KENDRIYA VIDYALAYA SANGATHAN
HYDERABAD REGION

PREBOARD I (2024-25) Set 1
CLASS – X SUBJECT-SCIENCE

TIME: 3 HRS **M.M: 80**

General Instructions: -

i. This question paper consists of 39 questions in 5 sections.

ii. All questions would be compulsory. However, an internal choice of approximately 33% would be provided in some questions. 50% are to be allotted to competency-based questions.

iii. Section A would have 16 simple/complex MCQs and 04 Assertion-Reason type questions carrying one mark each.

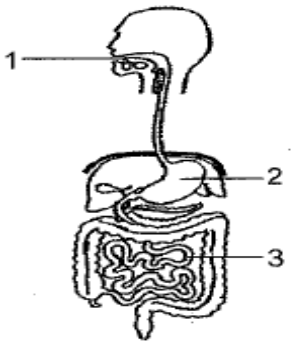
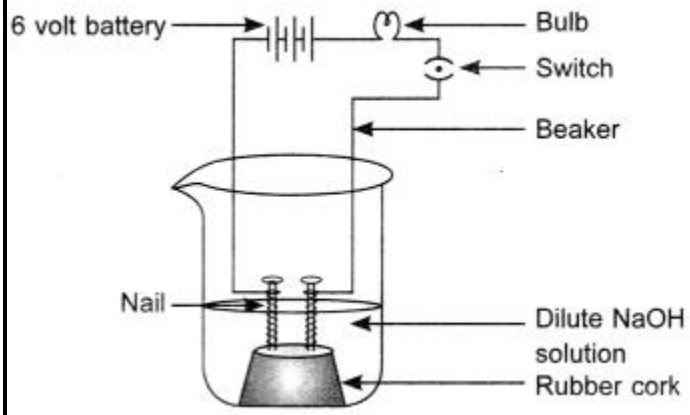
iv. Section B would have 06 very short answer (VSA) type questions carrying 02 marks each.

v. Section C would have 07 short answer (SA) type questions carrying 03 marks each.

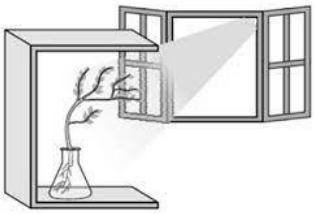
vi. Section D would have 03 long answer (LA) type question carrying 05 marks each.

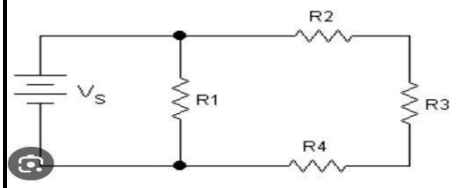
vii. Section E would have 03 source based / case-based/passage based/integrated units of assessments of 04 marks each with sub-parts of the values of 1/2/3 marks.

SECTION – A **Question 1 to 16 are multiple choice questions. Only one of the choice is correct. Select and write the correct choice as well as the answer to these questions.**		
1	Reaction between X and Y forms compound Z. X loses electron and Y gains electron. Which of the following properties is shown by Z? (a) Has high melting point (b) Occurs as molten state (c) Conducts electricity in solid state (d) None of the above	1
2	Identify the option that indicates the correct enzyme that is secreted in location 1, 2, 3.	1

	 (A). 1.lipase 2. Trypsin 3.pepsin (B) 1. Amylase 2. Pepsin 3. trypsin (C) 1. Trypsin 2. amylase, 3. Pepsin (D) 1. Pepsin 2. Trypsin 3.lipase	
3	The commercial unit of energy is: a) Watt b) kilo Watt-hour c) watt-hour d) Kilo-joule	1
4	The apparatus given in the adjoining figure was set up to demonstrate electrical conductivity.  Which of the following statement(s) is (are) correct? (i) Bulb will not glow because electrolyte is not acidic. (ii) Bulb will glow because NaOH will furnishes ions for conduction. (iii) Bulb will not glow because circuit is incomplete. (iv) Bulb will not glow because it depends upon the type of electrolytic solution. (a) (i) and (iii) (b) (ii) and (iv) (c) (ii) only (d) (iv) only	1
5	Amongst these compounds, which does not contain any water of crystallization is: a). Plaster of Paris b) Gypsum c) Washing soda d). Bleaching powder	1

