CBSE Class 10 Science(Visually Impaired) Answer Key 2022

(May 10, Set 5 - 31/B/5)

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/B/5]

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 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.

***These answers are meant to be used by evaluators.**

MARKING SCHEME

SECONDARY SCHOOL EXAMINATION TERM–II, 2022

SUBJECT : SCIENCE CODE – 086

[PAPER CODE : 31/B/5]

Instructions:-

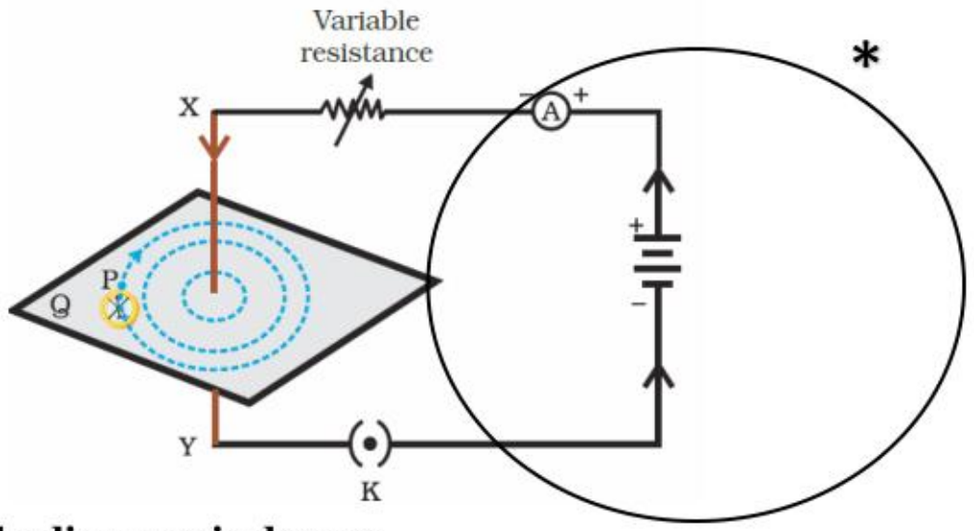
- **The marking scheme carries only suggested value points for the answers.**
- **These are only guidelines and do not constitute the complete answer.**
- **The students can have their own expression and if the expression is correct, the marks are awarded accordingly.**

Maximum Marks : 40

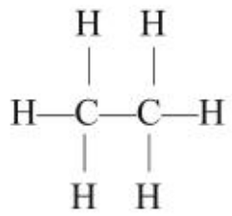
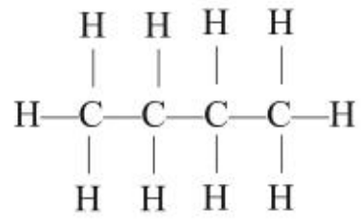
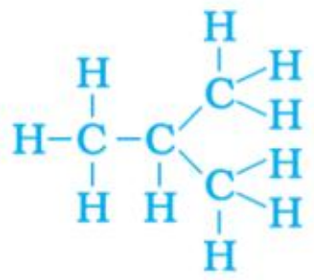
Q. No.	EXPECTED ANSWER / VALUE POINTS	Marks	Total Marks
	SECTION—A		
1.	(a) • Covalent compounds are formed by sharing of electrons between two atoms • Low melting and boiling points • Bad conductor of electricity or any other property **(Any two)**	1 ½ × 2	
1.	**OR** (b) • Carbon cannot lose 4 electrons to form C^{4+} ion, because this would require a large amount of energy to remove 4 electrons. • Carbon cannot gain 4 electrons to form C^{4-} ion because this ion is highly unstable. **Alternative answer** :- It is difficult for carbon atom to gain 4 electrons (C^{4-} anion) or lose 4 electrons (C^{4+} cation) as it becomes unstable in terms of energy.	1 1 2	
2.	• A, B and C have similar properties • The atomic masses of A,B and C are in ascending order • Atomic mass of B $\cong \frac{\text{Atomic mass of A+Atomic mass of C}}{2}$ **(Any two)**	1 1 2	

***These answers are meant to be used by evaluators.**

3.	(a) • Female reproductive part of a flower • (i) Stigma—Pollen grain lands and germinates on it (ii) Style—Pollen tube grows/travels through it (iii) Ovary—Sperm nucleus and egg nucleus fuse to form zygote / contains the female germ cell **(any two parts)** **(Deduct half mark if functions not given but parts are written.)** **OR** (b) • Male reproductive part of a flower After the pollen lands on stigma. • A tube grows out of the pollen grain • travels through the style to reach the female germs cells in the ovary for fertilisation	1 ½×2 1 ½ ½	2
4.	• The leaf of Bryophyllum possesses (Adventitious) buds on its margin. • These buds when fall on the soil develop into plantlets/young plants which grow into developed plants.	1 1	2
5.	• In field *X*, the reason for the parental traits in subsequent generations of the offsprings is <u>self-pollination</u>. • In field *Y*, variation in traits is observed due to <u>cross-pollination</u> in which recombination of genes takes place.	1 1	2
6. **6.**	(a) • Region around a magnet in which its force can be detected. • The direction of magnetic field at a point is determined by placing a small compass needle. The direction in which its N-pole rests is the direction of magnetic field at that point. **OR** (b) • The magnetic field lines are circles concentric to the straight conductor.	1 1 1	

