

* Choose the correct alternative from those given below question

[25]

1. What type of microorganism is yeast?

- (A) Algae (B) Protozoa (C) Bacteria (D) Fungi

Ans. : (D) Fungi

2. Which gas is released during yeast fermentation that makes the dough rise?

- (A) Oxygen (B) Nitrogen (C) Carbon dioxide (D) Hydrogen

Ans. : (C) Carbon dioxide

3. Which microorganism helps in curd formation?

- (A) Lactobacillus (B) Rhizobium (C) Spirulina (D) Mould

Ans.: (A) Lactobacillus

4. Rhizobium bacteria live in the root nodules of which plants?

- (A) Wheat and rice (B) Beans and peas
(C) Mango and banana (D) Apple and orange

Ans. : (B) Beans and peas

5. What is the function of Rhizobium?

- (A) Produces alcohol (B) Kills viruses
(C) Traps nitrogen from the air (D) Forms algae

Ans. : (C) Traps nitrogen from the air

6. Which of the following is unicellular?

- (A) Human (B) Yeast (C) Mould (D) Tree

Ans. : (B) Yeast

7. Spirulina is an example of

- (A) Virus (B) Protozoa (C) Microalga (D) Fungus

Ans. : (C) Microalga

8. What is used in bread-making to make it soft and fluffy?

- (A) Sugar (B) Salt (C) Yeast (D) Vinegar

Ans. : (C) Yeast

9. Which of the following lacks a well-defined nucleus?

- (A) Algae (B) Fungi (C) Plant cell (D) Bacterial cell

Ans. : (D) Bacterial cell

10. In the bread slice experiment, which condition supports more microbial growth?



(A) Dry and cold (B) Dry and hot (C) Moist and warm (D) Moist and cold

Ans. : (C) Moist and warm

11. Which condition is most favourable for maximum microbial activity in the decomposition of fruit waste?

(A) Dry and cold (B) Moist and warm (C) Wet and cold (D) Dry and hot

Ans. : (B) Moist and warm

12. Which of the following statements best explains why curd forms faster in summer than in winter?

- (A) More milk is available in summer
- (B) Lactobacillus dies in winter
- (C) Warmth in summer speeds up bacterial growth
- (D) Curd requires sunlight to form

Ans. : (C) Warmth in summer speeds up bacterial growth

13. In the bread mould experiment, what would happen if the bread were sealed in an airtight container without moisture?

- (A) Mould will grow faster
- (B) Mould will not grow
- (C) Mould will turn green instantly
- (D) Only bacteria will grow

Ans. : (B) Mould will not grow

14. Which component is not required for yeast fermentation to occur?

- (A) Sugar
- (B) Water
- (C) Sunlight
- (D) Warmth

Ans. : (C) Sunlight

15. What turns lime water milky in the yeast experiment?

- (A) Oxygen
- (B) Nitrogen
- (C) Carbon dioxide
- (D) Alcohol

Ans. : (C) Carbon dioxide

16. Why do legumes reduce the need for chemical fertilizers?

- (A) They require very little water
- (B) They have shallow roots
- (C) They trap nitrogen from the air through bacteria
- (D) They grow only in rainy seasons

Ans. : (C) They trap nitrogen from the air through bacteria

17. Which of these microorganisms is correctly matched with its product?

- (A) Rhizobium – Alcohol
- (B) Lactobacillus – Curd
- (C) Yeast – Oxygen

(D) Spirulina – Vinegar

Ans. : (B) Lactobacillus – Curd

18. Which structural feature is absent in bacterial cells?

- (A) Cell wall (B) Cytoplasm (C) Nucleus (D) DNA

Ans. : (C) Nucleus

19. What is the function of the gas produced during yeast activity in dough?

- (A) Prevents spoilage (B) Makes it sour
(C) Makes it rise and fluffy (D) Adds protein

