Life Processes

Nutrition (Questions 1-5)

1. What is nutrition? Distinguish between autotrophic and heterotrophic nutrition with examples.
2. Explain the process of photosynthesis. Write the balanced chemical equation and mention the conditions required.
3. Describe the structure of a stomata. How do stomata help in gaseous exchange and transpiration?
4. What is the role of hydrochloric acid in our stomach? What problems can arise due to excess acid production?
5. Trace the path of food from mouth to stomach and explain the role of each organ in digestion.

Respiration (Questions 6-10)

6. Define respiration. Differentiate between breathing and respiration.
7. Explain aerobic and anaerobic respiration. Write the chemical equations for both processes.
8. Why do we get muscle cramps after heavy exercise? Explain the process involved.
9. Describe the structure and function of alveoli in human lungs. Why are they numerous and thin-walled?
10. How are oxygen and carbon dioxide transported in human blood? Explain the role of hemoglobin.

Transportation (Questions 11-15)

11. Why is transportation necessary in plants and animals? Compare the transportation systems in both.
12. Describe the structure and function of the human heart. Why is it called a double pump?
13. What is blood pressure? Differentiate between systolic and diastolic pressure. What are the normal values?
14. Explain the process of translocation in plants. What substances are transported through phloem?
15. What are the components of blood? Write the functions of each component.

Excretion (Questions 16-20)

16. What is excretion? Why is removal of waste products essential for organisms?
17. Describe the structure and function of nephrons. How do kidneys filter blood?
18. What is dialysis? When is it required? Explain the principle behind artificial kidney.
19. How do plants get rid of their waste products? Name the different methods.
20. What happens when kidneys fail to function properly? List the symptoms and treatment options.

Application-Based and Higher Order Questions:

Additional Practice Questions:

Integrated Questions:

- A person is on a treadmill and breathing heavily. Explain the changes occurring in his respiratory and circulatory systems.
- Why do aquatic animals die when taken out of water while terrestrial animals die when put underwater for long periods?
- Explain how the processes of photosynthesis and respiration are complementary to each other.
- A patient has been diagnosed with high blood pressure and diabetes. Explain how these conditions can affect kidney function.
- Why do green plants carry out both photosynthesis and respiration while non-green plants carry out only respiration?

Comparative Questions:

- Compare and contrast the transportation of materials in plants and animals.
- How does respiration in plants differ from respiration in animals?
- Compare the excretory systems of different organisms (plants, humans, fish).