CBSE CLASS X

Science (086)

QUESTION PAPER

From previous CBSE Board Exam questions

Code: LBQ77T **Questions: 110** **Maximum Marks: 205** **Generated: 2026-06-15 13:05**

SELECTIONS USED

Source	Previous-year board
Subject	Science
Lessons	Life Processes
Year	2022-2026
Questions selected	110

Composition — Types: 38 MCQ · 27 Very short · 24 Short · 13 Assertion–reason · 6 Long · 4 source_based · 1 Case-based

Q1. § 5.2.1 Autotrophic Nutrition **[3]**

Answer the following:

(i) What is the internal energy reserve in plants and animals ?

(ii) How desert plants perform photosynthesis if their stomata remain closed during the day ?

Previously asked in: 2023 31/1/1 Q29(b)

◆ **Life Processes** | Internal energy reserves in plants and animals (starch and glycogen) | Photosynthesis in desert plants with closed stomata (CAM pathway / stomata behaviour)

Q2. § 5.2.1 Autotrophic Nutrition **[2]**

List the events in proper sequence that take place during the process of photosynthesis.

Previously asked in: 2023 31/5/1 Q23 (a)

◆ **Life Processes** | Sequence of Events in Photosynthesis

Q3. § 5.2.1 Autotrophic Nutrition **[2]**

Two green plants are kept separately in oxygen free containers, one in the dark and other in sunlight. It was observed that plant kept in dark could not survive longer. Give reason for this observation.

Previously asked in: 2023 31/4/1 Q24

◆ **Life Processes** | Photosynthesis and Aerobic Respiration in Plants

Q4. § 5.2.1 Autotrophic Nutrition **[3]**

(b) Write in sequence the steps for experimental verification of the fact that sunlight is essential for photosynthesis.

Previously asked in: 2023 31/2/1 Q29 (b)

◆ **Life Processes** | Experimental verification that sunlight is essential for photosynthesis

Q5. § 5.2.1 Autotrophic Nutrition § 5.5 EXCRETION **[1]**

In the following diagram, identify the cells through which massive amounts of gaseous exchange takes place for photosynthesis :

(a) I
(b) IV
(c) III
(d) II

Previously asked in: 2023 31/2/1 Q9

◆ Life Processes Gaseous exchange in leaves – stomata and mesophyll cells during photosynthesis

Q6. § 5.2.1 Autotrophic Nutrition § 5.3 RESPIRATION **[5]**

Design an experiment to demonstrate that carbon dioxide is essential for photosynthesis. Write the observation and conclusion of the experiment.

Previously asked in: 2024 31/5/1 Q35 (a)

◆ Life Processes Role of Carbon Dioxide in Photosynthesis – Experiment Design, Observation and Conclusion

Q7. § 5.2.1 Autotrophic Nutrition **[1]**

The process in which transport of soluble products of photosynthesis takes place in plants is known as :

(A) Transpiration
(B) Evaporation
(C) Conduction
(D) Translocation

Previously asked in: 2024 31/5/1 Q6

◆ Life Processes Translocation – Transport of Soluble Products of Photosynthesis

Q8. § 5.2.1 Autotrophic Nutrition **[1]**

On the basis of the characteristics of the processes given in the brackets in each case, differentiate between the following : Respiration and photosynthesis in plants (gas released)

Previously asked in: 2025 31/3/1 Q29 (b)

◆ Life Processes Differentiation between Respiration and Photosynthesis (Gas Released)

Q9. § 5.1 WHAT ARE LIFE PROCESSES? **[4]**

> The maintenance functions of all living organisms must go on even when they are not doing anything particular. Even when we are just sitting in a class or even asleep, this maintenance job has to go on. These maintenance processes require energy to prevent damage and break-down of cells and tissues, which is obtained by the individual organism from the food prepared by the autotrophs, called producers.

Read the passage carefully and answer the questions that follow.

(a) Name and define the process by which green plants prepare food. [1]

(b) Write chemical equation involved in the above process. [1]

(c) Answer the following : [2]

Previously asked in: 2025 31/1/1 Q38

◆ Life Processes Photosynthesis – definition, process and chemical equation

Q10. § 5.2.1 Autotrophic Nutrition **[4]**

> Not all plants carry out photosynthesis by the same mechanism. In most plants, it depends directly on gaseous carbon dioxide that diffuses into the leaf. However, some plants can store carbon dioxide in the vacuole of the leaf cells as part of a complex carbon compound. This compound is transported to the chloroplast and releases carbon dioxide when required for photosynthesis. This special mechanism is believed to have evolved as an adaptation in such plants which do not open stomata during the daytime to conserve water for survival in dry conditions (desert conditions).

Read the following passage and answer the questions that follow :

(a) Attempt either (a) or (b) : (a) (i) Which process in these plants is minimised to help the plants survive in dry conditions ? (ii) Which part of the leaf is responsible for exchange of gases during photosynthesis ? [4]

Previously asked in: 2026 31/3/1 Q15

◆ **Life Processes** CAM/C4 photosynthesis – CO_2 storage and transpiration minimisation in dry conditions Photosynthesis – stomata and gas exchange

Q11. § 5.2.1 Autotrophic Nutrition **[1]**

The following events occur during the process of photosynthesis. Choose the option that indicates the correct events.
(i) Oxidation of carbon dioxide to carbohydrates
(ii) Conversion of light energy into chemical energy
(iii) Absorption of light energy by chlorophyll
(iv) Conversion of hydrogen and oxygen into water

(A) (i) and (ii)
(B) (ii) and (iii)
(C) (iii) and (iv)
(D) (i) and (iv)

Previously asked in: 2026 31/2/1 Q5

◆ **Life Processes** Photosynthesis – correct sequence of events

Q12. § 5.2.1 Autotrophic Nutrition **[1]**

The carbohydrates, which are not used immediately in plants, are stored in the form of 'a', which serves as an internal energy reserve. What does 'a' stand for ?

(A) Starch
(B) Sugar
(C) Fat
(D) Protein

Previously asked in: 2026 31/2/1 Q4

◆ **Life Processes** Storage of carbohydrates as starch in plants

Q13. § 5.2.1 Autotrophic Nutrition § 5.2.3 How do Organisms obtain their Nutrition? **[1]**

Which structure in a leaf is mainly responsible for gaseous exchange ?