Ans. : (C) Makes it rise and fluffy

20. Which of the following organisms is both useful as food and an oxygen producer?

- (A) Mould (B) Spirulina (C) Yeast (D) Rhizobium

Ans. : (B) Spirulina

21. Why is fermentation considered an anaerobic process?

- (A) It occurs in sunlight
(B) It releases nitrogen
(C) It does not require oxygen
(D) It kills bacteria

Ans. : (C) It does not require oxygen

22. In which part of legume plants do nitrogen-fixing bacteria live?

- (A) Leaves (B) Stems (C) Root nodules (D) Flowers

Ans. : (C) Root nodules

23. Which experiment can prove that yeast is alive and actively growing?

- (A) Keeping it in sunlight
(B) Mixing it with a cold sugar solution
(C) Mixing it with a warm sugar solution and observing gas formation
(D) Boiling it in water

Ans. : (C) Mixing it with a warm sugar solution and observing gas formation

24. How does Spirulina support environmental sustainability?

- (A) Fixes nitrogen in roots
(B) Produces alcohol
(C) Produces oxygen and grows in less space
(D) Breaks down waste in landfills

Ans. : (C) Produces oxygen and grows in less space

25. What would happen if all decomposer microorganisms disappeared from Earth?

- (A) Food production would increase
- (B) No curd or bread could be made
- (C) Waste and dead matter would accumulate
- (D) Plants would grow faster

Ans. : (C) Waste and dead matter would accumulate

*** Answer the following as requested in detail.**

[30]

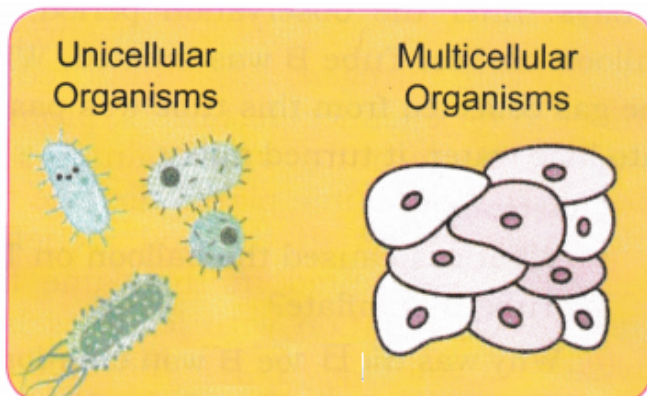
26. Describe the fermentation process using yeast and explain its importance in daily life, including experimental evidence.

Ans. : Fermentation is a metabolic process carried out by yeast, where it breaks down sugars into alcohol and carbon dioxide in the absence of oxygen (anaerobic conditions). In food science, yeast is commonly used in baking and brewing. When added to flour dough, yeast consumes the sugars and produces carbon dioxide gas, which forms bubbles and causes the dough to rise, making it soft and spongy. This process is also essential in making alcoholic beverages like beer and wine.

Experimentally, fermentation can be demonstrated by mixing sugar, yeast, and warm water in a flask, sealing the opening with a balloon. After some time, the balloon inflates, indicating the production of carbon dioxide. If the released gas is passed through lime water, it turns milky, confirming the presence of CO₂. This experiment proves that yeast performs anaerobic respiration during fermentation. The process is temperature-sensitive and works best in warm, moist conditions. Fermentation not only improves the texture and taste of food but also preserves it and adds nutritional value.

27. Compare and contrast unicellular and multicellular microorganisms with examples and structural differences.

Ans. : Microorganisms can be either unicellular or multicellular. Unicellular microorganisms consist of a single cell that performs all life functions. Examples include bacteria, yeast, and protozoa. These organisms are microscopic and reproduce rapidly. For example, yeast is a unicellular fungus that carries out fermentation and has a well-defined nucleus and cytoplasm.



On the other hand, multicellular microorganisms are made of many cells with division of labor, meaning different cells perform specific tasks. Examples include moulds and algae like Spirogyra. Multicellular microbes often form visible colonies or structures such as filaments. Moulds, for instance, produce thread-like structures called hyphae that help in reproduction and nutrient absorption.

