Indian School Al Wadi Al Kabir
Pre Mid-term Examination (2025-2026)

Class: X | Subject: SCIENCE (086) | Max. marks: 30
Date: 20/05/2025 | SET-II | Time: 1 hour

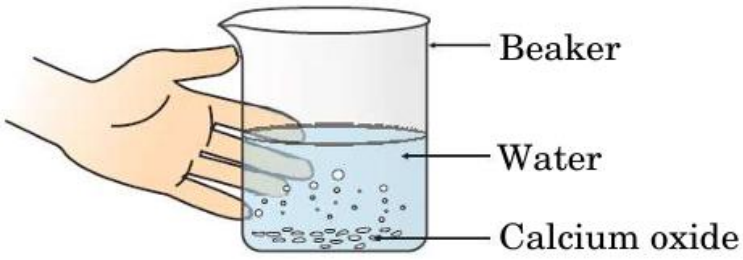
General Instructions:

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.
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.

SECTION - A

Select and write one most appropriate option out of the four options given for each of the questions 1 – 6.

Q.no	QUESTIONS	MARKS
1	The image formed by a concave mirror of focal length 50 cm is real and of magnification – 1. In this case the distance between the object from its own image is (A) 50 cm (B) 200 cm (C) 100 cm (D) Zero	1
2	Ferric oxide reacts with aluminum to produce aluminum oxide and iron. The balanced chemical equation for the given reaction is $Fe_2O_3 + 2Al \rightarrow Al_2O_3 + 2Fe$ Which of the following substances is oxidized in the given reaction? (A) Al_2O_3 (B) Fe_2O_3 (C) Al (D) Fe	1
3	In human respiratory system, when a person breathes in, the position of ribs and diaphragm will be: (A) Lifted ribs and dome shaped diaphragm. (B) Lifted ribs and flattened diaphragm. (C) Relaxed ribs and flattened diaphragm. (D) Relaxed ribs and dome shaped diaphragm.	1

For questions 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 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.		
4	**Assertion (A):** A ray passing through the centre of curvature of a concave mirror after reflection, is reflected back along the same path. **Reason (R):** The incident rays fall on the mirror along the normal to the reflecting surface.	1
5	**Assertion (A):** Decomposition of Silver bromide is used in black and white photography. **Reason (R):** Light provides energy for this exothermic reaction.	1
6	**Assertion (A)**: The rate of breathing in aquatic organisms is much slower than that seen in terrestrial organisms. **Reason (R)**: The amount of oxygen dissolved in water is very low as compared to the amount of oxygen in air.	1
SECTION – B **Q. no. 7 and 8 are very short answer questions**		
7	**Attempt either option (a) or (b)** (a) (i) What causes the movement of food inside the oesophagus? (ii) Why is the small intestine in herbivores longer than in carnivores? **OR** (b) State one role of each of the following in the human digestive system. (i) Hydrochloric acid (ii) Villi	2
8	What happens when an aqueous solution of Sodium sulphate reacts with an aqueous solution of Barium chloride? Write the balanced chemical equation for the reaction with physical states and name the type of reaction.	2
SECTION - C **Q.no. 9 and 10 are short answer questions.**		
9	**Attempt either option (a) or (b)** (a) Observe the given diagram and answer the following questions:  	3

	(i) Write a balanced chemical equation for the reaction taking place in the beaker. (ii) Name the two types of reactions in which the above reaction can be placed, giving justification for each. **OR** (b) You may have tasted or smelled fatty food that has been left out for a long time. Such foods often taste and smell unpleasant. (i) What is the reason for this? (ii) Name the phenomenon responsible for it. (iii) List any two precautions to prevent it.	
10	(a) Sometimes while running, the athletes suffer from muscle cramps. Why? How is the respiration in this case different from aerobic respiration? (b) In the process of respiration, state the functions of alveoli.	3
	SECTION - D **Q.no. 11 is a long answer question**	
11	**<u>Attempt either option (a) or (b)</u>** (a) From the data given below showing the focal length of three concave mirrors A, B and C and the respective distances of objects placed in front of the mirrors: (i) In which one of the above cases the mirror will form a diminished image of the object? Justify your answer. (ii) List two properties of the image formed in case 2. Draw a ray diagram to justify your answer. (iii) (I) What is the nature and size of the image formed by mirror C? (II) Draw a ray diagram to justify your answer. **OR** (b) (i) Draw a ray diagram to show the path of the reflected ray in each of the following cases when a ray of light is incident on a convex mirror: (I) parallel to its principal axis. (II) directed towards its principal focus. (ii) A 1.5 cm tall candle flame is placed perpendicular to the principal axis of a concave mirror of focal length 12 cm. If the distance of the flame from the pole of the mirror is 18 cm, use mirror formula to determine the position and size of the image formed.	5

Case	Mirror	Focal Length (cm)	Object Distance (cm)
1	A	20	45
2	B	15	30
3	C	30	20

	SECTION – E **Q.no. 12, 13, and 14 are case-based/data-based questions with 3 short sub-parts. Read the above passage carefully and answer the following questions.**	
12	Ravi wanted to fix the rear-view mirror of his scooter. He understands that the rear-view mirror is a crucial safety feature in a vehicle, enabling him to see objects behind. He bought two mirrors M1, and M2, out of which the reflecting surface of M1 is curved inwards and that of M2 is curved outwards. (a) Based on the given situation, which mirror should Ravi need to fix as his rear- view mirror and why? (b) What is the formula for magnification obtained with a mirror? (c) An object is placed 60 cm in front of M2. The image formed by the mirror is located 30 cm behind the mirror. What is the object's magnification?	3
13	Ravi found some old iron tools in his grandfather's shed. They were rusted and looked unusable. Curious about restoring them, Ravi researched how metals react with different substances. In his school laboratory, he performed an experiment: he dipped a rusted iron nail into a solution of Copper sulphate ($CuSO_4$) and left it for a day. He observed that the blue color of the copper sulphate solution faded and a reddish-brown layer formed on the iron nail. (a) What type of chemical reaction did Ravi observe? Write a balanced chemical equation for the reaction that occurred. (b) Ravi tried the same experiment with a copper wire and iron sulphate solution but no change was observed. Why? (c) What is rust and under what condition does it occur?	3
14	Living organisms need to perform maintenance activities at all times, regardless of whether they are actively doing something or not. For example, even while sleeping or sitting in a classroom, the body continues its essential upkeep. This ongoing maintenance helps protect cells and tissues from damage and deterioration. To fuel these processes, organisms rely on energy derived from food, which is originally created by autotrophs, also known as producers. (a) State in proper sequence the events that take place in the preparation of food by plants. (b) Represent the process of photosynthesis with the help of a balanced chemical equation. (c) Explain the mechanism behind the opening and closing of stomata.	3