

Marking Scheme

SUMMATIVE ASSESSMENT - I (2015-16)

Science (Class-X)

General Instructions:

1. The Marking Scheme provides general guidelines to reduce subjectivity and maintain uniformity. The answers given in the marking scheme are the best suggested answers.
2. Marking be done as per the instructions provided in the marking scheme. (It should not be done according to one's own interpretation or any other consideration).
3. Alternative methods be accepted. Proportional marks be awarded.
4. If a question is attempted twice and the candidate has not crossed any answer, only first attempt be evaluated and 'EXTRA' be written with the second attempt.
5. In case where no answers are given or answers are found wrong in this Marking Scheme, correct answers may be found and used for valuation purpose.

SECTION-A

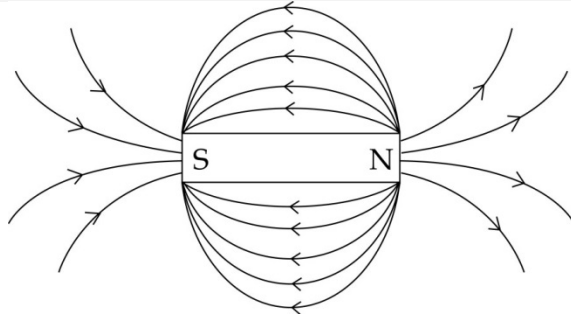
1	Iodine is necessary for the thyroid gland to make thyroxin hormone.	1
2	A bulb gives light due to heating of its filament. Increase in temperature of filament increase its resistance also.	1
3	Environment friendly, Efficient source of renewable energy. No recurring expenditure (any two)	1
4	Dazzling white light and white powder is obtained.	2
5	(i) $2\text{Al}_{(s)} + 3\text{H}_2\text{O}_{(g)} \rightarrow \text{Al}_2\text{O}_{3(s)} + 3\text{H}_2_{(g)}$ (ii) $\text{Ca}_{(s)} + 2\text{H}_2\text{O}_{(l)} \rightarrow \text{Ca}(\text{OH})_2 + \text{H}_{2(aq)}$	2
6	Gastric gland Three components of secretion of gastric gland	2

	Hydrochloric acid Mucus Pepsin	
7	(i) Evolution of heat E.g. $\text{CaO} + \text{H}_2\text{O} \rightarrow \text{Ca(OH)}_2 + \text{Heat}$ (ii) Change in colour E.g. $\text{Pb(NO}_3)_2 + 2\text{KI} \rightarrow 2\text{KNO}_3 + \text{PbI}_2$ (or any other)	3
8	(i) Carbon dioxide gas is formed. $\text{Na}_2\text{CO}_3(\text{s}) + 2\text{HCl}(\text{aq}) \rightarrow 2\text{NaCl}(\text{aq}) + \text{H}_2\text{O}(\text{l}) + \text{CO}_2(\text{g})$ $\text{NaHCO}_3(\text{s}) + \text{HCl}(\text{aq}) \rightarrow \text{NaCl}(\text{aq}) + \text{H}_2\text{O}(\text{l}) + \text{CO}_2(\text{g})$ The gas evolved is CO_2 gas On passing the CO_2 gas through lime water, it turns milky.	3
9	(a) (i) Aluminium (ii) Zinc (iii) Tungston (b) Iron is more reactive than copper because iron can displace copper from copper sulphate solution but copper cannot displace iron from iron sulphate solution.	3
10	(i) It decomposes $2\text{NaHCO}_3 \xrightarrow{\text{Heat}} \text{Na}_2\text{CO}_3 + \text{H}_2\text{O} + \text{CO}_2$	3

	<p>(ii) It loses water of crystallisation (10 H₂O)</p> $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O} \xrightarrow{\text{Heat}} \text{Na}_2\text{CO}_3 + 10\text{H}_2\text{O}$ <p>(iii) POP is formed</p> $\text{CaSO}_4 \cdot 2\text{H}_2\text{O} \xrightarrow{373\text{K}} \text{CaSO}_4 \cdot \frac{1}{2} \text{H}_2\text{O} + 1\frac{1}{2} \text{H}_2\text{O}$	
11	Activity 6.2 Fig 6.4 Page 97 NCERT fig-1 Explanation 2	3
12	<p>In plants chemical coordination occurs through various phytohormones.</p> <p>(i) Auxins secreted by growing tissues. They provide growth of plants.</p> <p>(ii) Gibber lines cause stem elongation, seed germination and flowering.</p> <p>(iii) Cytokinins present in areas of actively dividing cells like fruits, seeds. Promote cell division.</p> <p>(iv) Abscissic acid inhibits growth, respond to environmental stress. (any three)</p>	3
13	<p>(i) Red blood corpuscles : Contain haemoglobin, which transports oxygen to the tissues for respiration.</p> <p>(ii) White blood corpuscles : Protect the body from infections, manufacture antibodies for immunity.</p> <p>(iii) Blood platelets : Help in clotting of blood thus preventing the further loss of blood in case of injury.</p>	3
14	<p>(a) Definition of 1 Ohm</p> <p>(b) Resistance of conductor become less</p> <p>(c) Current becomes half</p>	3
15	(a) Soft iron	3