Structurally, unicellular organisms often have a simpler body plan. Some, like bacteria, lack a true nucleus (prokaryotic), whereas fungi and protozoa are eukaryotic with defined nuclei. Multicellular microbes are always eukaryotic and can grow larger and survive in more complex environments. This structural difference also affects how they reproduce, respond to stimuli, and interact with the environment.

28. How do environmental factors affect microbial growth? Discuss with the help of bread mould and curd formation examples.

Ans. : Microbial growth is strongly influenced by environmental factors such as temperature, moisture, air, and food availability. Warm and moist conditions favor rapid microbial activity, while cold and dry environments inhibit it. This can be observed in the bread mould experiment. When bread is kept in a warm, moist place, it develops fuzzy, colored growth after a few days. These are colonies of mould fungi that thrive in such conditions. If the same bread is kept in a dry or refrigerated environment, mould growth is minimal or absent because moisture and warmth are lacking.

Similarly, in curd formation, warm milk curdles faster than cold milk. This is because Lactobacillus bacteria grow and multiply quickly at warmer temperatures, converting lactose into lactic acid. In cold milk, their activity slows down, delaying or preventing curdling. These examples demonstrate that microorganisms are highly sensitive to environmental factors, and this property is used in food preservation techniques such as refrigeration, drying, and adding salt or sugar to inhibit microbial growth.

29. Discuss the role of micro-organisms in sustainable development, including food, fuel, and waste management.

Ans. : Microorganisms are key players in sustainable development due to their versatile roles in food production, energy generation, and waste recycling. In the food industry, microbes like Lactobacillus and yeast are used in fermentation to make products like curd, bread, idlis, and alcoholic drinks. These processes improve the taste, nutrition, and shelf life of food.

In terms of fuel production, microorganisms are essential for generating biogas. In anaerobic digesters, bacteria break down organic waste (like cow dung and food scraps) in the absence of oxygen, producing methane-rich gas that can be used for cooking and lighting. This renewable energy reduces dependence on fossil fuels and promotes clean energy usage.

Microbes also contribute to waste management and soil health. Decomposer

organisms such as fungi and bacteria break down plant and animal remains, converting them into simple nutrients that return to the soil. This process not only keeps the environment clean but also supports agriculture by maintaining soil fertility.

Moreover, microalgae like Spirulina serve as nutrient-rich superfoods, requiring minimal resources to grow, making them sustainable food options. Overall, microorganisms support a circular, eco-friendly system and are critical to achieving long-term environmental and economic sustainability.

30. In a school laboratory experiment based on the textbook, three test tubes were prepared:



- Test Tube A contained only sugar solution and water.
- Test Tube B contained sugar solution, water, and a pinch of yeast.
- Test Tube C contained yeast and water only.

All three test tubes were sealed with balloons on top and left undisturbed for 2 days. After the observation period, the balloon on Test Tube B was inflated. When the gas collected from this tube was passed into lime water, it turned milky.

Q.1. What gas caused the balloon on Test Tube B to inflate?

Q.2. Why was there no balloon inflation in Test Tube A and Test Tube C?

Q.3. What chemical reaction caused lime water to turn milky?

Q.4. What is the process called in which yeast converts sugar into alcohol and carbon dioxide?

Q.5. What conclusion can you draw about the role of sugar in this experiment?

Ans. : 1. Carbon dioxide (CO₂)

2. Test Tube A had no yeast to perform fermentation, and Test Tube C had no sugar as food for yeast, so no gas was produced.

3. CO₂ reacted with lime water (calcium hydroxide) to form calcium carbonate, a white precipitate, making it milky.

4. Fermentation

5. Sugar is essential as an energy source for yeast to carry out fermentation and produce CO₂.

31. A farmer decides to stop using chemical fertilizers and instead uses a compost pit made from kitchen waste, vegetable peels, and dry leaves. He also starts planting leguminous crops such as gram and beans between cereal crop seasons. Over time, he notices improved soil fertility and better plant growth.