A Xylem
B Stomata
C Phloem
D Cuticle

Previously asked in: 2026 31/1/1 Q1

◆ **Life Processes** Gaseous exchange in plants (stomata)

Q14. § 5.3 RESPIRATION **[1]**

Observe the figure given below and identify the incorrect step for the activity set-up :

(A) Both plants are kept in the dark room for three days before placing them in separate glass jars.
(B) Both plants are covered with separate wooden bell-jars.
(C) Use vaseline to seal the bottom of the jars with the glass plates.
(D) Both potted plants were kept in sunlight for a few hours before the iodine test for the presence of starch.

Previously asked in: 2026 31/3/1 Q2

◆ Life Processes | Experimental verification that sunlight is essential for photosynthesis | Photosynthesis – correct sequence of events

Q15. § 5.2.2 Heterotrophic Nutrition **[1]**

Observe the given figure and select the statement that correctly states how these fungi obtain nutrition.

(A) By eating the bread on which it is growing.
(B) By using nutrients from the bread to prepare their own food.
(C) By breaking down the nutrients of bread outside the body and then absorbing them.
(D) By allowing other organisms to grow on the bread and then consuming them.

Previously asked in: 2026 31/4/1 Q1

◆ Life Processes | Nutrition in Heterotrophs (Saprophytic Nutrition)

Q16. § 5.2.3 How do Organisms obtain their Nutrition? **[1]**

Assertion (A) : Amoeba takes in food using finger like extensions of the cell surface.
Reason (R) : In all unicellular organisms, the food is taken in by the entire cell surface.

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of (A).
(b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of (A).
(c) Assertion (A) is true, but Reason (R) is false.
(d) Assertion (A) is false, but Reason (R) is true.

Previously asked in: 2023 31/6/1 Q19

◆ Life Processes | Nutrition in Amoeba – Pseudopodia and Food Ingestion

Q17. **[1]**

In the given diagram of a closed stomata : (1), (2), (3) and (4) respectively are

(a) nucleus, chloroplast, guard cell, vacuole
(b) nucleus, chloroplast, vacuole, guard cell
(c) chloroplast, nucleus, vacuole, guard cell
(d) vacuole, guard cell, nucleus, chloroplast

Previously asked in: 2023 31/6/1 Q5

◆ Life Processes | Structure of Stomata (Guard Cells, Stoma, Epidermal Cells)

Q18. § 5.2.3 How do Organisms obtain their Nutrition? | § 5.2.4 Nutrition in Human Beings **[1]**

Consider the following statements about small intestine and select the one which is NOT correct :

(a) The length of the small intestine in animals differs as it depends on the type of food they eat.
(b) The small intestine is the site of complete digestion of food.
(c) The small intestine receives secretions from liver and pancreas.
(d) The villi of the small intestine absorb water from the unabsorbed food before it gets removed from the body via the anus.

Previously asked in: 2023 31/1/1 Q9

◆ Life Processes | Small Intestine – Structure and Function

Q19. § 5.2.1 Autotrophic Nutrition **[1]**

A stomata closes when :
(i) it needs carbon dioxide for photosynthesis.
(ii) it does not need carbon dioxide for photosynthesis.
(iii) water flows out of the guard cells.
(iv) water flows into the guard cells.
The correct reason(s) in this process is/are :

(a) (i) only
(b) (i) and (iii)
(c) (ii) and (iii)
(d) (ii) and (iv)

Previously asked in: 2024 31/1/1 Q11

◆ Life Processes | Stomata: Opening and Closing Mechanism (Guard Cells)

Q20. § 5.2.3 How do Organisms obtain their Nutrition? **[1]**

Listed below are the steps of nutrition in Amoeba. Select the correct sequence of these steps :
(i) Diffusion of simple nutrients into cytoplasm
(ii) Food vacuole formation
(iii) Formation of finger like temporary extensions of cell surface
(iv) Complex substances broken to simpler ones
(v) Undigested material thrown out of the cell surface

A (iv), (i), (ii), (iii), (v)
B (iii), (ii), (iv), (i), (v)
C (ii), (i), (iv), (v), (iii)
D (iii), (iv), (i), (ii), (v)

Previously asked in: 2025 31/5/1 Q8

◆ Life Processes | Nutrition in Amoeba – steps of holozoic nutrition (pseudopodia, food vacuole, digestion, absorption, egestion)

Q21. § 5.4 TRANSPORTATION **[1]**

Assertion (A) : The walls of atria are thicker than those of the ventricles.
Reason (R) : Ventricles have to pump blood into various organs at high pressure.

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).
(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).
(c) Assertion (A) is true, but Reason (R) is false.
(d) Assertion (A) is false, but Reason (R) is true.

Previously asked in: 2023 31/5/1 Q19

◆ Life Processes | Structure of the Heart – Atria and Ventricles

Q22. § 5.2.3 How do Organisms obtain their Nutrition? | § 5.2.4 Nutrition in Human Beings **[1]**

Assertion (A) : The inner walls of the small intestine have finger like projections called villi which are rich in blood.
Reason (R) : These villi have a large surface area to help the small intestine in completing the digestion of food.

(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.

Previously asked in: 2023 31/4/1 Q19

◆ Life Processes | Villi in Small Intestine – Structure and Function in Absorption

Q23. § 5.2.1 Autotrophic Nutrition § 5.2.4 Nutrition in Human Beings **[1]**

The opening and closing of stomata is regulated by :

(A) CO_2 concentration in stomata
(B) Temperature in guard cells
(C) O_2 concentration in stomata
(D) Amount of water in guard cells

Previously asked in: 2025 31/2/1 Q6

◆ Life Processes | Regulation of stomatal opening and closing by guard cells

Q24. § 5.2.3 How do Organisms obtain their Nutrition? **[2]**

Give a diagrammatic representation of nutrition in Amoeba.

Previously asked in: 2026 31/5/1 Q10

◆ Life Processes | Nutrition in Amoeba (Holozoic Nutrition / Phagocytosis)

Q25. **[1]**

Identify the part that controls the closing and opening of the stomatal pore in leaves of plants. Select the correct option.

(A) Stomata
(B) Epidermal cells
(C) Guard cells
(D) Chloroplasts

Previously asked in: 2026 31/5/1 Q1

◆ Life Processes | Stomata – Guard Cells and Opening/Closing of Stomatal Pore

Q26. § 5.2.4 Nutrition in Human Beings **[2]**

Give the name of the enzyme present in the fluid in our mouth cavity. State the gland which produces it. What would happen to the digestion process if this gland stops secreting this enzyme ?

