INDIAN SCHOOL AL WADI AL KABIR

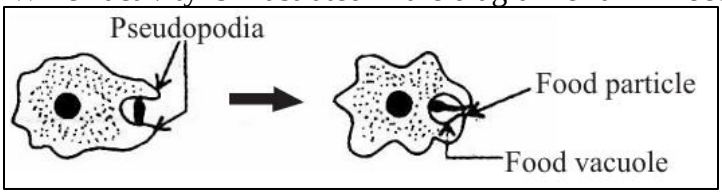
PRE-MID TERM EXAMINATION (2024-25)

CLASS: X **Sub: SCIENCE** **MAX.MARKS: 30**

DATE: 26-05-2024 **Set - II** **TIME: 1 HOUR**

General Instructions:

i) All the questions are compulsory.
ii) The question paper has five sections and 14 questions.
iii) Section–A has 6 questions of 1 mark each; Section–B has 2 questions of 2 marks each. Section–C has 2 questions of 3 marks each. Section–D has 1 question of 5 marks and Section E has 3 case-based questions of 3 marks each.
iv) Internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.

NO	QUESTIONS	MARKS
	SECTION A	
1	Which of the following mirror is used by a dentist to examine a small cavity? (a) Plane mirror (b) Convex mirror (c) Concave mirror (d) A combination of both concave and convex mirror	1
2	When dilute HCl is added to Zinc pieces taken in a test tube, (a) No change takes place (b) The colour of the solution becomes yellow. (c) A pungent smelling gas gets liberated. (d) Small bubbles of H_2 gas appear on the surface of zinc pieces.	1
3	Which activity is illustrated in the diagram of an Amoeba shown above?  (a) Ingestion (b) Excretion (c) Egestion (d) Assimilation	1

For question numbers 4, 5 and 6, two statements are given- one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:

(a) Both A and R are true, and R is correct explanation of the assertion.
(b) Both A and R are true, but R is not the correct explanation of the assertion.
(c) A is true, but R is false.
(d) A is false, but R is true.

4	**Assertion (A):** The magnification produced by a plane mirror is always +1. **Reason(R):** A plane mirror forms a virtual image which is laterally inverted.	1
5	**Assertion (A):** White silver chloride turns grey in sunlight. **Reason(R):** Copper reacts with iron sulphate to form copper sulphate and iron is deposited	1
6	**Assertion (A):** During the breathing cycle, when air is taken in and let out, the lungs always contain a residual volume of air. **Reason(R):** This residual volume of air ensures that there is sufficient time for oxygen to be absorbed and for the carbon dioxide to be released.	1
	SECTION B	
7	A student burnt a metal ribbon 'A' in atmospheric air. The ribbon burnt with a dazzling flame and a white powder 'B' is formed which is basic in nature. Identify 'A' & 'B'. Write the balanced chemical equation for the reaction.	2
8	(i) How is oxygen and carbon dioxide transported in human beings? (ii) Rate of breathing in aquatic organisms is much faster than that in terrestrial organisms. Give reasons.	2
	SECTION C	
9	Mention with reason the colour changes observed when: (i) Silver chloride is exposed to sunlight. (ii) Copper powder is strongly heated in the presence of oxygen. (iii) A piece of zinc is dropped in copper sulphate solution. **OR** What happens when an aqueous solution of sodium sulphate reacts with an aqueous solution of barium chloride? State the physical conditions of reactants in which the reaction between them will not take place. Write the balanced chemical equation for the reaction and name the type of reaction.	3
10	(i) Mention the three major events in the process of photosynthesis. (ii) Draw a neat labelled diagram of open stomata.	3
	SECTION D	
11	(i) Draw ray diagrams to show the type of image formed when the object is placed in the following cases: (a) at the centre of curvature of a concave mirror. (b) at a finite distance from the pole of a convex mirror. (ii) A 5 cm tall object is placed at a distance of 30 cm from a convex mirror of focal length 15 cm. Find the position, size and nature of the image.	5

OR

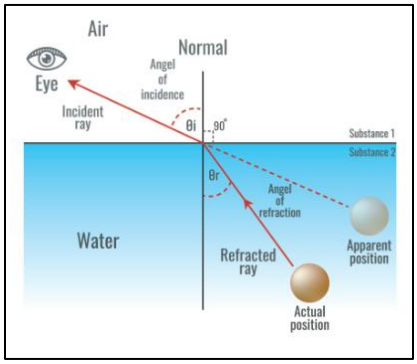
(i) Draw ray diagrams to show the type of image formed when the object is placed in the following cases:
(a) between the pole and the focus of a concave mirror.
(b) at infinity for a convex mirror.