Q.1. Which types of microorganisms are responsible for breaking down kitchen waste in the compost pit?

Q.2. Why is it important to add both dry and wet waste to the compost pit?

Q.3. Which specific microorganism helps leguminous plants fix nitrogen in the soil?

Q.4. How does growing leguminous crops reduce the need for chemical fertilizers?

Q.5. What environmental benefit does composting offer over using synthetic fertilizers?

Ans. : 1. Decomposer microorganisms like fungi and bacteria.

2. Dry waste adds carbon and balances moisture, while wet waste provides nitrogen; both are needed for efficient decomposition.

3. Rhizobium bacteria.

4. Rhizobium fixes atmospheric nitrogen into forms plants can use, naturally enriching the soil with nutrients.

5. Composting recycles organic waste, reduces landfill use, and avoids harmful chemical runoff into water bodies.

*** Fill in the blanks:**

[15]

32. Yeast converts sugar into alcohol and _____ gas during the process of fermentation.

Ans. : Carbon Dioxide

33. _____ is the part of the cell that controls all its activities.

Ans. : Nucleus

34. The _____ in plant cells helps in the process of photosynthesis.

Ans. : Chloroplast

35. When carbon dioxide is passed through lime water, it turns _____

Ans. : Milky

36. The process of converting sugar into alcohol using microorganisms is called _____

Ans. : Fermentation

37. In bread making, yeast helps make the dough rise by producing _____

Ans. : Carbon Dioxide



38. Microorganisms such as Rhizobium help in _____ fixation in leguminous plants.

Ans. : Nitrogen

39. The _____ provides structural support and shape to plant cells.

Ans. : Cell Wall

40. _____ is a jelly-like substance found inside cells that contains all the cell organelles.

Ans. : Cytoplasm

41. In the balloon experiment, the balloon inflates due to the gas released by _____

Ans. : Yeast

42. The _____ is a selectively permeable membrane that surrounds all cells.

Ans. : Cell Membrane

43. Microorganisms grow best when there is enough warmth, moisture, air, and _____

Ans. : Nutrients

44. The presence of _____ in test tube B proves that gas was produced during the fermentation process.

Ans. : An Inflated Balloon

45. Dried leaves in compost pits provide _____ to balance the nitrogen-rich food waste.

Ans. : Carbon

46. In an experiment with bread slices, the one near the sink is more likely to grow mould because of higher _____ and temperature.

Ans. : Humidity

* Answer the following questions in short.

[42]

47. Take 2 slices of bread. Place one slice on a plate near the sink. Place the other slice in the refrigerator. Compare after three days. Note your observations. Give reasons for your observations.

Ans. : • A bread slice near the sink will show fungal growth (mold).
• Slices in the refrigerator will likely have no or slower growth.

Reason: Warm and moist conditions near the sink promote microbial growth, while cold temperatures in the refrigerator inhibit it.

48. A student observes that when curd is left out for a day, it becomes more sour. What are two possible explanations for this observation?

Ans. : • Microorganisms (lactic acid bacteria) continue to grow and multiply, producing more lactic acid, which makes the curd more sour.
• Warmer temperature speeds up bacterial activity, increasing acid production and sourness.

49. Identify the following micro-organisms:

(i) I live in every kind of environment, and inside your gut.

(ii) I make bread and cakes soft and fluffy.

(iii) I live in the roots of pulse crops and provide nutrients for their growth.