Previously asked in: 2023 31/6/1 Q23

◆ Life Processes | Salivary amylase and role of salivary glands in digestion

Q27. § 5.2.3 How do Organisms obtain their Nutrition? § 5.3 RESPIRATION § 5.4 TRANSPORTATION **[3]**

Answer the following :

(i) Name the movements that occur all along the gut in human digestive system. How do they help in digestion ?

(ii) Where is bile juice stored in human body ? List two roles of bile juice.

Previously asked in: 2024 31/2/1 Q29(b)

◆ Life Processes | Bile juice – storage and functions | Peristaltic movements in the gut

Q28. § 5.2.4 Nutrition in Human Beings **[1]**

In human alimentary canal, the digestive juice secreted by the gastric glands are

(A) Bile, Trypsin, Pepsin
(B) Hydrochloric acid, Pepsin, Mucus
(C) Lipase, Bile, Mucus
(D) Salivary amylase, Pepsin, Bile

Previously asked in: 2025 31/6/1 Q12

◆ Life Processes | Gastric Glands and Digestive Juices in the Human Alimentary Canal

Q29. § 5.2.4 Nutrition in Human Beings § 5.3 RESPIRATION **[3]**

Answer the following :

(a) With the help of an activity, explain the action of saliva on the food we eat.

(b) Why is bile juice important in the process of digestion ?

Previously asked in: 2023 31/5/1 Q29

◆ Life Processes | Action of saliva on starch (salivary amylase activity) | Role of bile juice in digestion

Q30. **[1]**

Opening and closing of stomata is due to :

(a) High pressure of gases inside the cells.
(b) Movement of water in and out of the guard cells.
(c) Stimulus of light in the guard cells.
(d) Diffusion of CO_2 in and out of the guard cells.

Previously asked in: 2023 31/4/1 Q9

◆ Life Processes | Opening and closing of stomata

Q31. § 5.2.4 Nutrition in Human Beings **[1]**

Sphincter muscles are present at the exit of :

(a) Stomach and small intestine
(b) Stomach and anus
(c) Small intestine and large intestine
(d) Oesophagus and stomach

Previously asked in: 2023 31/2/1 Q8

◆ Life Processes | Sphincter Muscles in the Digestive System

Q32. § 5.2.4 Nutrition in Human Beings **[1]**

The gastric glands present in the wall of the stomach release :

(A) Mucus and Trypsin
(B) Pepsin and Trypsin
(C) Mucus and Pepsin
(D) Pepsin and Salivary amylase

Previously asked in: 2025 31/3/1 Q10

◆ Life Processes | Gastric glands and secretions in the stomach

Q33. § 5.2.4 Nutrition in Human Beings **[1]**

Secretion of less saliva in mouth will effect the conversion of :

(A) proteins into amino acids
(B) fats into fatty acids and glycerol
(C) starch into simple sugars
(D) sugars into alcohol

Previously asked in: 2025 31/1/1 Q8

◆ Life Processes | Role of Saliva in Digestion – Conversion of Starch to Sugar

Q34. § 5.2.3 How do Organisms obtain their Nutrition? § 5.2.4 Nutrition in Human Beings **[1]**

Assertion (A) : The peristaltic movements occur all along the gut.
Reason (R) : The lining of the gut has muscles that contract rhythmically to push the food in regulated manner.

(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).
(B) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).
(C) Assertion (A) is true, but Reason (R) is false.
(D) Assertion (A) is false, but Reason (R) is true.

Previously asked in: 2026 31/5/1 Q9

◆ Life Processes | Peristaltic movements and muscular lining of the gut

Q35. § 5.2.1 Autotrophic Nutrition § 5.3 RESPIRATION **[5]**

Option (A):

(a) Draw a labelled diagram showing open and closed stomatal pore.

(b) List the main events that occur during the process of photosynthesis.

(c) Write a balanced chemical equation showing photo-synthesis in plants.

Previously asked in: 2026 31/4/1 Q16 (A)

◆ Life Processes | Photosynthesis (autotrophic nutrition) | Stomata and gaseous exchange

Q36. § 5.2.4 Nutrition in Human Beings § 5.3 RESPIRATION **[1]**

The pH of the gastric juices released during digestion is :

(A) Less than 7
(B) More than 7
(C) Equal to 7
(D) Equal to 0

Previously asked in: 2026 31/2/1 Q21

◆ Life Processes | Gastric glands and secretions in the stomach | Role of Hydrochloric Acid in digestion | pH of gastric juice

Q37. § 5.3 RESPIRATION **[5]**

Answer the following parts:

(i) In the experimental set-up shown above in diagram (I) atmospheric air is being passed into lime water with a syringe while in diagram (II) air is being exhaled into lime water. The time taken for the lime water to turn milky in both the test tubes is different. Give reason. [3]

(ii) Draw the diagram of an open stomatal pore and label (I) Guard cells, and (II) Chloroplast on it. Mention two functions performed by stomata. [2]

Previously asked in: 2024 31/5/1 Q35 (b)

◆ Life Processes | CO_2 concentration in atmospheric air vs exhaled air – lime water experiment | Stomata – structure, guard cells, chloroplast, and functions

Q38. § 5.4 TRANSPORTATION **[3]**

Explain the process of transport of oxygenated and deoxygenated blood in a human body.

Previously asked in: 2023 31/6/1 Q27

◆ Life Processes | Double Circulation in Humans | Transport of Oxygenated and Deoxygenated Blood in Humans

Q39. § 5.4 TRANSPORTATION **[2]**

Name the type of blood (oxygenated / deoxygenated) transported by each of the following mentioning the path (i.e. from one organ (which place) to another (which place)).

(i) Vena cava

(ii) Pulmonary artery

Previously asked in: 2023 31/1/1 Q23(a)

◆ **Life Processes** Blood vessels and types of blood transported (Vena cava and Pulmonary artery) Human circulatory system – double circulation

Q40. § 5.4 TRANSPORTATION **[1]**

Assertion (A) : Blood clotting prevents excessive loss of blood.
Reason (R) : Blood clotting is due to blood plasma and white blood cells present in the blood.

(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.

Previously asked in: 2023 31/1/1 Q19

◆ **Life Processes** Blood Clotting and Components of Blood

Q41. § 5.4 TRANSPORTATION **[1]**

Which of the following statement (s) is (are) true about human heart ? (a) Right atrium receives oxygenated blood from lungs through pulmonary artery. (b) Left atrium transfers oxygenated blood to left ventricle which sends it to various parts of the body. (c) Right atrium receives deoxygenated blood from different parts of the body through vena cava. (d) Left atrium transfers oxygenated blood to aorta which sends it to different parts of the body.

