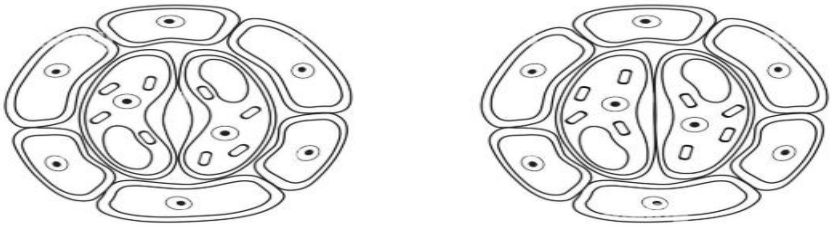
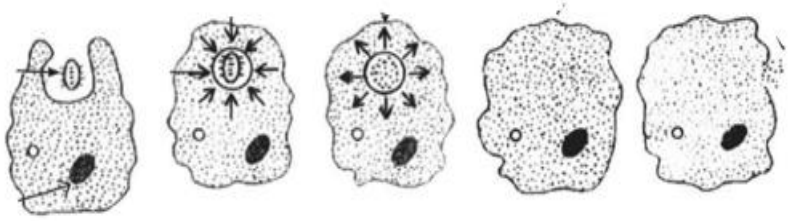
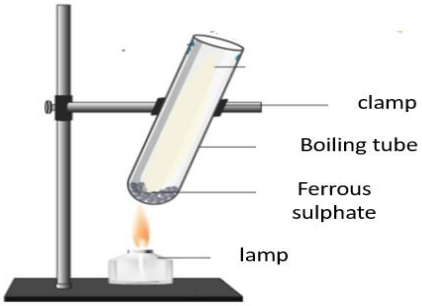
Indian School Al Wadi Al Kabir
Pre-Midterm Examination (2026-2027)

Class: X | Subject: SCIENCE (086) | Max. Marks: 30
Date:17/05/2026 | Set- I | Time: 1 Hour

General Instructions:
Read the following instructions carefully.
(i) This question paper consists of 14 questions in 3 sections. Section A is Biology, Section B is Chemistry, and Section C is Physics.
(ii) All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of the choices in such questions.

Q. No	Questions	Marks
	Section – A	
1	During vigorous exercise, the occurrence of cramps in the outer muscles of an athlete is due to the conversion of pyruvate to: A. Glucose B. Ethanol C. Lactic acid D. Lactose	1
2	The following question consists of two statements – **Assertion (A)** and **Reason (R)**. Answer the question by selecting the appropriate option given below: **Assertion (A):** The rate of breathing in aquatic organisms is faster than that in terrestrial organisms. **Reason (R):** The amount of oxygen dissolved in pond/river water is comparatively higher than the amount of oxygen present in the air. 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.	1
3	**<u>Students to attempt either option A or B.</u>** A. Observe the diagram of stomata and answer the following questions: 	2

	(i) Name the bean-shaped cells surrounding the stomatal pore. Briefly comment upon its function. (ii) Which gas enters the leaf through stomata during photosynthesis? **OR** B. Observe the diagram showing nutrition in Amoeba and answer the following questions:  (i) Name the structure used for capturing food. (ii) What type of nutrition does Amoeba use? Define this mode of nutrition.	
4	(i) Why are alveoli present in large numbers in the lungs? (ii) What is residual volume? What is its importance in respiration?	3
5	A variegated leaf plant, such as Croton, was kept in the dark for 48 hours. Then, it was kept in sunlight for a few hours. After that, a leaf was plucked, boiled in water, then in alcohol, and finally, iodine solution was added and tested for starch. It was observed that only the green parts of the leaf turned blue-black with iodine, while the non-green parts remained brown. A. Why was the plant kept in darkness for 48 hours before the experiment? B. Which part of the variegated leaf tested positive for starch? C. What conclusion is drawn from this experiment?	3
	Section – B	
6	Which of the following statements about the given reaction are correct? $3Fe\ (s) + 4H_2O\ (g) \rightarrow Fe_3O_4\ (s) + 4\ H_2\ (g)$ (i) Iron metal is getting oxidised. (ii) Water is getting reduced. (iii) Water acts as a reducing agent. (iv) Water acts as an oxidising agent. A. (i), (ii) and (iii) B. (iii) and (iv) C. (i), (ii) and (iv) D. (ii) and (iv)	1
7	The following question consists of two statements – **Assertion (A)** and **Reason (R).** Answer the question by selecting the appropriate option given below: **Assertion (A):** In the electrolysis of water, the volume of hydrogen liberated is twice the volume of oxygen formed. **Reason (R):** Water (H_2O) has hydrogen and oxygen in the ratio of 1:2 by volume.	1