	(b) (i) By increasing the number of turns in the solenoid (ii) By increasing the current in the solenoid	
16	Yes, current is induced. The two cases are in fact equivalent. In either case, if north pole of the magnet faces the coil, magnetic field lines entering into the coil increases and hence current is induced in the coil in the same series.	3
17	(i) (a) During RWA meetings – can talk to the adults. (b) By organizing competitions such as drawing and slogan writing. (ii) Less number of cars means lesser use of fossil fuels which will reduce pollution. (iii) Love for environment and ability to take initiative. (or any other correct answer)	3
18	(a) Large ecosystem destroyed (b) Vegetation rots anaerobically giving out methane (green house gas) (c) Problem of satisfactory rehabilitation	3
19	(a) (i) Ore – It is a mineral from which metal can be extracted profitably. Mineral – The elements or compounds which occur naturally in the earth’s crust. (ii) Calcination : The process of heating carbonate ore in limited supply of air. $\text{e.g } \text{Zn CO}_{3(s)} \xrightarrow{\text{Heat}} \text{ZnO}_{(s)} + \text{CO}_{2(g)}$ Roasting : The process of heating sulphide ore in presence of air. $\text{e.g } 2\text{Zn S} + 3\text{O}_2 \xrightarrow{\text{Heat}} 2\text{ZnO}_{(s)} + 2\text{SO}_{2(g)}$ (iii) Alloy : A homogeneous mixture of two or more metals or a metal and a non metal mixed in the molten state. Amalgam : A homogeneous mixture of two metals in which one of the metals is mercury.	5

	(b) Brass – Copper and Zinc Bronze – Copper and tin. Copper is good conductor of electricity. Alloys are not good conductors of electricity.	
20	(a) $2\text{Cu} + \text{O}_2 \xrightarrow{\text{Heat}} 2\text{CuO}$ (b) Copper - shiny brown, copper oxide - black. (c) Yes, by heating with hydrogen gas. $\text{CuO} + \text{H}_2 \rightarrow \text{Cu} + \text{H}_2\text{O}$ (d) CuO - Reduction. H ₂ - Oxidation.	5
21	(a) Reflex action : Unconscious, automatic and involuntary response of effectors i.e muscles and glands to a stimulus controlled by the spinal cord. Significance : (i) It enables the body to give quick response to harmful stimuli and thus protects the body. (ii) It minimizes the over loading of brain (b) (i) Plants use electrochemical means to convey information from cell to cell. (ii) Sensitive plants move very fast in response to touch that are in dependent of the direction of stimuli. (iii) The folding up and drooping of leaves of the sensitive plant of minosa pudica whens lightly touched is an example (iv) Plant cells change shape by changing the amount of water in them resulting in swelling or shrinking thereby changing shape.	5
22	(a) Tungston has high melting point. (b) Alloys have high melting points in case of toasters and electric irons and dos not undergo oxidation easily even as high temperature. (c) because if one appliance fuses then others do not work at all. (d) Resistance of wire is inversely proportional to area of cross section. (e) They have high melting point and low resistance	5
23	(a) Magnetic field lines around a bar magnet.	5



If two magnetic field lines intersect at a point, then at the point of intersection, there must be two directions of the same field, which is not possible.

(b) Here $P = 1.5 \text{ kW} = 1500 \text{ W}$ $V = 220 \text{ V}$

$$\therefore \text{Current } I = \frac{P}{V} = \frac{1500}{220} ; 7.0 \text{ A}$$

Thus the current flowing through the circuit when oven is on is nearly 7 A which is higher than the current rating (5 A) of the circuit.

\therefore The wiring of the circuit may burn, fuse wire will also blow off breaking the circuit and stopping the current supply

24	<ul style="list-style-type: none"> • Derivation of relation $R = R_1 + R_2 + R_3$ • $\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} = \frac{1}{2} + \frac{1}{3} + \frac{1}{6}$ <p>$\therefore R = 1 \Omega$</p>	5
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/SECTION - B

25	(b)	1
26	(a)	1
27	(d)	1

28	(d)		1
29	(d)		1
30	(d)		1
31	(b)		1
32	(c)	Brown	1
33	(b)		1
34		Colour of solution light green. Reddish brown layer of copper is deposited on iron filings.	2
35		By excessive current heating effect is produced which changes the value of R	2
36	(i)	Bean or kidney shaped structure	2
	(ii)	Contains a nucleus and many chloroplasts	
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