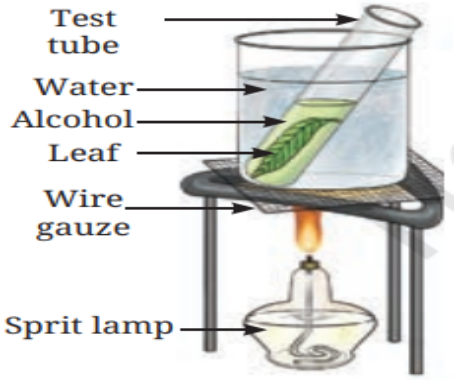
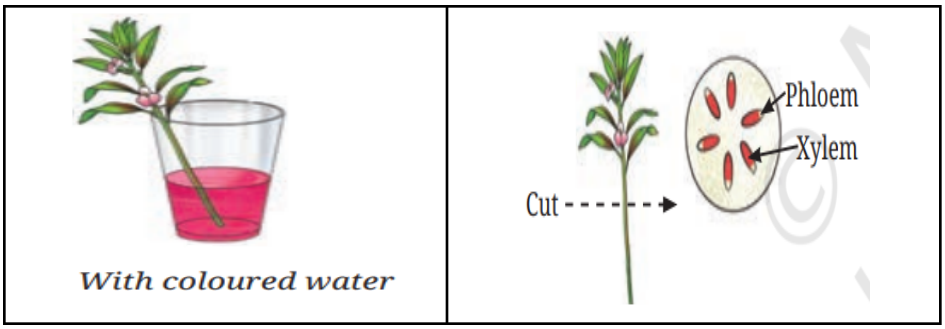
No. of printed pages: 5

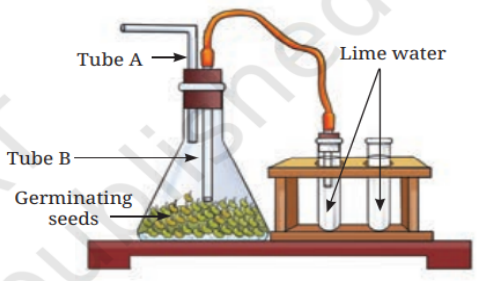
CLASS 7
MID TERM EXAMINATION (2025-26)
BIOLOGY
SET B1/B2
MARKING SCHEME

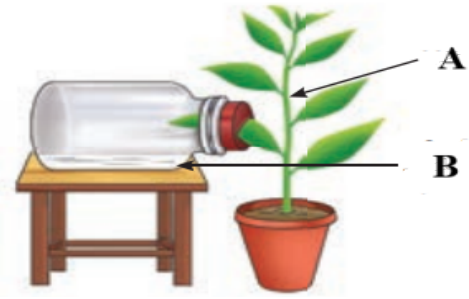
MM:20

SET B1	SET B2	QUESTIONS WITH EXPECTED ANSWERS	MARKS
1	3	Which of the following statements is/are correct? (i) All green plants can prepare their own food. (ii) Most animals are autotrophs. (iii) Carbon dioxide is not required for photosynthesis. (iv) Oxygen is liberated during photosynthesis. **(a) (i) and (iv)** (b) (ii) only (c) (ii) and (iii) (d) (i) and (ii)	1
2	4	Xylem vessels are essential for the transport of: (a) Food from leaves to other parts of the plant. **(b) Water and minerals from roots to the leaves.** (c) Carbon dioxide from the atmosphere into the leaves. (d) Organic compounds produced during photosynthesis. **SET B2** Which condition is **not necessary** for the process of photosynthesis? (a) Chlorophyll (b) Carbon dioxide (c) Sunlight **(d) Oxygen**	1
3	2	Sonal observed a beaker containing an aquatic plant (*Hydrilla*) submerged in water. She placed the beaker in sunlight and noticed bubbles coming out of the plant leaves. What do the bubbles coming out of the plant represent? **(a) Oxygen gas** (b) Carbon dioxide gas (c) Water vapour (d) Hydrogen	1
4	1	In the "boiling set-up; (a)", the test tube containing alcohol and the leaf is placed inside a beaker of water heated by a spirit lamp. Why is the alcohol heated indirectly using a water bath?	1

		 *(a) Boiling set-up* (a) To prevent the alcohol from evaporating too quickly. (b) To ensure the leaf is softened by the water. **(c) Alcohol is highly flammable and heating it directly over a flame is dangerous.** (d) The water bath helps to dissolve the chlorophyll more efficiently.	
		Q.Nos. 5 and 6 consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting 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 but R is not the correct explanation of A. (c) A is true but R is false. (d) A is false but R is true.	
5	6	**Assertion (A):** Exchange of gases in leaves occurs through stomata. **Reason (R):** Stomata are involved only in photosynthesis. **Ans: (c) A is true, but R is false.** **SET B2** **Assertion (A):** Plants use xylem to transport food. **Reason (R):** The transported food may also be stored in some other parts of a plant, such as seeds and roots. **Ans: (d) A is false but R is true**.	1
6	5	**Assertion (A):** During photosynthesis, food is actually produced in the form of starch, a simple carbohydrate. **Reason (R):** Leaves are known as the 'food factories' of plants. **Ans: (d) A is false but R is true**.	1
7	7	***Attempt either (A) or (B)*** ***(A)*** Does the broad and flat structure of leaves make plants more efficient for photosynthesis? Justify your answer. (1Point) **OR** ***(B)***	2