	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.	
8	A student performs the following experiment in his school laboratory.  (i) List two observations to justify that in this experiment, a chemical change has taken place. (ii) Write a balanced chemical equation of the reaction involved.	2
9	**<u>Attempt either option A or B.</u>** A. A compound 'A' is used in the manufacture of cement. When dissolved in water, it releases a large amount of heat and forms compound 'B'. (i) Identify A and B. (ii) Write a chemical equation for the reaction of A with water. (iii) List two types of reaction in which this reaction may be classified. **OR** B. 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.	3
10	A science teacher took students on an educational visit to a cement plant and a thermal power station. At the cement plant, they observed limestone being heated to produce quicklime. At the power station, they saw natural gas being burned to generate heat energy. The reactions involved are: • Reaction (A): Combustion of methane $CH_4+2O_2 \rightarrow CO_2+2H_2O+$ heat • Reaction (B): Heating of limestone $CaCO_3 \xrightarrow{heat} CaO + CO_2$ A. Identify the exothermic and endothermic reactions. B. What do you mean by an exothermic reaction? C. Respiration is an exothermic reaction. Justify the statement.	3

	Section – C	
11	Which of the following properties correctly describe virtual images? (i) Virtual images cannot be projected on a screen. (ii) Virtual images can be formed by both concave and convex mirrors. (iii) Virtual images are always erect (upright). (iv) Virtual images are always inverted. A. i and iv B. i and ii C. i, ii, and iii D. i, ii, and iv	1
12	The following question consists of two statements – **Assertion (A)** and **Reason (R)**. Answer the question by selecting the appropriate option given below: **Assertion (A):** The image formed by a concave mirror when the object is placed at the centre of curvature is of the same size as the object. **Reason (R):** When the object is placed at C, the magnification produced by the concave mirror is equal to +1. 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.	1
13	Riya's mother recently visited a dentist. Riya noticed that the dentist used a special mirror to get a large, clear view of each tooth. She also observed that the rear-view mirror in their car always showed an erect but smaller image of the vehicles behind them, regardless of their distance. Her science teacher explained that the type of image formed by a curved mirror depends on the object's position and the mirror's properties. A. The dentist uses a mirror that gives an enlarged, erect, and virtual image of the teeth. Which type of mirror is this, and where must the tooth be positioned relative to the mirror for such an image to form? B. The rear-view mirror of a car has a radius of curvature of 30 cm. What will be its focal length, and on which side of the mirror does its principal focus lie? C. Riya found that when she stood very close to a concave mirror, she saw an enlarged image, but as she moved farther away, the image flipped and became inverted. At exactly which position of the object does a concave mirror form a real, inverted, and enlarged image beyond the centre of curvature (C)**?**	3

14	**<u>Attempt either option A or B.</u>** A. A student wants to project the image of a candle flame on a screen 48 cm in front of a mirror by keeping the flame at a distance of 12 cm from its pole. (i) Suggest the type of mirror he should use and state one use of this mirror. (ii) Find the magnification of the image produced. (iii) How far is the image from its object? (iv) Draw a ray diagram to show the image formation in this case. **OR** B. (i) If the image formed by a mirror for all positions of the object placed in front of it is always diminished, erect, and virtual, state the type of the mirror and also draw a ray diagram to justify your answer. (ii) Revanth placed a pencil perpendicular to the principal axis in front of a converging mirror of focal length 30 cm. The image formed on the screen is twice the size of the pencil. Calculate the distance of the object from the mirror. Draw a ray diagram to justify your answer.	5

All the Best