<table>
<tr><td></td><td></td><td></td></tr>
<tr><td>6</td><td>The antioxidant gas used in packets of potato chips to prevent rancidity is:
a) oxygen b) nitrogen c) ammonia d) carbon dioxide</td><td>1</td></tr>
<tr><td>7</td><td>A sportsman, after a long break of his routine exercise, suffered muscular cramps during a heavy exercise session. This happened due to:
(a) lack of carbon dioxide and formation of pyruvate.
(b) presence of oxygen and formation of ethanol.
(c) lack of oxygen and formation of lactic acid.
(d) lack of oxygen and formation of carbon dioxide.</td><td>1</td></tr>
<tr><td>8</td><td>Oxygen liberated during photosynthesis comes from:
(a)Water (b) Chlorophyll (c) carbon dioxide (d) glucose</td><td>1</td></tr>
<tr><td>9</td><td>Identify the genetic composition of a normal child who inherits X chromosome from father:
a) XX b) XY c) XYY d) XO</td><td>1</td></tr>
<tr><td>10</td><td>What type of chemical reactions take place when electricity is passed through water?
(a) Displacement
(b) Combination
(c) Decomposition
(d) Double displacement</td><td>1</td></tr>
<tr><td>11</td><td>The amount of light entering the human eye is controlled by
a. Ciliary muscles
b. Pupil
c. Cornea
d. Iris</td><td>1</td></tr>
<tr><td>12</td><td>A scientist in a chemistry lab wants to make salt of pH 5.5 using acid and base. The table shows the acid and base present in the lab.
Which of the acid and base he should use for the reaction?
<table><tr><td>1</td><td>HCl</td></tr><tr><td>2</td><td>NaOH</td></tr><tr><td>3</td><td>H_2CO_3</td></tr><tr><td>4</td><td>NH_4OH</td></tr><tr><td>5</td><td>CH_3COOH</td></tr></table>a) HCl and NaOH c)H_2CO_3 and NaOH</td><td>1</td></tr>
</table>

	b) HCl and NH_4OH d) CH_3COOH and NaOH	
13	Scattering of light can be seen in ————-. a) Twinkling of star b) reddening of the Sun at sunrise and sunset c) Rainbow formation d) All of the above	1
14	Observe the diagram, and identify the tropic movement shown in the figure given below:  (A) geotropic movement (B) chemotropic movement (C) phototropic movement (D) hydrotropic movement	1
15	Identify the hydrocarbon which will not show addition reaction a)C_2H_4 b)C_4H_6 c)C_2H_2 d)C_5H_{12}	1
16	What happens to the resistance of a conductor if its length is doubled, keeping the cross-sectional area the same? a) The resistance is halved b) The resistance remains the same c) The resistance is doubled d) The resistance is tripled	1
Q. no 17 to 20 are Assertion - Reasoning based questions.		
These consist of two statements – Assertion (A) and Reason (R). Answer these questionsselecting the appropriate option given below: **(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**		
17	**Assertion (A):** Bronze is an alloy of copper and tin. **Reason (R) :** Alloys are heterogeneous mixture of metals with other metals and non-metals.	1