A (b) only
B (a) and (d)
C (b) and (c)
D (b) and (d)

Previously asked in: 2024 31/3/1 Q11

◆ **Life Processes** Structure and functioning of the human heart

Q42. § 5.2.1 Autotrophic Nutrition **[2]**

Photosynthesis takes place in the leaves and the food prepared by it reaches other parts of the plants. Name the process involved and explain it.

Previously asked in: 2024 31/2/1 Q22

◆ **Life Processes** Translocation

Q43. § 5.4 TRANSPORTATION **[1]**

Which of the following statement(s) is (are) true about human heart ?
(a) Right atrium receives oxygenated blood from lungs through pulmonary artery.
(b) Left atrium transfers oxygenated blood to left ventricle which sends it to various parts of the body.
(c) Right atrium receives deoxygenated blood through vena cava from upper and lower body.
(d) Left atrium transfers oxygenated blood to aorta which sends it to different parts of the body.

(A) (a)
(B) (a) and (d)
(C) (b) and (c)
(D) (b) and (d)

Previously asked in: 2024 31/2/1 Q8

◆ Life Processes | Structure and Function of the Human Heart

Q44. § 5.4 TRANSPORTATION **[3]**

Name the blood vessel that brings (i) oxygenated blood (ii) deoxygenated blood, to the human heart. Also name that chamber of the heart which receives deoxygenated blood and state how deoxygenated blood from this chamber is sent to lungs for oxygenation.

Previously asked in: 2025 31/6/1 Q29

◆ Life Processes | Blood vessels carrying oxygenated and deoxygenated blood to the heart | Chambers of the heart and double circulation

Q45. § 5.4 TRANSPORTATION **[1]**

Select TRUE statements about lymph from the following :
A. Lymph vessels carry lymph through the body and finally open into larger arteries.
B. Lymph contains some amount of plasma, proteins and blood cells.
C. Lymph contains some amount of plasma, proteins and red blood cells.
D. Lymph vessels carry lymph through the body and finally open into larger veins.
The true statements are :

(a) A and B
(b) B and D
(c) A and C
(d) C and D

Previously asked in: 2025 31/4/1 Q6

◆ Life Processes | Lymph – composition and transport

Q46. § 5.4 TRANSPORTATION **[3]**

(B) (i) What is double circulation ?
(ii) Why is the separation of the right side and the left side of the heart useful ? How does it help birds and mammals ?

Previously asked in: 2023 31/4/1 Q29 (B)

◆ Life Processes | Double Circulation | Separation of Right and Left Sides of the Heart

Q47. § 5.4 TRANSPORTATION **[2]**

Answer the following:

(a) Why is it important to prevent oxygenated and deoxygenated blood from mixing in birds and mammals ? [1]

(b) Which animals can tolerate some mixing of the oxygenated and deoxygenated blood streams ? On what factor does the body temperature of these animals depend ? [1]

Previously asked in: 2023 31/2/1 Q22

◆ **Life Processes** | Cold-blooded animals and mixing of blood streams — body temperature dependence on environment | Separation of oxygenated and deoxygenated blood in birds and mammals (double circulation)

Q48. § 5.4 TRANSPORTATION **[1]**

Assertion (A) : In the human heart ventricles have thicker muscular walls than atria.
Reason (R) : Ventricles have to pump the blood into various organs.

A Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
B Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).
C Assertion (A) is true, but Reason (R) is false.
D Assertion (A) is false, but Reason (R) is true.

Previously asked in: 2024 31/4/1 Q18

◆ **Life Processes** | Structure and Function of the Human Heart – Ventricles vs Atria

Q49. § 5.4 TRANSPORTATION **[2]**

State the main function of veins in human circulatory system. Why do they not need thick walls ?

Previously asked in: 2025 31/3/1 Q23

◆ **Life Processes** | Veins – Function and Structure in Human Circulatory System

Q50. § 5.4 TRANSPORTATION **[1]**

One-cell thick blood vessels are known as :

(A) Alveoli
(B) Capillaries
(C) Arteries
(D) Veins

Previously asked in: 2025 31/2/1 Q7

◆ **Life Processes** | Capillaries – one-cell thick blood vessels

Q51. § 5.4 TRANSPORTATION **[2]**

Besides minimising the loss of blood, why is it essential to plug any leak in a blood vessel ? Name the component of blood which helps in this process and state how this component perform this function.

Previously asked in: 2025 31/1/1 Q23 (a)

◆ **Life Processes** | Blood composition and function of platelets in clotting

Q52. § 5.4 TRANSPORTATION **[2]**

Separation of right side and left side of the heart is useful to keep oxygenated and deoxygenated blood from mixing. Various organisms have different types of heart.

(I) Fill in the blanks (i) to (iii) correctly according to the type of organisms and their evolution in terms of blood circulation : Organisms | Number of chambers in heart | Type of blood being circulated | Type of circulation Fish | (i) _____ | Mixed | Single (ii) _____ | 3-chambered | Mixed | Incomplete double circulation Birds and Mammals | 4-chambered | Separated circulation path of oxygenated and deoxygenated blood | (iii) _____

(II) Which type of circulation is most efficient ?

Previously asked in: 2026 31/3/1 Q12

◆ **Life Processes** Single and double circulation – efficiency
Types of heart chambers across organisms (fish, amphibians/reptiles, birds, mammals)

Q53. § 5.4 TRANSPORTATION **[1]**

Assertion (A) : Blood plasma transports carbon dioxide in dissolved form, while oxygen is transported by respiratory pigments.
Reason (R) : Carbon dioxide is more soluble in water than in oxygen.

(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
(B) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).
(C) Assertion (A) is true, but Reason (R) is false.
(D) Assertion (A) is false, but Reason (R) is true.

Previously asked in: 2026 31/2/1 Q8

◆ **Life Processes** Transport of gases in blood – CO_2 and O_2

Q54. § 5.4 TRANSPORTATION § 5.5 EXCRETION **[2]**

Briefly mention the steps in double-circulation through human heart.

Previously asked in: 2026 31/5/1 Q12

◆ **Life Processes** Double Circulation in the Human Heart

Q55. § 5.4 TRANSPORTATION **[1]**

Assertion (A) : In human beings, the respiratory pigment is haemoglobin present in red blood cells.
Reason (R) : Haemoglobin has a very high affinity for carbon dioxide.

