

## 8. LIFE PROCESSES

Q. No	Question	Marks
<b>Multiple Choice Question</b>		
	<p>Answer the questions based on the following information.</p> <p>William Harvey (1578–1657) was one of the early biologists who studied the bodies of humans and animals. He even dissected the bodies and did experiments with the heart and blood vessels. He concluded from his experiments that the blood leaves the heart through the arteries and returns via the veins. However, he could not explain how blood left the arteries to enter the veins. He said there must be some structure between arteries and veins but he could not find them. Marcello Malphigi (1628–1694) later discovered these structures while studying a dead frog's lungs under a microscope.</p>	1
Q.25	<p>Which of the following structures did Malphigi find in the frog?</p> <p>A. cells</p> <p>B. capillaries</p> <p>C. heart chambers</p> <p>D. small air sacs in lungs</p>	1
Q.26	<p>What is the MOST LIKELY reason why Harvey could NOT find these structures?</p> <p>A. These structures are not found in humans.</p> <p>B. These structures are found only in the lungs.</p> <p>C. These structures become visible only in dead animals.</p> <p>D. These structures were too small to be seen by the naked eye.</p>	1
Q.27	<p>Which of the following statements about arteries and veins is TRUE?</p> <p>A. Arteries have thicker walls than veins.</p> <p>B. Veins have thicker walls than arteries.</p> <p>C. All arteries carry only oxygenated blood.</p> <p>D. All veins carry only deoxygenated blood.</p>	1
Q.28	<p>Which two chambers of the human heart have arteries connected to them?</p> <p>A. left atrium and left ventricle</p> <p>B. right atrium and right ventricle</p> <p>C. left atrium and right atrium</p>	1

	D. left ventricle and right ventricle	
	<b>Free Response Question/ Subjective Question</b>	
Q.29	<p>Aerobic respiration requires intake of oxygen to breakdown food to release energy.</p> <p>(a) Name the structures through which gaseous exchange takes place in plants and human beings.</p> <p>(b) Name the structure that controls the size of the chest cavity in humans to facilitate exchange of gases.</p> <p>(c) What is the process by which gas exchange occurs in plants?</p> <p>(d) Why is the process named in (c) not sufficient to carry oxygen throughout human body? How is this complemented in humans to ensure that oxygen is carried to all parts of the body?</p> <p>(e) Reactions in living systems can absorb heat or release heat. State whether the heat energy is absorbed/ released during digestion. Also write the scientific term to denote the same.</p>	5
Q.30	<p>Given below is an image of an experiment conducted by a student to understand the process of respiration. He blows into a clear solution present in the test tube and sees that it turns cloudy.</p> <div data-bbox="419 1084 1165 1601" data-label="Image"> <p>The diagram illustrates an experiment where a student blows into a test tube. The test tube is connected to a delivery tube that goes into a beaker of liquid. A clock in the background shows 2 hours.</p> </div> <p>(a) What is the most likely substance present in the test tube?</p> <p>(b) What could be the aim of his experiment?</p> <p>(c) What kind of respiration is shown in the experiment? Justify your answer.</p>	3

## Answer Key & Marking Scheme

Q. No	Answers	Marks
Q.25	B. capillaries	1
Q.26	D. These structures were too small to be seen by the naked eye.	1
Q.27	A. Arteries have thicker walls than veins.	1
Q.28	D. left ventricle and right ventricle	1
Q.29	<p>(a) 0.5 marks for each correct answer:  Plants: stomata/guard cells  Human beings: alveoli/ lungs</p> <p>(b) diaphragm</p> <p>(c) diffusion</p> <p>(d) 1 mark for each correct point:  - because diffusion is a slow process and human beings have complex tissues that might not allow diffusion to happen effectively and easily  - carried by the blood/ haemoglobin in the blood</p> <p>(e) 0.5 marks for each correct answer:  - use up heat  - endothermic</p>	5
Q.30	<p>(a) lime water / dilute aqueous solution of calcium hydroxide/ <math>\text{Ca(OH)}_2</math></p> <p>(b) To prove that carbon dioxide is released during respiration.</p> <p>(c) - aerobic respiration [0.5 marks]  - <math>\text{CO}_2</math> is a product of either aerobic respiration or fermentation [0.5 marks]  - fermentation does not take place in human cells. [0.5 marks]</p>	3