	 * **Give full credit if only diagram is drawn.** *circuit part is optional. • Right-hand thumb rule: Statement : Imagine that you are holding a current carrying straight conductor in your right hand such that thumb points towards the direction of current. Then your fingers will wrap around the conductor in the direction of field lines of the magnetic field. **Half marks should be deducted if only the name of the law is given and statement not written**.	1	2
7.	(a) • Organisms which breakdown the dead/decaying complex organic matter into simpler inorganic matter. • (i) Conversion of dead plants and animals into simple inorganic substance that go into soil and used as plant nutrients / recycling of matter. (ii) Clean the environment **OR** (b) • Biodegradable : Materials which can be degraded by microorganisms, e.g., garbage/ sewage/ dead plants/dead animal. • Non-biodegradable : Material which cannot be degraded to simpler substances by the action of microorganism, e.g., plastic/ glass/ insecticides.	1 ½ ½ ½ + ½ ½ + ½	2
	SECTION - B		
8.	(a) (i) • A series of carbon compounds with same functional group in which the successive member is differed by – CH_2-- group. / They differ by atomic mass of 14u. • $C_nH_{2n+1}OH$ / R-OH	1 ½	

***These answers are meant to be used by evaluators.**

	• C_3H_7OH / $CH_3CH_2CH_2OH$ (ii) •  • Seven	½ ½ ½	
8.	**OR** (b) (i) • Carbon compounds which have same/identical molecular formula but different structures. • *(i)*   (ii) (i) C_6H_{12} (ii) C_6H_6	1 ½ + ½ ½ ½	3
9.	(a) The properties of the elements are periodic function of their atomic number. (b) • 18 • Group (c) Decreases from left to right in a period.	1 ½ ½ 1	3
10.	(a) • 46/ 23 pair/ 22+1 pair • Gametes contain half number of chromosomes • when male and female gametes fuse during fertilization the original number is restored.	1 1 1	
10.	**OR** (b) (i) Ovary—To produce ovum / secretion of female sex hormone	1	

*These answers are meant to be used by evaluators.

	(ii) Fallopian tube —Site of fertilization / It is a passage for movement of egg and sperm (iii) Uterus—Site of development of embryo or foetus / Implantation of embryo	1 1	3
11.	(a) (i) • A coil of many circular turns of insulated copper wire wrapped closely in the shape of a cylinder. • Divergence of magnetic field lines at the ends indicates that the intensity of magnetic field decreases as we move farther and farther away from the ends. (ii) A piece of magnetic material such as soft iron is placed inside a solenoid. When current is switched on, a strong magnetic field produced inside the solenoid magnetises the magnetic material.	1 1 1	
11.	**OR** (b) (i) 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) It works on the magnetic effect of electric current and converts electric energy into mechanical energy. / Current carrying conductor placed in an external magnetic field, experiences a force. (iii) (i) Function of brushes— To transfer charge or current between the armature coil and the external circuit. / To provide connectivity between armature coil and external circuit. (ii) Function of split rings— To reverse the direction of current after each half rotation of the coil.	1 1 ½ ½	3
12.	(a) Tungsten has a high melting point. So it does not melt when electric current flows through it. (b) Alloys used for heating element have generally high melting point / high resistivity / Do not oxidise even at high temperature. (c) If one appliance is switched off (or damaged) all other appliances stop working. / Different appliances require different current which is not available in series arrangement. **(or any other)**	1 1 1	3
13.	• Various steps in a food chain at which the transfer of energy takes place. • Plants→Rats→Snakes→Hawks • 1 J (Calculation not required)	1 1 1	3

***These answers are meant to be used by evaluators.**

	SECTION—C		
14.	(a) Round seeds and wrinkled seeds, violet flowers and white flowers **(or any other)**	½ + ½	
	(b) Tallness (T) is a dominant trait.	1	
	(c) (i) • Tall plants - 1200 • Short plants - 400	½ + ½	
	• TT : Tt : tt 1 : 2 : 1	1	
	OR		
	(c) (ii) • Yes	1	
	• The trait that is expressed in the F_1 generation is the dominant character although both the dominant and recessive traits are present in the F_1 generation.	1	4
15.	(a) $\frac{1}{R_p} = \frac{1}{R_1} + \frac{1}{R_2}$	½	
	$\frac{1}{R_p} = \frac{1}{60\,\Omega} + \frac{1}{60\,\Omega} = \frac{2}{60\Omega}$		
	$R_p = 30\,\Omega$	½	
	(b) $R_S = R_P + R_3$	½	
	$R_s = 30\,\Omega + 30\,\Omega = 60\,\Omega$	½	
	(c) (i) $I = \frac{V}{R}$	½	
	$= \frac{6V}{60\ \Omega} = 0{\cdot}1A$ **Deduct ½ mark for no / wrong unit.**	1½	
	OR		
	(c) (ii) Yes	½	

	Justification should include following three points. • Both combinations in series so same current flow. • Resistance of the parallel combination of two 60 Ω resistors is also 30 Ω • $V = I \times R$ Current is same and the resistance of the parallel combination of two 60 Ω resistors is also 30 Ω **(or any other correct explanation)**	½ ½ ½	4

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