A Both, Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).
B Both, Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).
C Assertion (A) is true, but Reason (R) is false.
D Assertion (A) is false, but Reason (R) is true.

Previously asked in: 2026 31/1/1 Q9

◆ **Life Processes** Transport in humans – respiratory pigment haemoglobin

Q56. § 5.4 TRANSPORTATION **[1]**

In human beings the oxygen rich blood is pumped out to the body by :

(A) contraction of right atrium
(B) relaxation of left ventricle
(C) contraction of right ventricle
(D) contraction of left ventricle

Previously asked in: 2026 31/4/1 Q7

◆ **Life Processes** Transportation in Humans (Human Heart and Circulation)

Q57. § 5.5 EXCRETION **[2]**

Name the part of the human excretory system where nephrons are found. Write the structure and function of nephrons.

Previously asked in: 2023 31/1/1 Q24

◆ Life Processes | Human Excretory System | Structure and Function of Nephron

Q58. § 5.2.3 How do Organisms obtain their Nutrition? | § 5.2.4 Nutrition in Human Beings **[4]**

> Human digestive system is a tube running from mouth to anus. Its main function is to breakdown complex molecules present in the food which cannot be absorbed as such into smaller molecules. These molecules are absorbed across the walls of the tube and the absorbed food reaches each and every cell of the body where it is utilised for obtaining energy.

Read the source and answer the sub-parts that follow.

(a) Name the glands present in the buccal cavity and write the components of food on which the secretion of these glands act upon. [1]

(b) Two organs have a sphincter muscle at their exit. Name them. [1]

(c) What will happen if : (i) mucus is not secreted by the gastric glands. (ii) Villi are absent in the small intestine. [2]

Previously asked in: 2024 31/3/1 Q38

◆ Life Processes | Buccal cavity – salivary glands and action of salivary amylase on starch | Role of mucus secreted by gastric glands | Role of villi in absorption in the small intestine | Sphincter muscles at the exit of stomach and urinary bladder / intestine

Q59. § 5.5 EXCRETION **[1]**

The basic filtration unit of the excretory system in human beings is :

(A) Nephron
(B) Urethra
(C) Neuron
(D) Urinary bladder

Previously asked in: 2025 31/6/1 Q11

◆ Life Processes | Nephron as the basic filtration unit of the excretory system

Q60. § 5.5 EXCRETION **[2]**

Answer the following based on the figure of human nephron.

(a) Identify 'X' in the figure of human nephron shown below. What role does it play in the process of urine formation?

(b) Why some substances are selectively reabsorbed from the initial filtrate of urine, as it flows along the tabular part of nephron?

Previously asked in: 2025 31/5/1 Q23 (B)

◆ Life Processes | Human Nephron and Urine Formation | Selective Reabsorption in Renal Tubule

Q61. § 5.5 EXCRETION **[2]**

How is lymph formed? State its important function.

Previously asked in: 2025 31/5/1 Q23 (A)

◆ Life Processes | Formation and Functions of Lymph

Q62. § 5.5 EXCRETION

Write one specific function each of the following organs in relation with excretion in human beings :
(i) Renal Artery
(ii) Urethra
(iii) Glomerulus
(iv) Tubular part of nephron Tubular part of nephron

Previously asked in: 2023 31/4/1 Q23 (iv)

◆ Life Processes | Excretion in Human Beings – Functions of Renal Artery, Urethra, Glomerulus, and Tubular Part of Nephron

Q63. § 5.5 EXCRETION

Write one specific function each of the following organs in relation with excretion in human beings :
(i) Renal Artery
(ii) Urethra
(iii) Glomerulus
(iv) Tubular part of nephron Glomerulus

Previously asked in: 2023 31/4/1 Q23 (iii)

◆ Life Processes | Excretion in Human Beings | Glomerulus | Renal Artery | Structure and Function of Nephron | Tubular part of nephron | Urethra

Q64. § 5.5 EXCRETION

Write one specific function each of the following organs in relation with excretion in human beings :
(i) Renal Artery
(ii) Urethra
(iii) Glomerulus
(iv) Tubular part of nephron Urethra

Previously asked in: 2023 31/4/1 Q23 (ii)

◆ Life Processes | Excretion in Human Beings | Glomerulus – Function in Excretion | Renal Artery – Function in Excretion | Tubular Part of Nephron – Function in Excretion | Urethra – Function in Excretion

Q65. § 5.5 EXCRETION

Write one specific function each of the following organs in relation with excretion in human beings :
(i) Renal Artery
(ii) Urethra
(iii) Glomerulus
(iv) Tubular part of nephron Renal Artery

Previously asked in: 2023 31/4/1 Q23 (i)

◆ Life Processes | Excretion in Human Beings – Organs and their Functions

Q66. § 5.4 TRANSPORTATION | § 5.5 EXCRETION **[1]**

Assertion (A) : The basic filtration unit in the kidneys, like in the lungs, is a cluster of very thin-walled blood capillaries.
Reason (R) : Each capillary cluster in the kidney is associated with the cup-shaped end of a coiled tube called Bowman's capsule.

(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
(B) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).
(C) Assertion (A) is true, but Reason (R) is false.
(D) Assertion (A) is false, but Reason (R) is true.

Previously asked in: 2026 31/3/1 Q9

◆ Life Processes | Excretion – Structure of Nephron (Glomerulus and Bowman's Capsule)

Q67. § 5.5 EXCRETION **[4]**

> Kidneys help to regulate the volume of fluid and various metabolites waste products in the body. Normally, kidney filter about 180 L of fluid daily but the volume actually excreted out is only a litre or two a day. Patients with kidney failures can be saved by dialysis and kidney transplant.

Answer the following questions based on the passage:

(a) Write the structure and function of Bowman's capsule. [1]

(b) Although kidneys filter a large amount (about 180 L daily) of fluids, still the excretion from the body is only about a litre or two. Why ? [1]

(c) What is excretion ? Why is it necessary for any living organism ? [2]

Previously asked in: 2026 31/5/1 Q15

◆ **Life Processes** | Excretion – Definition and Necessity in Living Organisms | Reabsorption in Kidneys / Selective Reabsorption of Filtrate | Structure and Function of Bowman's Capsule

Q68. § 5.2.3 How do Organisms obtain their Nutrition? | § 5.4 TRANSPORTATION **[1]**

Give differences between the following : Nephron and neuron

Previously asked in: 2026 31/1/1 Q14 (a)

◆ **Life Processes** | Nephron - structural and functional unit of kidney (excretion) | Neuron vs nephron - comparing nervous unit with excretory unit

Q69. § 5.2.1 Autotrophic Nutrition | § 5.3 RESPIRATION **[3]**

Answer the following:

(i) State the role of ATP in cellular respiration.

