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.

भाग–अ / SECTION-A

1	When the reflex arcs are formed in the spinal cord, the information input goes on to reach the brain.	1
2	Relative strength of magnetic field.	1
3	Digester.	1
4	(a) Quick lime (CaO), combination reaction (b) $CaO + H_2O \rightarrow Ca(OH)_2 + Heat$	2
5	Plaster of paris. $CaSO_4 \frac{1}{2} H_2O$ $CaSO_4 . \frac{1}{2} H_2O + 1\frac{1}{2} H_2O \rightarrow CaSO_4 . 2H_2O$ plaster of paris Gypsum	2
6	(i) gums and raisins (ii) transpiration, stomata	2
7	The condition produced by oxidation of fats and oils (any two) in foods marked by unpleasant smell and taste is rancidity It can be prevented by : (i) adding anti-oxidants to foods containing fats and oils (ii) packaging fat and oil containing foods in nitrogen gas (iii) keeping food in refrigerator (iv) storing food in air tight containers	3
8	Put blue litmus paper in all the three test tubes. In one test tube it will turn red that is acid. Now put red litmus paper in both the test tubes in one it will turn to blue that is base and the third one is distilled water.	3
9	Blass - Copper (Cu), Zinc (Zn)	3

	Bronze - Copper (Cu), Tin (Sn)	
	Solder - Lead (Pb), Tin (Sn)	
10	Iron is more reactive than copper, zinc is more reactive than iron, copper is more reactive than silver Hence Ag < Cu < Fe < Zn	3
11	Fig 6.6 Page 99 NCERT book with correct labellings	3
12	Auxin When light is coming from one side of the plant auxin diffuses towards the shady side of the shoot. This concentration of auxin stimulates the cells to grow longer on the side of the shoot which is away from light. Plant appears to bend towards light.	3
13	(1) Hormones should be secreted in precise quantities. We need a mechanism through which this is done. (2) The timing and amount of hormone released are regulated by feedback mechanisms. (3) If blood sugar level falls, they are detected by the cells of the pancreas which respond by producing less insulin.	3
14	$$R = \rho \frac{l}{A} \Rightarrow A = \frac{\rho \, l}{R}$$ $$= \frac{1.6 \times 10^{-8} \ \Omega m \times 250 \ m}{1 \ \Omega}$$ $$= 4 \times 10^{-6} \, m^2$$ If diameter is doubled , area of cross – section becomes four times and the resistance becomes one fourth, i.e., 0.25 Ω	3
15	Electromagnetic induction. Definition Activity	3
16	Definition of magnetic field Activity no. 13.2 page 224 NCERT. fig. 13.2	3
17	(i) Use more of public transport and less of private vehicles. (ii) Get the vehicles checked regularly. (iii) (a) Cause acid rain and (b) global warming	3
18	Energy used is dissipated in less usable form The energy used is consumed and cannot be used again Example : Burning of candle → light + heat but products cannot produce chemical energy (or any other example)	3
19	(i) Calcium and magnesium metals are reactive metals whereas gold and platinum have least reactivity. (ii) Aluminium is a reactive metal, reacts with atmospheric oxygen to form a thin layer of aluminium oxide on its surface. (iii) Aluminium has greater affinity for oxygen than carbon.	5

	(iv)	Copper reacts with silver nitrate solution and will displace silver from silver nitrate forming copper nitrate which is blue in colour. $Cu_{(S)} + 2AgNO_{3_{(aq)}} \longrightarrow Cu(NO_3)2_{(aq)} + 2Ag_{(s)}$ (v) Copper is less reactive than zinc so no reaction will take place. Zinc is more reactive than copper, will displace copper from copper sulphate solution and due to the formation of zinc sulphate colour will fade away	
20	(a) (b)	Activity No.2.8 of NCERT T.Book Class X, Page 22 They produce ions Acids $HCl + H_2O \rightarrow H_3O^+ + Cl^-$ Bases $NaOH_{(s)} \xrightarrow{H_2O} Na^+_{(aq)} + OH^-_{(aq)}$	5
21		Breathing is a complex mechanical process involving muscular movement that alters the volume of the thoracic cavity and that of the lung. Two main steps in breathing are : Inhalation and exhalation. In tissues oxygen is used up for their activities and CO_2 is released. The blood from lungs has high concentration of oxygen and low concentration of CO_2. Due to this difference in concentration of O_2 and CO_2, the exchange of gases takes place between tissue and blood. The CO_2 which is collected in human tissues is carried to the alveoli of lungs for exhalation. It is then pushed out of lungs through trachea and nostrils.	5
22		• Definition of electric current • SI unit of current - ampere • Definition of 1 ampere • Direction of current from A to B - Justification • $I = \dfrac{ne}{t} \quad \Rightarrow \quad n = \dfrac{I \times t}{e}$ $= \dfrac{1\,A \times 1\,s}{1.6 \times 10^{-19}\,C} = 6.25 \times 10^{18}$	5
23	(a) (c)	Heating effect (b) Always in series with live wire. Refer fig 13.20 Page 238 NCERT book	5
24	(a) (b)	Definition of electric power Unit of electric power – Watt, and Kilowatt Derivation of formula $P = V \times I$ $P_1 = 50\,w$ Let potential difference $= V$, $P = V \times \dfrac{V}{R} = \dfrac{V^2}{R}$ $50 = \dfrac{V^2}{R_1}$ Or $R_1 = \dfrac{V^2}{50}$	5

$$P_2 = 25 \text{ W}$$

$$\therefore \ 25 = \frac{V^2}{R_2}$$

$$\text{Or } R_2 = \frac{V^2}{25}$$

$$\text{Or } \frac{R_1}{R_2} = \frac{\cancel{V^2}}{50} = \frac{\frac{1}{\cancel{25}}}{\cancel{50} \ _2}$$
$$\frac{\cancel{V^2}}{25}$$

$$\text{Or } \frac{R_1}{R_2} = \frac{1}{2}$$

$$\text{Or } R_2 = 2\,R_1$$

$\therefore$ Resistance becomes 2 times

		भाग–ब / SECTION - B	
25	(d)		1
26	(a)		1
27	(a)		1
28	(d)		1
29	(d)		1
30	(b)		1
31	(c)		1
32	(b)	Dissolve chlorophyll	1
33	(b)		1
34	(i)	Combination reaction, Exothermic reaction.	2
	(ii)	Double decomposition reaction, precipitation reaction.	
35	(i)	Continuous circuit	2
	(ii)	Development of potential difference	
36	Correct sequence(i)(iii)(ii)(iv)		2

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