		Imagine a situation where all the organisms that carry out photosynthesis on the earth have disappeared. What would be the impact of this on living organisms? **Ans.** ***(A)*** **Yes, the broad and flat structure of leaves is indeed advantageous for photosynthesis.** **This maximizes the surface area exposed to sunlight, allowing leaves to capture more light energy, which is crucial for the process.** **OR** ***(B)*** • **If all photosynthetic organisms disappear, there would be no source of oxygen production or food for herbivores.** • **This would disrupt the entire food chain leading to the collapse of ecosystems and animals would eventually die.**	1 ½ x 2 1+1
8	8	In an experiment, a plant is placed in red-coloured water. Later, red colour is observed in the cut stem.  (a) What helps the red colour move upwards in the plant? (b) State the aim of this activity. (c) Why was red ink used in the experiment? **Ans.** **(a) The red colour moves upward through xylem, which are thin tube-like structures in the stem.** **(b) To demonstrate how water is transported from the roots to other parts of a plant.** **(c) Red ink acts as a visible marker to trace the movement of water within the plant.**	3 1 1 1
9	9	**Read the passage given below and answer the questions related to the passage and other studied concepts.** While performing an activity, some students used soaked moong seeds placed on moist cotton inside a conical flask. The flask was sealed with a cork fitted with two glass tubes—Tube A and Tube B. Tube B was connected to a test tube containing lime water, while Tube A allowed the surrounding air to enter. The entire setup was left undisturbed for 24 hours. After the setup period, the lime water in the connected test tube turned milky, whereas the control test tube remained clear.	4

		 (a) State the purpose of moistening the cotton placed in the conical flask with the soaked moong seeds. (b) Name the substance produced by the seeds that causes the lime water to turn milky. ***Attempt either (c) or (d)*** (c) Write the word equation for the process taking place in the germinating seeds and state why this process is essential for the plants. **OR** (d) Explain the role of the test tube of lime water that is NOT connected to the conical flask in this experiment. **Ans:** **(a) The cotton is moistened with water to keep it wet, which is necessary for the seeds to germinate.** **(b) The germinating seeds produce additional carbon dioxide, which causes the lime water to turn milky.** **(c) The word equation for the process of respiration is:** **Glucose + Oxygen → Carbon dioxide + Water + Energy.** **This process is essential because the energy produced during respiration is used by plants for their growth and development.** **OR** **(d) The test tube of lime water that is not connected to the conical flask serves as a control for comparison. It allows the student to compare the colour of the lime water exposed to the seeds with the initial state of lime water.**	1 1 1+1 1+1
10	10	***Attempt either option (A) or (B)*** ***(A)*** (a) Photosynthesis and respiration are essential to maintain balance in nature. Justify the statement. (b) After keeping the setup in sunlight for several hours and then performing a starch test on the leaf, which part of the leaf (the part inside the bottle or the part outside the bottle) is expected to show the presence of starch? Identify the substance 'B' kept in bottle and explain your reasoning based on the function of this substance.	5



Ans:

(a) During photosynthesis, plants use sunlight, water, and carbon dioxide to make food and release oxygen.
In respiration, plants and animals use oxygen to break down food for energy, releasing carbon dioxide. This exchange of gases keeps oxygen and carbon dioxide levels balanced, supporting life on Earth. 1+1

(b) -The part of the leaf outside the bottle. 1
-B is caustic soda/ sodium hydroxide solution.
-The part of the leaf inside the bottle, however, is exposed to the caustic soda, which absorbs the carbon dioxide from the air inside the bottle. Since carbon dioxide is required for photosynthesis, the part of the leaf inside the bottle could not produce starch. 1 1

OR

(B)

Raghav took two potted plants – Plant A was kept in sunlight and Plant B in darkness for 2 days. Then he tested one leaf from each for starch using iodine.
(a) Which plant's leaf turned blue-black and why?
(b) State the aim of this experiment.
(c) Besides leaves, which other parts of the plant can carry out photosynthesis and why?
(d) What role does chlorophyll play in this process?

Ans:

(a) Plant A's leaf turned blue-black due to presence of starch. 1
(b) To show that light is essential for photosynthesis. 1
(c) Other green parts like green stems and green branches can also perform photosynthesis because they contain chlorophyll. 1+1
(d) Chlorophyll traps sunlight for food preparation. 1