Ans. : (i) Bacteria

(ii) Yeast

(iii) Rhizobium

50. How do viruses differ from other microorganisms, such as bacteria?

Ans. : self

51. Write the name of a microorganism that is multicellular.

Ans. : self

52. Which microorganism lives alone?

Ans. : self

53. Which microorganism is utilized in making curd from milk?

Ans. : self

54. What do you mean by fermentation?

Ans. : self

55. What are pathogens?

Ans. : self

56. What are microorganisms?

Ans. : self

57. Name two types of microorganisms.

Ans. : self

58. How are microorganisms important to us?

Ans. : self

59. What is the difference between luminous and non-luminous objects?

Ans. : self

60. Explain why we cannot see most cells with our naked eye.

Ans. : self

61. Explain the role of microorganisms in the environment.

Ans. : self

62. Describe the different ways in which microorganisms can be harmful.

Ans. : self

63. Discuss the importance of studying microorganisms.

Ans. : self

64. How does light make objects visible to us?

Ans. : self

65. Explain the difference between viruses and bacteria.

Ans. : self

66. If a farmer avoids using chemical fertilizers and instead grows legume crops repeatedly, what long-term benefits and risks might this have on soil health and crop yield? Explain using microbial interactions.

Ans. : self

67. In the yeast-lime water experiment, what would you conclude if the lime water does not turn milky, even though the balloon inflates? Suggest possible reasons and corrections.

Ans. : self

*** State whether the following sentences are true or false. Correct the false sentences and rewrite them. [15]**

68. Yeast produces oxygen during fermentation, which causes balloons to inflate in test tube experiments.

Ans. : false

69. The lime water test is used to detect the presence of carbon dioxide gas.

Ans. : true

70. Only bacterial cells have chloroplasts to carry out photosynthesis.

Ans. : false

71. Rhizobium bacteria in root nodules of legumes can fix atmospheric nitrogen into a form usable by plants.

Ans. : true

72. Fungal growth is faster in cold, dry conditions.

Ans. : false

73. In an experiment, if lime water remains clear after gas is passed through it, the gas is definitely carbon dioxide.

Ans. : false

74. All microorganisms are harmful and cause diseases.



Ans. : false

75. Bread becomes softer and fluffier because yeast releases carbon dioxide gas during dough fermentation.

Ans. : true

76. The cytoplasm is only found in animal cells.

Ans. : false

77. When sugar is mixed with warm water and yeast, the process of fermentation begins.

Ans. : true

78. The nucleoid is a membrane-bound structure found only in plant cells.

Ans. : false

79. Dried leaves added to compost help balance the carbon and nitrogen ratio needed for effective decomposition.

Ans. : true

80. In the absence of air, microorganisms can still grow efficiently on bread.

Ans. : false

81. If yeast is not added to the sugar solution in an experiment, the lime water will still turn milky.

Ans. : false

82. Microorganisms can grow in extreme environments like hot springs, acidic lakes, and deep oceans.

Ans. : true

*** Answer the following questions in short.**

[24]

83. Have you ever wondered what you might see if the invisible world around you became visible?

Ans. : Yes, it would be fascinating to see the microorganisms like bacteria, fungi, protozoa, and viruses that are constantly interacting with our environment and even inside our bodies. It would change how we perceive cleanliness, health, and the complexity of ecosystems around us.

84. How do you think your observation of this hidden world might change the way you think about size, complexity, or even what counts as 'living'?

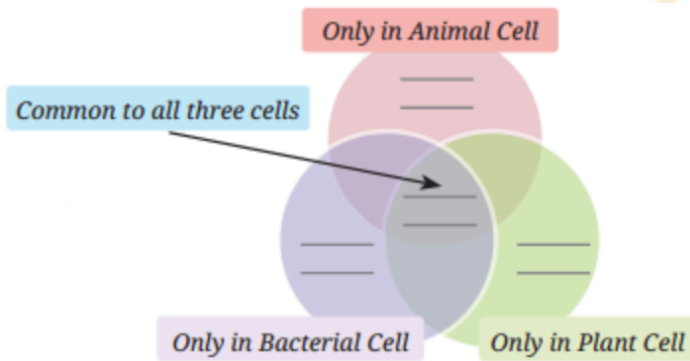
Ans. : Observing this hidden world would reveal that even microscopic organisms exhibit complex behaviors such as movement, reproduction, response to stimuli, and forming colonies. This would deepen our understanding of what qualifies as a living being and show that size does not limit the complexity of life.