18	**Assertion (A):** PbO + C → Pb + CO is a reduction reaction. **Reason(R):** PbO is reduced and C is oxidized.	1
19	**Assertion(A) :** Mutation is sudden change in the genetic material. **Reason (R) :** Variation is useful for the survival of species over time.	1
20	**Assertion(A)**: Uterine wall called endometrium breaks down and bleeding occurs in human females. **Reason(R)**: It takes place due to non - fertilization of the ovum which leads to mensuration.	1
	SECTION – B **Question No. 21 to 26 are very short answers questions**	
21	Write name of the hormone in each case: a) responsible for the changes noticed in females at puberty b) Dwarfism results due to deficiency of which hormone c) Blood sugar level rises due to deficiency of which hormone d) Mineral necessary for the synthesis of Thyroxin	2
22	An electric motor takes 5A from a 220V line. Determine the power of the motor andthe energy consumed in 2 hrs? **Or** Calculate the equivalent resistance in the following network when value of R1, R2, R3 & R4 are 4Ohm, 6 Ohm, 8 Ohm & 2 Ohm respectively which are connected to 20 V battery. 	2
23	A silver article generally turns black when kept in the open for a few days. The article, when rubbed with toothpaste again, starts shining. (a) Why do silver articles turn black when kept in the open for a few days? Name the phenomenon involved. (b) Name the black substance formed and give its chemical formula.	2
24	Why does an aquarium require frequent cleaning whereas pond does not? **Or** How is ozone layer formed and state its function. Name the compound responsible for ozone hole.	2

25	Draw schematic flowchart of reflex arc when we touch a hot plate. Give any one benefit of relax action for human being.	2
26	State the reason a) Diffusion is insufficient to meet the oxygen requirement of multicellular organisms like human. b) The rate of breathing in aquatic organism's much faster than that seen in terrestrial organisms	2
	SECTION- C **Question No. 27 to 33 are short answer questions**	
27	During the extraction of metals, electrolytic refining is used to obtain pure metals. (a) Which material will be used as anode and cathode for refining copper metal in this process? (b) Suggest a suitable electrolyte also. (c) Where do we get pure copper in this electrolytic cell after passing an electric current?	3
28	a). In the following food chain, calculate the amount of energy available to Tiger, if energy available to plant is 10,000 KJ. Grass → Deer → Tiger → Mushroom b) Identify the trophic level represented by Tiger. c) What is the role of Mushroom in the ecosystem?	3
29	An object 5cm high is placed at a distance of 20 cm in front of a convex mirror withradius of curvature30 cm. Find the nature, position and size of the image. **Or** Draw ray diagram for the image formed by mirror in following case a) Used a rear-view mirror b) Dentist mirror.	
30	I. Draw the human excretory system and label the following a) Ureter b) Urinary bladder II. Describe in brief how urine is produced in human body.	3

31	A doctor used a compound X to join the fractured bone. a) identify the compound X and write its chemical formula. b) why this compound is advised to store in water proof container? c) Write the reaction when the compound X is mixed with water. **Or** A white powder is added while baking breads and cakes to make them soft and fluffy. Write the name of the powder? Name its main ingredients. Explain the function of each ingredient. Write the chemical reaction taking place when the powder is heated during baking.	3
32	A child while playing with his father's spectacles burnt a hole in a piece of paper by focusing a small image of the sun on it. a). What defect of vision his father is suffering from? b). Write two causes for this defect? c). Name the corrective lens used for above defect and draw the figure of its correction. **Or** Comment on the following a) Universe appears black to astronauts b) Danger signal is made of red color c) Twinkling of stars in the night	3
33	Write one main difference between asexual and sexual mode of reproduction. Which species is likely to have comparatively better chances of survival – the one reproducing asexually or the one reproducing sexually? Give reason to justify your answer. **Or** What happens when (a) accidently, Planaria gets cut into many pieces- (b) Bryophyllum leaf falls on the wet soil (c) on maturation sporangia of Rhizopus bursts?	3
	SECTION – D **Question No. 34 to 36 are long answer questions**	
34	Mendel blended his knowledge of science to keep the count of the individuals exhibiting a particular trait in each generation. He observed a number of contrasting characters controlled in pea plants in a field. He conducted many experiments to arrive at the laws of inheritance. a) Which of the following traits are recessive in pea plant? Dwarfness, Violet flower, Wrinkled seed b) Define dominating traits and Recessive traits. c) Why did Mendal choose pea plant for his experiment?	5