(ii) What ensures sufficient exchange of gases in plants ?

(iii) State the conditions on which the direction of diffusion of gases in plant depend upon.

Previously asked in: 2023 31/1/1 Q29(a)

◆ **Life Processes** | Diffusion of gases in plants – factors affecting direction | Gas exchange in plants | Role of ATP in cellular respiration

Q70. § 5.2.1 Autotrophic Nutrition | § 5.3 RESPIRATION | § 5.5 EXCRETION **[2]**

With the help of a schematic flow chart, show the breakdown of glucose in a cell to provide energy –

(i) in the presence of oxygen

(ii) in lack of oxygen

Previously asked in: 2023 31/1/1 Q23(b)

◆ **Life Processes** | Breakdown of glucose – aerobic and anaerobic respiration (flow chart)

Q71. § 5.2.1 Autotrophic Nutrition | § 5.3 RESPIRATION | § 5.5 EXCRETION **[3]**

We water the soil but it reaches the topmost leaves of the plants. Explain in brief the process involved.

Previously asked in: 2024 31/3/1 Q29

◆ **Life Processes** | Transportation of Water in Plants (Ascent of Sap)

Q72. § 5.2.1 Autotrophic Nutrition | § 5.4 TRANSPORTATION | § 5.5 EXCRETION **[3]**

Give reasons for the following :

(i) Alveoli in lungs are richly supplied with blood capillaries.

(ii) Respiratory pigment in the blood takes up oxygen and not carbon dioxide.

(iii) During anaerobic respiration, a 3-carbon molecule is formed as an end product instead of CO_2 in human beings.

Previously asked in: 2024 31/2/1 Q29(a)

◆ Life Processes | Alveoli structure and gas exchange in lungs | Anaerobic respiration in humans — lactic acid as end product | Role of haemoglobin (respiratory pigment) in oxygen transport

Q73. § 5.4 TRANSPORTATION | § 5.5 EXCRETION **[1]**

In human respiratory system, when a person breathes in, the position of ribs and diaphragm will be :

(A) lifted ribs and curve/dome shaped diaphragm.
(B) lifted ribs and flattened diaphragm.
(C) relaxed ribs and flattened diaphragm.
(D) relaxed ribs and curve/dome shaped diaphragm.

Previously asked in: 2024 31/2/1 Q10

◆ Life Processes | Mechanism of Breathing – Movement of Ribs and Diaphragm during Inhalation

Q74. § 5.1 WHAT ARE LIFE PROCESSES? | § 5.5 EXCRETION **[3]**

Answer the following about respiration :

(i) Why is respiratory pigment needed in multicellular organisms with large body size ? [1]

(ii) Give reasons for the following : (a) Rings of cartilage are present in the throat. (b) Lungs always contain a residual volume of air. (c) The diaphragm flattens and ribs are lifted up when we breathe in. (d) Walls of alveoli contain an extensive network of blood vessels. [2]

Previously asked in: 2024 31/1/1 Q29

◆ Life Processes | Alveoli — structure and gaseous exchange | Mechanism of breathing — inhalation and exhalation | Need for respiratory pigments in large multicellular organisms | Structure and function of the human respiratory system

Q75. § Introduction | § 5.3 RESPIRATION | § 5.4 TRANSPORTATION **[1]**

Assertion (A) : The rate of breathing in aquatic organisms is much faster than in terrestrial organisms.
Reason (R) : The amount of oxygen dissolved in water is very high as compared to the amount of oxygen in air.

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).
(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).
(c) Assertion (A) is true, but Reason (R) is false.
(d) Assertion (A) is false, but Reason (R) is true.

Previously asked in: 2024 31/1/1 Q19

◆ Life Processes | Respiration in Aquatic vs Terrestrial Organisms

Q76. § 5.1 WHAT ARE LIFE PROCESSES? **[3]**

Answer the following about respiration and energy.

(a) Write the name and one function of respiratory pigment found in human beings.

(b) Why do lungs always contain a residual volume of air?

(c) Why is ATP known as energy currency of the living beings?

Previously asked in: 2025 31/5/1 Q29

◆ Life Processes | ATP as energy currency of living beings | Residual volume of air in lungs | Respiratory pigment – Haemoglobin and its function

Q77. § 5.2.4 Nutrition in Human Beings **[3]**

The digestion of food in human alimentary canal is a complex process. State the enzyme/salt present in the following and mention their function in the process of digestion :

(i) Saliva [1]

(ii) Bile Juice [1]

(iii) Pancreatic Juice [1]

Previously asked in: 2025 31/4/1 Q29

◆ Life Processes | Digestion in the Human Alimentary Canal | Role of Pancreatic Juice in Digestion | Role of Salivary Amylase in Digestion | Role of bile juice in digestion

Q78. § 5.5 EXCRETION **[2]**

"Plants use a variety of techniques to get rid of waste material." Justify this statement giving any four ways.

Previously asked in: 2025 31/4/1 Q23

◆ Life Processes | Excretion in Plants | Waste removal techniques in plants (stomata, shedding of leaves, stored in vacuoles, exuded into soil)

Q79. § 5.4 TRANSPORTATION **[1]**

Assertion (A) : In large animals, oxygen can reach different parts of the animal's body easily.
Reason (R) : Respiratory pigments take up oxygen from the air and carry it to body tissues.

(a) Both, Assertion (A) and Reason (R) are true, and Reason (R) is the correct explanation of Assertion (A).
(b) Both, Assertion (A) and Reason (R) are true, and Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is true, but Reason (R) is false.
(d) Assertion (A) is false, but Reason (R) is true.

Previously asked in: 2025 31/4/1 Q17

◆ Life Processes | Assertion-Reason: Limitations of Diffusion in Large Animals | Transport of Oxygen and Role of Respiratory Pigments

Q80. § 5.2.1 Autotrophic Nutrition | § 5.2.3 How do Organisms obtain their Nutrition? | § 5.5 EXCRETION **[2]**

Explain in brief two ways by which leaves of a plant help in excretion.