85. Have you thought about how these tiny living beings interact with each other?

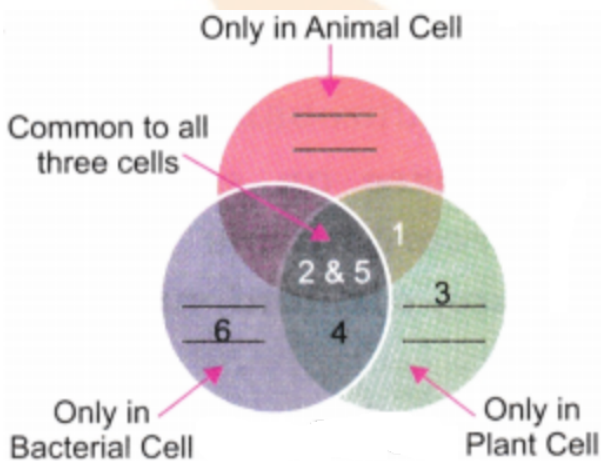
Ans. : Yes, microorganisms constantly interact; some live symbiotically, while others compete for resources or prey on one another. For example, bacteria can help in digestion or cause diseases, and fungi can decompose organic matter, enriching the soil. These interactions form the foundation of many ecological processes.

86. Various parts of a cell are given below. Write them in the appropriate places in the following diagram.



1. Nucleus
2. Cytoplasm
3. Chloroplast
4. Cell wall
5. Cell membrane
6. Nucleoid

Ans. :



1. Nucleus: Present in plant and animal cells (not in bacterial cells), controls the cell's activities.
2. Cytoplasm: Jelly-like substance that fills the cell and contains all organelles.
3. Chloroplast: Found only in plant cells, responsible for photosynthesis.
4. Cell wall: Found in plant and bacterial cells, forms the outermost layer.
5. Cell membrane: Found in all cells, located inside the cell wall in plant/bacterial cells or as the outer layer in animal cells.
6. Nucleoid: Found only in bacterial cells; the region where DNA is located since bacteria don't have a true nucleus.

87. A farmer was planting wheat crops in his field. He added nitrogen-rich fertiliser to the soil to get a good yield of crops. In the neighbouring field, another farmer was growing bean crops, but she preferred not to add nitrogen fertiliser to get healthy crops. Can you think of the reasons?

Ans. :



Beans are leguminous crops that form a symbiotic relationship with Rhizobium bacteria present in their root nodules. These bacteria fix nitrogen from the atmosphere into the soil, providing a natural source of nitrogen. Therefore, the second farmer does not need to add nitrogen-rich fertiliser.

88. Devise an experiment to test that microorganisms need optimal temperature, air, and moisture for their growth.

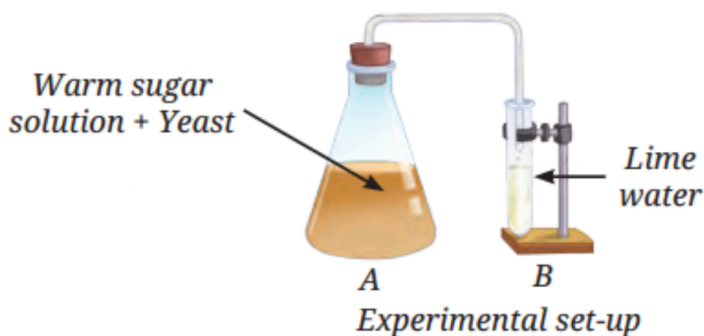
Ans. : Set up 3 bread slices:

- Slice A: Warm, moist environment (near sink)
- Slice B: Dry environment (sealed container)
- Slice C: Cold environment (refrigerator)

After 3 days, observe: Slice A will have maximum microbial (fungal) growth.

