



GRADE: X Date:4/12/23	Model Examination 1 (2023-24) Science (Subject code 086) Marking Scheme	Marks: 80 Time: 3 hours
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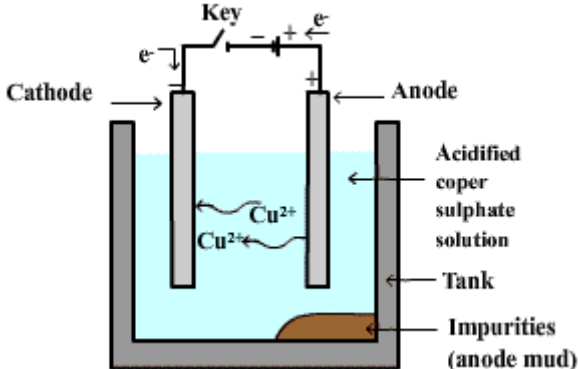
Name:

Class & Section:

	General Instructions: <ul style="list-style-type: none"><i>i. This question paper consists of 39 questions in 5 sections.</i><i>ii. All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.</i><i>iii. Section A consists of 20 objective type questions carrying 1 mark each.</i><i>iv. Section B consists of 6 Very Short questions carrying 02 marks each. Answers to these questions should be in the range of 30 to 50 words.</i><i>v. Section C consists of 7 Short Answer type questions carrying 03 marks each. Answers to these questions should be in the range of 50 to 80 words.</i><i>vi. Section D consists of 3 Long Answer type questions carrying 05 marks each. Answer to these questions should be in the range of 80 to 120 words.</i><i>vii. Section E consists of 3 source-based/case-based units of assessment of 04 marks each with sub-parts.</i>	
	Section - A Select and write the most appropriate option out of the four options given for each of the questions 1 - 20. There is no negative mark for incorrect response.	
Q.No.	Questions	Mark
1	a)Copper (ii)chloride	1
2	b)Al ₂ O ₃	1
3	c)CO ₂	1
4	b)They have high melting and boiling point	1
5	c)Fe	1
6	c)sodium ethoxide and hydrogen	1
7	c)glacial acetic acid	1

8	(c) Water in the guard cells	1
9	(b) The plant uses electrical-chemical signals to transfer information from cell to cell.	1
10	(d)Thymus	1
11	c) Growth hormones under the influence of the enzymes coded by a gene.	1
12	(c) dialysis	1
13	(d) Virtual, erect, and reduced	1
14	(b) Atmospheric refraction of light by different layers of varying refractive indices	1
15	a) Broken down by biological processes	1
16	d) Prevention-Reuse-Recycle-Disposal	1
	<p>Question No. 17 to 20 consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:</p> <p>a) Both A and R are true, and R is the correct explanation of A. b) Both A and R are true, and R is not the correct explanation of A. c) A is true but R is false. d) A is false but R is true.</p>	
17	a. Both are true and correct explanation.	1
18	a) A is true but R is false.	1
19	a) Both A and R are true, and R is the correct explanation of A.	1
20	e) Both A and R are true, and R is the correct explanation of A.	1
	Section B	
	Question No. 21 to 26 are very short answer questions	
21	<p>Most of the dirt is oily in nature and oil does not dissolve in water. The molecule of soap constitutes sodium or potassium salts of long-chain carboxylic acids. In the case of soaps, the carbon chain dissolves in oil and the ionic end dissolves in water. Thus, the soap molecules form structures called micelles. In micelles, one end is towards the oil droplet and the other end which is the ionic faces outside. Therefore, it forms an emulsion in water and helps in dissolving the dirt when we wash our clothes.</p> <p>Soap is a kind of molecule in which both the ends have different properties.</p> <ul style="list-style-type: none"> • Hydrophilic end 	2

	<ul style="list-style-type: none"> • Hydrophobic end <p>The first one is the hydrophilic end which dissolves water and is attracted to it whereas the second one is the hydrophobic end that is dissolved in hydrocarbons and is water repulsive in nature. If on the surface of the water, soap is present then the hydrophobic tail which is not soluble in water will align along the water surface.</p>	
22	<p>a) Mn, Mg</p> <p>b) Nitric acid is an oxidising agent. Most of the metals do not react with HNO₃ because it is a strong oxidizing agent. And since hydrogen is a reducing agent, nitric acid oxidises the hydrogen produced to water and itself undergoes reduction to give N₂O, NO, NO₂, N₂ and NH₃.</p>	2
23	<p>ammonia, urea, uric acid, and creatinine</p> <p>or</p> <p>The thick walls of the arteries prevent them from bursting due to the high blood pressure and the changes in the pressure during the cardiac cycle. Hence, the thick walls are a structural necessity. The valves that are generally found in the veins are generally to prevent the backflow of the blood.</p>	2
24	<p>i) The ratio of the speed of light in a vacuum to its speed in a particular medium is known as the refractive index.</p> <p>ii) $\frac{3}{2} / \frac{4}{3} = \frac{9}{8}$</p>	2
25	<p>i) $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = 1 \text{ ohm}$</p> <p>ii) $Q = It = 2 \times 10 = 20 \text{ C}$</p> <p>OR</p> <p>A solenoid is a long coil containing a large number of close turns of insulated copper wire.</p>	2
26	<p>500 J of energy is available to the rats thus according to 10% law, 50 J energy will be available to snakes and 5 J energy will be available to hawk.</p>	2
<p>Section C</p> <p>Question No. 27 to 33 are short answer questions</p>		