Previously asked in: 2023 31/5/1 Q23 (b)

◆ Life Processes | Excretion in Plants – Role of Leaves

Q81. § Introduction § 5.3 RESPIRATION § 5.5 EXCRETION **[1]**

As compared to terrestrial organisms, the rate of breathing in aquatic organisms is :

(a) faster because they need more oxygen for their survival.
(b) faster because the amount of dissolved oxygen in water is fairly low.
(c) slower because the amount of dissolved oxygen in water is fairly low.
(d) slower because the capacity of water of dissolving atmospheric air is limited.

Previously asked in: 2023 31/5/1 Q9

◆ **Life Processes** Rate of Breathing in Aquatic vs Terrestrial Organisms

Q82. § 5.2.1 Autotrophic Nutrition § 5.3 RESPIRATION § 5.5 EXCRETION **[1]**

The process in which loss of water in the form of vapours from the aerial parts of plants takes place is X, which helps in Y. Here X and Y respectively are :

(a) transpiration and photosynthesis.
(b) transpiration and temperature regulation.
(c) translocation and movement of soluble products of photosynthesis in phloem.
(d) translocation and absorption of water and minerals from soil by roots.

Previously asked in: 2023 31/5/1 Q8

◆ **Life Processes** Transpiration and its role in water/nutrient transport (absorption of water and minerals)

Q83. § 5.2.3 How do Organisms obtain their Nutrition? **[3]**

(A) (i) How does Paramecium obtain its food ?
(ii) List the role of each of the following in our digestive system :
(a) Hydrochloric acid
(b) Trypsin
(c) Muscular walls of stomach
(d) Salivary amylase

Previously asked in: 2023 31/4/1 Q29 (A)

◆ **Life Processes** Human Digestive System – Role of Digestive Juices and Enzymes Nutrition in Unicellular Organisms – Paramecium

Q84. § 5.1 WHAT ARE LIFE PROCESSES? § 5.2.1 Autotrophic Nutrition § 5.5 EXCRETION **[3]**

Answer the following:

(a)(i) What is the first step in the breakdown of glucose during aerobic and anaerobic respiration ? Where does it take place ?

(a)(ii) ATP is called the energy currency of the cell. Why ?

(a)(iii) What is meant by residual volume of air in a breathing cycle ?

Previously asked in: 2023 31/2/1 Q29 (a)

◆ **Life Processes** ATP as energy currency of the cell Glycolysis – first step in breakdown of glucose (cytoplasm) Residual volume of air in a breathing cycle

Q85. **[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

Previously asked in: 2023 31/2/1 Q10

◆ Life Processes | Anaerobic Respiration – Conversion of Pyruvate to Lactic Acid

Q86. § 5.2.1 Autotrophic Nutrition | § 5.3 RESPIRATION | § 5.5 EXCRETION **[2]**

Answer the following:

(a) We need to water the soil in plants on a regular basis. But it ultimately reaches the leaves of the plant. Explain how this takes place. [2]

Previously asked in: 2024 31/4/1 Q23

◆ Life Processes | Transport of Water in Plants (Xylem and Transpiration Pull)

Q87. § 5.1 WHAT ARE LIFE PROCESSES? | § 5.2.3 How do Organisms obtain their Nutrition? | § 5.5 EXCRETION **[1]**

On the basis of the characteristics of the processes given in the brackets in each case, differentiate between the following : Respiration in terrestrial animals and fishes (organs involved)

Previously asked in: 2025 31/3/1 Q29 (c)

◆ Life Processes | Respiration: Organs of Respiration in Terrestrial Animals vs. Fishes (Lungs vs. Gills)

Q88. § 5.1 WHAT ARE LIFE PROCESSES? | § 5.3 RESPIRATION **[1]**

On the basis of the characteristics of the processes given in the brackets in each case, differentiate between the following : Products of breakdown of pyruvate in aerobic and anaerobic respiration in human beings (product(s) of the processes)

Previously asked in: 2025 31/3/1 Q29 (a)

◆ Life Processes | Products of aerobic vs anaerobic breakdown of pyruvate in human beings

Q89. § 5.2.1 Autotrophic Nutrition | § 5.2.3 How do Organisms obtain their Nutrition? | § 5.4 TRANSPORTATION **[2]**

Answer the following :

(i) The transport system in plants is relatively slower than in animals. Give reasons. [1]

(ii) State the role of phloem in the transport of materials in plants. [1]

Previously asked in: 2025 31/1/1 Q23 (b)

◆ Life Processes | Role of phloem in transport of materials in plants
Transport system in plants vs animals – reasons for slower transport in plants

Q90. § 5.2.1 Autotrophic Nutrition **[1]**

The breakdown of glucose has taken the following pathway :

Glucose →(a) Pyruvate + Energy →(b) Lactic acid + Energy

The sites 'a' and 'b' respectively are :

(A) Mitochondria and Oxygen deficient muscle cells
(B) Cytoplasm and Oxygen rich muscle cells
(C) Cytoplasm and Yeast cells
(D) Cytoplasm and Oxygen deficient muscle cells

Previously asked in: 2025 31/1/1 Q12

◆ Life Processes | Anaerobic Respiration – Breakdown of Glucose (Glycolysis and Lactic Acid Fermentation)

Q91. § 5.2.4 Nutrition in Human Beings **[3]**

In xylem tissue, vessels and tracheids of the roots, stems and leaves are interconnected to form a continuous system of water-conducting channels reaching all parts of the plant. Explain how this is achieved.

Previously asked in: 2026 31/3/1 Q13

◆ Life Processes | Water transport through xylem – vessels and tracheids forming continuous conducting channels

Q92. § 5.1 WHAT ARE LIFE PROCESSES? § 5.2.1 Autotrophic Nutrition **[2]**

What kind of respiration provides more energy and why ?

Previously asked in: 2026 31/3/1 Q11

◆ Life Processes | Aerobic vs Anaerobic Respiration – Energy Comparison

Q93. § 5.1 WHAT ARE LIFE PROCESSES? § 5.2.1 Autotrophic Nutrition § 5.3 RESPIRATION **[1]**

Pravin was given a list of characteristics associated with the process of anaerobic respiration in humans, in the table given below :

Characteristic (i) Muscle Cell (ii) Requires presence of Oxygen (O_2) and Carbon dioxide (CO_2) (iii) 3-Carbon molecules

Which of the above characteristics is/are related to the above process ?