Conclusion: Microorganisms grow best when temperature, moisture, and air are optimal.

89. Observe the set-up given in Figure and answer the following questions.



Q.1. What happens to the sugar solution in flask A?

Q.2. What do you observe in test tube B after four hours? Why do you think this

happened?

Q.3. What would happen if yeast were not added to flask A?

Ans. : 1. The yeast ferments the sugar in the warm solution, producing carbon dioxide gas and a small amount of alcohol.

2. Lime water in test tube B turns milky. This happens because CO₂ produced in flask A travels through the delivery tube into flask B and reacts with lime water, confirming the presence of carbon dioxide.

3. Fermentation would not occur, so no carbon dioxide would be produced. As a result, lime water would remain clear in test tube B.

90. How can we prevent the following diseases?

- (a) Cholera ,
- (b) Typhoid,
- (c) Hepatitis A

Ans. : (a) Cholera: By maintaining personal hygiene and good sanitation practices.

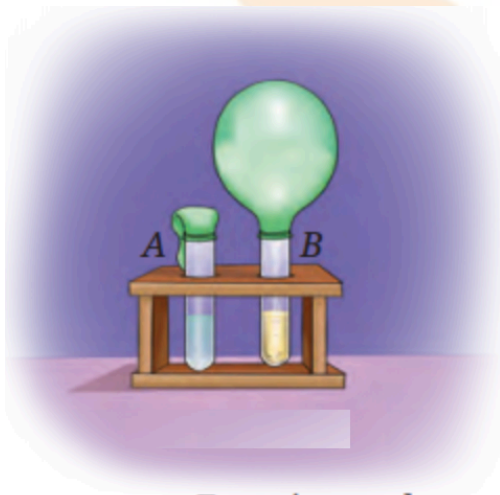
(b) Typhoid: Eating properly cooked food, drinking boiled water and getting vaccinated against the disease.

(c) Hepatitis A: Drinking boiled water and getting vaccinated against the disease

*** Answer the following questions in details [4 marks]**

[12]

91. Aanandi took two test tubes and marked them A and B. She put two spoonfuls of sugar solution in each of the test tubes. In test tube B, she added a spoonful of yeast. Then she attached two incompletely inflated balloons to the mouth of each test tube. She kept the setup in a warm place, away from sunlight.



*Experimental
set-up*

(i) What do you predict will happen after 3-4 days? She observed that the balloon attached to test tube B was inflated. What can be a possible explanation for this?

(a) Water evaporated in test tube B and filled the balloon with the water vapour.

(b) The warm atmosphere expanded the air inside test tube B, which inflated the balloon.

(c) Yeast produced a gas inside test tube B, which inflated the balloon.

(d) Sugar reacted with warm air, which produced gas, eventually inflating the balloon.

(ii) She took another test tube, 1/4 filled with lime water. She removed the balloon from test tube B in such a manner that the gas inside the balloon did not escape. She attached the balloon to the test tube with lime water and shook it well. What do you think she wants to find out?

Ans. : (i) (c) Yeast produced a gas inside the test tube B, which inflated the balloon.

Explanation : The yeast fermented the sugar, releasing carbon dioxide gas (CO_2), which inflated the balloon.

(ii) She wants to test whether the gas produced is carbon dioxide (CO_2). If the lime water turns milky, it confirms the presence of CO_2 , because CO_2 reacts with lime water to form calcium carbonate.

92. Snehal dug two pits, A and B, in her garden. In pit A, she put fruit and vegetable peels and mixed them with dried leaves. In pit B, she dumped the same kind of waste without mixing it with dried leaves. She covered both the pits with soil and observed after 3 weeks. What is she trying to test?

Ans. : She is trying to test the effectiveness of composting.

- In Pit A, the mixture of green waste (fruit/vegetable peels) and dry leaves provides the correct carbon-nitrogen balance needed for decomposition.
- Pit B lacks this balance and will decompose more slowly and may smell. This experiment shows that decomposing agents like microorganisms work better when both carbon-rich and nitrogen-rich materials are present.

