	3
11.	• Chlorofluoro carbons (CFCs) • Aerosols / Refrigerants / fire extinguishers i) Chorofluoro carbon chemicals damage ozone layer / depletion of ozone layer	1 1	

	ii) UV radiations reaching earth's surface can cause damage to organisms / skin cancer in humans.	½ + ½	3
12.	After the pollen lands on a suitable stigma, it has to reach the female germ cells which is located in the ovary. For this a tube grows out of the pollen grain and travels through the style to reach the ovary.  Germination of pollen on stigma Labelling: pollen tube/ ovary/ male germ cell **(any two labelling)**	1 1 ½ , ½	3
13.	• In diamond, each carbon atom is bonded to four other carbon atoms forming a rigid three dimensional structure. This makes diamond the hardest substance known. • In graphite, each carbon atom is bonded to three other carbon atoms in same plane giving a hexagonal array being placed in layers one above the other this makes graphite a smooth and slippery substance. • Both diamond and graphite are composed of carbon, therefore their chemical properties are same. / Both are allotropic form of Carbon.	1 1 1	
	OR		
13.	(i) If carbon atom loses four electrons forming C^{4+} cation, it would require a large amount of energy to remove four electrons leaving behind a carbon cation with six protons in its nucleus holding two electrons. (ii) If carbon atom gains four electrons forming C^{4-} anion, it would be difficult for a nucleus with six protons to hold on ten electrons, that is four extra electrons. • Carbon atom overcomes this problem by sharing its valence electrons with other atoms of carbon or with atoms of other elements.	1 1 1	3
	SECTION—C		
14.	(a) • A galvanometer is an instrument that can detect the presence of a current in a circuit. • Induced current that flows in the coil and the galvanometer.	½ + ½	

	(b) There would be no deflection in the galvanometer because there is no induced current flowing in galvanometer as there is no relative motion between the magnet and the coil and no change in magnetic field associated with coil. (c) • The relative motion of a magnet and coil produces an induced potential difference which sets up an induced current in the circuit and it lasts so long the relative motion is there. • Momentary deflection will be there with increased magnitude. **OR** (c) • It is a process by which a changing magnetic field in a conductor induces current in another conductor. • No deflection in galvanometer As there is no relative motion between the coil and magnet which leads to no change in magnetic field associated with coil hence no induced current generates.	1 1 1 1 ½ , ½	4
15.	(a) 50% male and 50% female/ 1:1 male and female / equal probability of male and female (b) • One pair of sex chromosomes • mother/female has perfect pair of chromosomes (c) • In reptiles, the temperature at which fertilized eggs are kept determines whether the animals developing in the eggs would be a male or a female. • In snails, they can change their sex during their lifetime. **OR** (c) Parents *XY* (Male) *XX* (Female) Gametes *X* *Y* *X* Zygote *XX* *XY* Offsprings Female Male	1 ½ ½ 1 1 ½ × 4	4

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