	Or A green stemmed rose plant denoted by GG and a brown stemmed rose plant denoted by gg are allowed to undergo a cross with each other. (a) List your observations regarding : (i) Colour of stem in their F_1 progeny (ii) Percentage of brown stemmed plants in F_2 progeny if plants are self-pollinated. (iii) Ratio of GG and Gg in the F_2 progeny. (b) Based on the findings of this cross, what conclusion can be drawn and name the type of cross? c)draw the flowchart for the above cross.	
35	a) Differentiate between Roasting and Calcination. b) A metal X which is used in Galvanization to prevent rusting on Iron articles is extracted from its Carbonate ore. Write the different chemical equations involved in its metallurgy. c) why HNO_3 does not release hydrogen gas when react with metals except Mn d) What is thermit reaction? How is it useful? **Or** (a) Draw the labelled diagram to show electrolytic refining of copper. (b) Name the electrolyte used in refining of copper. (c) What is anode mud? (d) a. Cu ---------> $Cu^{2+} + 2e^-$ b. $Cu^{2+} + 2e^-$ ---------> Cu Which of these two reactions occur at cathode and anode?	5
36	a). Show the course of light ray through a rectangular glass-slab. Mark various angles and rays. b) The refractive index of four different media A, B, C and D are- MEDIUM | A | B | C | D REFRACTIVE INDEX | 1.3 | 1.7 | 1.4 | 1.5 In which medium, angle of refraction is- (i) minimum (ii) maximum Give reason for your answer. **Or** (a) Define 1 dioptre power of lens. (b) State Snells law. (c) Write the lens formula. (d) A 2 cm long pin is placed at a distance of 16 cm from a convex lens of	5

	focal length 12 cm. Find the position, size and nature of the image formed.	
	SECTION – E **Question No. 37 to 39 are case based/data based questions**	
37	Chemical substances containing carbon are referred to as carbon compounds. Except for hydrogen, there are more carbon compounds than any other chemical element. Compounds of carbon with double bonds and triple bonds are called unsaturated compounds, while those with carbon-carbon single bonds are called saturated compounds. a) Write any two unique properties of carbon due to which it forms a huge number of compounds? b) Deduce the general formula of saturated hydrocarbon compound. c) Draw the electron dot structure of methane.	4
38	Electrical resistivities of some substances at 20°C are given in the table. Based on the info in the table, answer the given questions. Silver 1.60×10^{-8} m Copper 1.62×10^{-8} m Tungsten 5.2×10^{-8} m Mercury 94×10^{-8} m Iron 10×10^{-8} m Nichrome 100×10^{-8} m a) Which is a better conductor of electric current? (A) Silver (B) Copper (C) Tungsten (D) Mercury b) Which element will be used for electrical transmission lines? (A) Iron (B) Copper (C) Tungsten (D) mercury c) Nichrome is used in the heating elements of electric heating device because: (A) It has high resistivity (B) It does not oxidise readily at high temperature (C) Both of the above (D) None of the above U d) state the factors on which resistance of the wire depends.	4

39	The female reproductive system is a complex system of internal and external organs that enables reproduction and menstruation. It is responsible for Producing eggs A woman is born with hundreds of thousands of eggs in her ovaries. During puberty, the pituitary gland in the brain releases hormones that stimulate the ovaries to produce oestrogen and other female sex hormones. These hormones help a girl develop into a sexually mature woman. The menstrual cycle is a monthly period that occurs when an ovary releases an egg into a fallopian tube. If the egg is fertilized by sperm, it moves to the uterus where it can implant in the thickened uterine lining. If the egg is not fertilized, it leaves the body about two weeks later during menstruation a) Identify the part of human female reproductive system where 1)egg is produced 2)site of fertilization 3) implantation of embryo b) How does embryo get nourishment in the mother womb? c) What are the three different methods to prevent unwanted pregnancy?	

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