93. Explain the role of microorganisms in the nitrogen cycle, about Rhizobium, and soil fertility.

Ans. : Microorganisms play a vital role in the nitrogen cycle, which is essential for plant growth. One of the key microorganisms involved is Rhizobium, a type of bacteria that lives symbiotically inside the root nodules of leguminous plants such as beans, peas, and pulses. Rhizobium captures nitrogen gas from the atmosphere and converts it into ammonia, a form of nitrogen that plants can absorb and use to build proteins and other vital compounds. This process is called biological nitrogen fixation. By enriching the soil with nitrogen, Rhizobium reduces the need for chemical fertilizers, promotes sustainable farming, and maintains soil health. When legume plants die, the fixed nitrogen remains in the soil, benefiting future crops planted in the same field. Hence, crop rotation with legumes helps in natural soil enrichment and increased agricultural productivity.

* Answer the following questions in one sentence

[20]

94. Identify the following micro-organisms :

I live in every kind of environment, and inside your gut.

Ans. : Bacteria

95. Identify the following micro-organisms :

I make bread and cakes soft and fluffy.

Ans. : Yeast

96. Identify the following micro-organisms :

I live in the roots of pulse crops and provide nutrients for their growth.

Ans. : Rhizobium

97. What is the role of Lactobacillus in curd formation?

Ans. : Lactobacillus converts lactose (milk sugar) into lactic acid, which causes the milk to thicken and form curd.

98. Why do farmers grow legumes in rotation with other crops?

Ans. : Legumes contain Rhizobium bacteria in their roots that fix nitrogen and naturally enrich the soil.

99. How does yeast make dough soft and fluffy?

Ans. : Yeast ferments the sugars in dough, releasing carbon dioxide that creates bubbles and makes the dough rise.

100. What do you observe when a bread slice is kept in a moist, warm place for 3 days? Why?

Ans. : Fungi grow on the bread due to the favorable warm and moist environment that supports microbial growth.

101. What is the purpose of using lime water in the yeast experiment?

Ans. : To test for the presence of carbon dioxide, which turns lime water milky if present.

102. Why did the balloon inflate in test tube B when yeast was added?

Ans. : The yeast fermented sugar and released carbon dioxide gas, which inflated the balloon.

103. What will happen if yeast is not added to the sugar solution in flask A?

Ans. : No fermentation occurs, so no gas is produced, and the connected test tube remains unchanged.

104. What can be inferred if curd forms in warm milk but not in cold milk?

Ans. : Warm temperatures help bacteria multiply and ferment milk, while cold temperatures slow their activity.

105. How does Rhizobium benefit legume plants?

Ans. : It converts nitrogen from the air into compounds the plant can use, improving



growth without fertilizers.

106. What are microalgae, and why are they important for the Earth?

Ans. : Microalgae are tiny photosynthetic organisms that produce oxygen and are used as nutritious food and in water purification.

107. Why do microorganisms grow faster in warm, moist conditions?

Ans. : Because these conditions support their metabolism and reproduction, speeding up their growth.

108. What is the difference between unicellular and multicellular microorganisms?

Ans. : Unicellular microbes like yeast have one cell; multicellular microbes like mould have many cells.

109. Why is Spirulina called a “superfood”?

Ans. : It is rich in protein, vitamins, and minerals and is easy to digest with little fat or sugar.

110. How are microorganisms used in the food industry?

Ans. : They are used for fermentation in products like curd, bread, idlis, dosas, vinegar, and alcohol.

111. What is the role of microorganisms in the production of biogas?

Ans. : Microbes decompose organic waste without oxygen, producing biogas such as methane that can be used as fuel.

112. Name one commercial use of yeast.

Ans. : Baking bread/manufacturing of alcoholic drinks.

113. Name the process in yeast that converts sugars into alcohol.

Ans. : Fermentation

Student Bro