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Secondary School Examination Comptt-2021

Marking Scheme – SUBJECT NAME: SCIENCE

(SUBJECT CODE: 086)

(PAPER CODE – 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 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 **80** (example 0-100 marks as given in Question Paper) 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 20 answer books per day in main subjects and 25 answer books per day in other subjects (Details are given in Spot Guidelines).

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 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.
 - 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 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.
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 totaled 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 (2020 – 21)		
	CODE – 31 (B) [SET 4]		
S.No.	VALUE POINTS/ EXPECTED ANSWER	MARKS	TOTAL MARKS
	SECTION A		
1. (a)	A process in which new substance(s) with new properties is / are formed.	1	
	OR		
(b)	Law of conservation of mass	1	1
2.	Plaster of Paris/Calcium Sulphate Hemihydrate	1	1
3.	Ethane	1	1
4. (a)	Transpiration	1	
	OR		
(b)	Phloem	1	1
5.	(C) / Pancreas	1	1
6.	Nephron	1	1
7. (a)	25 cm	1	
	OR		
(b)	A phenomenon in which a ray of light travelling obliquely from one medium to another, changes its direction of propagation in the second medium.	1	1
8.	(D) / Mirror is a diverging device whereas the lens is a converging device	1	1
9.	Atmospheric Refraction	1	1
10. (a)	The potential difference across the ends of a given conductor is directly proportional to the current flowing through it, provided that its temperature remains constant.	1	
	OR		
(b)	9 Ω	1	1
11.	The magnetic field is stronger near the poles of the bar magnet.	1	1
12.	By increasing the current flowing through the conductor	1	1
13. (a)	Substances that can be broken down / decomposed into simpler form by action of microbes / biological processes.	1	
	OR		
(b)	<ul style="list-style-type: none"> • Bacteria • Fungi 	$\frac{1}{2}$ $\frac{1}{2}$	1
14.	(A) / Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A)	1	1
15.	(C) / Assertion (A) is true, but Reason (R) is false.	1	1
16.(a)	(B) / Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A)	1	
	OR		
(b)	(B) / Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A)	1	1

24.	A chemical reaction in which a precipitate is formed. $\text{BaCl}_2 (\text{aq}) + \text{H}_2\text{SO}_4 (\text{aq}) \rightarrow 2 \text{HCl} (\text{aq}) + \text{BaSO}_4 (\text{s})$ <i>(or any other example)</i>	1 1	 2
25.	Splitting of white light into its seven component colours. (i) Red (ii) Violet	1 $\frac{1}{2}$ $\frac{1}{2}$	 2
26.	<ul style="list-style-type: none"> $R = R_1 + R_2 + R_3$ 3Ω 	1 1	 2
27.(a)	Mendel crossed tall and short pea plants. In F_1 generation, he obtained all tall plants. On selfing the plants of F_1 generation, the progeny of F_2 generation was obtained with a ratio of 3 Tall : 1 Short.	3	
(b)	OR A cross was made between round green seeds with wrinkled yellow seeds. In F_1 generation, all seeds were round and yellow. When F_1 plants were selfed, some round green seeds and wrinkled yellow seeds were obtained in F_2 generation along with new combinations of round yellow seeds and wrinkled green seeds. So, it is concluded that the traits are inherited independently.	3	3
28.	<ul style="list-style-type: none"> The interaction of living organism with the non-living components in an area of the environment is called Ecosystem. Two components – Biotic component and Abiotic component Crop field and aquarium are artificial because they are man-made eco systems. 	1 $\frac{1}{2}, \frac{1}{2}$ 1	 3
29.	Gaseous wastes / CO_2 / O_2 are removed through stomata in leaves and lenticles in stems / Excess of water is removed by transpiration / Some waste products are stored as resin and gums / Falling of leaves that have stored waste products / waste is stored in vacuoles <i>(any 3)</i>	1+1+1	3
30.	<ul style="list-style-type: none"> Combination reaction – A reaction in which a single product is formed from two or more reactants. $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO} + \text{heat}$ <i>(or any other example)</i> Decomposition reaction – a reaction in which a single substance decomposes to give two or more substances. $\text{CaCO}_3 \xrightarrow{\text{Heat}} \text{CaO} + \text{CO}_2$ <i>(or any other example)</i> 	1 $\frac{1}{2}$ 1 $\frac{1}{2}$	 3
31.(i)	Group 2, Period 3	$\frac{1}{2} + \frac{1}{2}$	
31.(ii)	metal	$\frac{1}{2}$	
31.(iii)	basic	$\frac{1}{2}$	
31.(iv)	XCl_2	$\frac{1}{2}$	
31.(v)	XO	$\frac{1}{2}$	3

32.	<ul style="list-style-type: none">When electric current is passed through an aqueous solution of NaCl, it decomposes to form Sodium hydroxide,Because of the products formed - Chlor for chlorine and alkali for sodium hydroxide.Hydrogen	1 1 1	3
33.	<ul style="list-style-type: none">Laws of Refraction –<ul style="list-style-type: none">(i) The incident ray, the refracted ray and the normal to the interface of two transparent media at the point of incidence, all lie on the same plane.(ii) The ratio of sine of angle of incidence to the angle of refraction is a constant for a given pair of media / $\frac{\sin i}{\sin r} = \text{constant}$The refractive index of a medium with respect to air/vacuum is called absolute refractive index of the medium.Absolute refractive index of a medium = $\frac{\text{speed of light in vacuum}}{\text{speed of light in the medium}}$	 <	

	Offspring identical to the parent	Offspring not identical to the parents	3 x 1	
	<i>(any other suitable difference)</i>			
(b)	<ul style="list-style-type: none"> • Inner uterus lining becomes thick and spongy. • It is supplied with blood to nourish the embryo. 		1 1	5
36.(a)(i)	<p>Right Hand Thumb Rule: Imagine that you are holding a current carrying straight conductor in your right hand such that the thumb points towards the direction of the current, then your fingers will wrap around the conductor in the direction of the magnetic field lines.</p> <ul style="list-style-type: none"> • Direction of the current • Direction of the magnetic field 		1 1 $\frac{1}{2}$ $\frac{1}{2}$	
(ii)	When the current carrying conductor/direction of the current is at right angles to the magnetic field		1	
(iii)	Stretch like thumb, forefinger and middle finger of your left hand such that they are mutually perpendicular to each other. If the forefinger points in the direction of magnetic field, the middle finger in the direction of current, then the thumb will point in the direction of motion (or force) of the conductor.		1	
(b) (i)	<p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • A coil of many turns of insulated copper wire wrapped closely in the shape of a cylinder whose length is much more as compared to its diameter. • It behaves like a bar magnet. • It is used to make electromagnets. <p style="text-align: right;"><i>(or any other relevant use)</i></p>		1 1 1	
(ii)	<ul style="list-style-type: none"> • An insulated copper wire wound over a soft iron core converts it into a magnet when an electric current is passed through it. The magnet so formed is called an electromagnet. • Bring magnetized iron bar with known polarity near the ends of electro magnet. If the north pole of magnetized iron bar is repelled by one end of electromagnet then that end will be the north pole of electromagnet and if attracted then that end will be the south pole of electromagnet. 		1 1	5