27		3
28	<p>a) A-2,8,1 B-2,8,7 b) A Metal B non metal c) Electron dot structure of Sodium chloride is shown below:</p> $\begin{array}{l} \text{Na} \longrightarrow \text{Na}^+ + \text{e}^- \\ \text{2,8,1} \qquad \qquad \text{2,8} \\ \text{(sodium cation)} \\ \text{Cl} + \text{e}^- \longrightarrow \text{Cl}^- \\ \text{2,8,7} \qquad \qquad \text{2,8,8} \\ \text{(Chloride anion)} \\ \text{Na}^+ + \text{Cl}^- \longrightarrow \left[\begin{array}{c} \times \times \times \\ \times \text{Cl} \times \\ \times \times \times \end{array} \right] \end{array}$	3
29	$\text{NaCl} + \text{H}_2\text{O} \longrightarrow \text{NaOH} + \text{H}_2 + \text{Cl}_2$ $\text{Ca}(\text{OH})_2 + \text{Cl}_2 \longrightarrow \text{CaOCl}_2$	3
30	<p>a) Nutrients help the organisms to derive energy, build muscles, cure deficiency diseases, fulfill mineral needs and provide fluid to various parts of the body b) The wall of the alimentary canal contains muscle layers which cause rhythmic contraction, expansion and relaxation due to which food pushes forward and is called as peristalsis movement occurs all along in the gut. c) herbivores consume plant and grass-based food which is high in cellulose and the digestion of cellulose takes a long time.</p>	3
31	<p>Myopia excessive curvature of the eye lens and elongation of the eye ball. by using a concave lens of suitable power</p>	3
32	<p>i) Joule's law ii) $H = I^2 \times R \times t = 3 \times 3 \times 5 \times 2 \times 60 = 5400 \text{ J}$</p>	3
33	<p>i) $5 + 10 = 15 \text{ ohm}$ ii) $I = V/R = 2/15 = 0.13 \text{ A}$ iii) $V = IR = 2/15 \times 10 = 1.33 \text{ V}$</p>	3
Section D		
Question No. 34 to 36 are long answer questions		
34	<p>A) CATENATION AND LINKING WITH OTHER ELEMENTS TO FORM MULTIPLE BONDS.</p>	5

	<p>B)soaps work in soft water.micelle formation.deatergents work both in soft and hard water.It doesnot have micelle formation.</p> <p>c)ZnSO₄ and H₂</p> <p>i)ZnCl₂ and H₂</p> <p>ii)Na₂ZnO₂ AND H₂</p> <p>OR</p> <p>i)Al forms a coating</p> <p>ii)In molten state sodium chloride exists as ions but in solid state they are not ionised as the force of attarctuion is strong.</p>	
35	<p>a)1. Eggs develop - Ovaries</p> <p>2. Fertilization takes place- Fallopian tubes.</p> <p>3. Fertilized egg gets implanted - Uterus</p> <p>b)1. To receive the zygote the uterus undergoes many changes to create a friendly environment for the initiation of pregnancy. The lining of a uterus gets thickened and enriched with blood supply to promotes healthy growth. The uterus also increases its secretion to allow easy movement of the zygote for implantation. The uterus also produces rounded cells which cover the whole area towards the uterine cavity, these cells are called decidual cells.</p> <p>2. If the zygote is not formed the whole layer of the decidual cells sheds off along with blood and mucus in the next menstrual cycle.</p>	5
36	<p>$f = 1/P = 1/4 = 0.25 \text{ m} = 25 \text{ cm}$</p> <p>real and inverted , same size as the object</p> <p>$m = -1$</p> <p>ray diagram</p> <p>OR</p>	<p>1</p> <p>1</p> <p>1</p> <p>2</p> <p>OR</p>
	Section E	
	Question No. 37 to 39 are case-based/data-based questions with 2 to 3 short sub-parts. Internal choice is provided in one of these sub-parts.	
37	<p>a)CH₂=CH₂</p> <p>b)CH₂=CH₂+H₂----->CH₃-CH₃</p> <p>c)CH₄+Cl₂---->CH₃Cl</p>	4

<p>38</p>	<p>(a) Yes, green eye colour is recessive as it will express only in homozygous condition.</p> <p>(b) BB, Bb</p> <p>(c) bb*Bb</p> <table border="1" data-bbox="288 383 411 562"> <tr> <td></td> <td>B</td> <td>b</td> </tr> <tr> <td>b</td> <td>Bb</td> <td>bb</td> </tr> <tr> <td>b</td> <td>Bb</td> <td>bb</td> </tr> </table> <p>Genetic cross - 50% of the offsprings can have green eye colour.</p>		B	b	b	Bb	bb	b	Bb	bb	<p>4</p>
	B	b									
b	Bb	bb									
b	Bb	bb									
<p>39</p>	<p>dispersion diagram violet red</p>	<p>4</p>									

Prepared by :.....

Checked by : HOD /HOS