(ii) A student has focused the image of a candle flame on a white screen using a concave mirror. The situation is as given below:
Length of the flame = 1.5 cm
Focal length of the mirror = 12 cm.
Distance of flame from the mirror = 18 cm.
If the flame is perpendicular to the principal axis of the mirror, then calculate the distance of the image from the mirror and the length of the image.

SECTION E

12 (3)

CASE STUDY BASED QUESTION



The ability of a medium to refract light is also expressed in terms of its optical density. Optical density has a definite connotation. It is not the same as mass density. We have been using the terms 'rarer medium' and 'denser medium' quite often in the chapter of light. It actually means 'optically rarer medium' and 'optically denser medium' respectively. Refractive index is the quantity that helps us to decide whether one medium is optically denser or rarer.

The refractive indices for four media A, B, C and D are given in the following table:

Medium	A	B	C	D
Refractive index	1.33	1.50	1.52	2.40

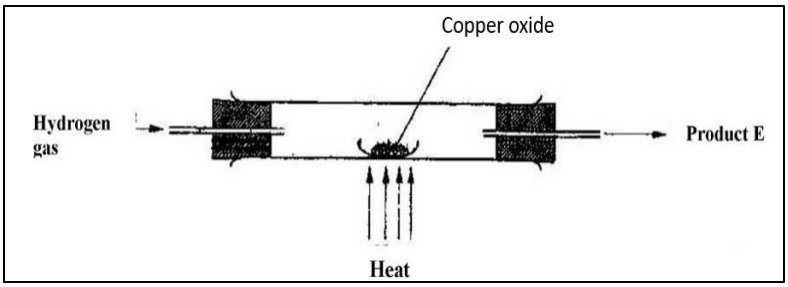
Refer the above data and answer the following questions:

(a) What happens to the ray of light when it travels from denser to rarer medium?
(b) State Snell's law.
(c) In which medium will the speed of light be maximum? why? (Refer the table)

13 (3)

The earlier concept of oxidation and reduction was based on the addition or removal of oxygen or hydrogen elements. So, in terms of oxygen and hydrogen, oxidation is addition of oxygen to a substance or removal of hydrogen from a substance. On the other hand, reduction is removal of oxygen from a substance or addition of hydrogen to a substance.

When dry hydrogen is passed over heated copper oxide (CuO), using the apparatus shown below a reddish-brown residue is obtained.

	 (a) Write the chemical equation for the reaction between hydrogen gas and copper oxide. (b) Identify the oxidising agent and the reducing agent in the above reaction. (c) Identify the substance oxidised and the substance reduced in the below reaction $ZnO + C \rightarrow Zn + CO$	
14	Heterotrophic nutrition is of three types: saprophytic, parasitic and holozoic nutrition. Human beings exhibit holozoic nutrition. After partial digestion in the mouth the bolus of food is swallowed, it is moved swiftly down to the oesophagus by peristalsis and into stomach. The stomach is a muscular sac. In some parts of the stomach the muscle layers are thicker than in most other parts of the alimentary canal. They produce strong, rhythmic, churning movements when there is food in the stomach. This not only mixes the food with the juices secreted in the stomach, but also helps to continue the process of mechanical breakdown begun by chewing in the mouth. The inner layer of the stomach wall, the mucosa, is specialized to produce large quantities of gastric juice. (a) State the role of the following in the process of digestion in stomach. i) Hydrochloric acid ii) Mucus (b) Elaborate the role of saliva in the digestion of food. (c) How is the wall of small intestine adapted for performing the function of absorption of food?	3