(A) (i) and (ii)
(B) (i) and (iii)
(C) (ii) and (iii)
(D) (i) only

Previously asked in: 2026 31/3/1 Q1

◆ Life Processes | Anaerobic Respiration in Humans (Lactic Acid Fermentation in Muscle Cells)

Q94. § 5.2.1 Autotrophic Nutrition § 5.3 RESPIRATION **[3]**

Complete the pathways given below, showing the breakdown of glucose. Identify 'A', 'B', 'C', 'D', 'E' and 'F'.

Previously asked in: 2026 31/2/1 Q13

◆ Life Processes | Breakdown of Glucose – Aerobic and Anaerobic Respiration Pathways

Q95. § 5.3 RESPIRATION **[1]**

Choose the equation of reaction that correctly represents anaerobic respiration in muscles :

(A) Glucose →(Absence of O_2) Pyruvate → Ethanol + CO_2 + Energy
(B) Glucose →(O_2) Pyruvate →(O_2) Energy
(C) Glucose →(O_2) Pyruvate →(Lack of oxygen) Ethanol + Energy
(D) Glucose → Pyruvate →(Lack of oxygen) Lactic acid + Energy

Previously asked in: 2026 31/5/1 Q3

◆ Life Processes | Anaerobic Respiration in Muscles

Q96. § 5.4 TRANSPORTATION | § 5.5 EXCRETION **[2]**

What is the function of diaphragm in human respiratory system ? Where is it present in human body ?

Previously asked in: 2026 31/1/1 Q10

◆ Life Processes | Respiration in humans – role of diaphragm in breathing

Q97. § 5.1 WHAT ARE LIFE PROCESSES? | § 5.2.1 Autotrophic Nutrition **[2]**

"Transpiration in plants is a necessary evil."
Comment on the statement giving two reasons.

Previously asked in: 2026 31/4/1 Q10

◆ Life Processes | Transportation in Plants (Transpiration)

Q98. § 5.2.1 Autotrophic Nutrition | § 5.5 EXCRETION **[1]**

Observe the following diagram and identify the process and its significance from the following options :

(a) Evaporation : maintains water contents in leaf cells.
(b) Transpiration : creates a suction force which pulls water inside the plant.
(c) Excretion : helps in excreting out waste water from the plant.
(d) Translocation : helps in transporting materials from one cell to another.

Previously asked in: 2023 31/4/1 Q8

◆ Life Processes | Transpiration and its role in water/nutrient transport (absorption of water and minerals) | Transportation in Plants (Transpiration)

Q99. § 5.2.2 Heterotrophic Nutrition **[1]**

An organism which breaks down the food material outside the body and then absorbs it is

(a) a plant parasite, Cuscuta
(b) an animal parasite, Tapeworm
(c) a bacteria, Rhizobium
(d) a fungi, Rhizopus

Previously asked in: 2023 31/1/1 Q8

◆ Life Processes | Extracellular Digestion / Saprophytic Nutrition

Q100. § 5.2.4 Nutrition in Human Beings **[2]**

State one role of each of the following in human digestive system :

(i) Hydrochloric acid

(ii) Villi

(iii) Anal Sphincter

(iv) Lipase

Previously asked in: 2024 31/1/1 Q22

◆ Life Processes | Role of Anal Sphincter in egestion | Role of Hydrochloric Acid in digestion | Role of Lipase in digestion of fats | Role of Villi in absorption

Q101. § 5.2.3 How do Organisms obtain their Nutrition? | § 5.2.4 Nutrition in Human Beings **[1]**

Assertion (A) : Xylem tissue moves water and minerals obtained from the soil by the roots.
Reason (R) : Xylem tissue is found only in the roots of a plant.

(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).
(B) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of the Assertion (A).
(C) Assertion (A) is true, but Reason (R) is false.
(D) Assertion (A) is false, but Reason (R) is true.

Previously asked in: 2025 31/6/1 Q18

◆ Life Processes | Xylem tissue and transport of water and minerals

Q102. § 5.2.1 Autotrophic Nutrition | § 5.5 EXCRETION **[1]**

In aerobic respiration, the steps are : breakdown of glucose to pyruvate and its further conversion to carbon dioxide. Both processes respectively occur in –

A Vacuole and Cytoplasm
B Chloroplast and Mitochondria
C Mitochondria and Cytoplasm
D Cytoplasm and Mitochondria

Previously asked in: 2025 31/5/1 Q12

◆ Life Processes | Aerobic Respiration – Sites of Glycolysis and Pyruvate Oxidation (Cytoplasm and Mitochondria)

Q103. § 5.2 NUTRITION | § 5.2.1 Autotrophic Nutrition | § 5.2.2 Heterotrophic Nutrition **[1]**

The essential element taken up from the soil by the plants to synthesize proteins is :

(a) Phosphorus
(b) Nitrogen
(c) Iron
(d) Magnesium

Previously asked in: 2025 31/4/1 Q5

◆ Life Processes | Nutrition in Plants – Mineral Absorption (Nitrogen for Protein Synthesis)

Q104. § 5.2.2 Heterotrophic Nutrition | § 5.2.3 How do Organisms obtain their Nutrition? | § 5.2.4 Nutrition in Human Beings **[2]**

In the process of digestion of food in human beings, two protein-digesting enzymes are secreted. Name the enzymes along with the glands that secrete them.

Previously asked in: 2023 31/5/1 Q24

◆ Life Processes | Protein-digesting enzymes in human digestion (Pepsin from gastric glands and Trypsin from pancreas)

Q105. **[2]**

Answer either (a) or (b):

(a) Sometimes while running, the athletes suffer from muscle cramps. Why ? How is the respiration in this case different from aerobic respiration ? [2]

Previously asked in: 2024 31/5/1 Q23

◆ **Life Processes** | Anaerobic Respiration and Muscle Cramps

Q106. § 5.4 TRANSPORTATION | § 5.5 EXCRETION **[4]**

> Kidneys are vital organs for survival. Several factors like infections, injury or restricted blood flow to kidneys reduce the activity of kidneys. This leads to accumulation of poisonous wastes in the body, which can even lead to death. In case of kidney failure, an artificial kidney can be used. An artificial kidney is a device to remove waste products from the blood through dialysis.

Answer the following questions :

(a) (i) Name the artery that brings oxygenated blood to the kidney. (ii) Name the cluster of thin-walled blood capillaries present in the Bowman's capsule. [1]

(b) In human excretory system name the organ which stores urine. Is this organ under hormonal control or nervous control ? [1]

(c) Answer either (i) or (ii): [2]

Previously asked in: 2024 31/4/1 Q38

◆ **Life Processes** | Artificial Kidney (Dialysis) | Glomerulus and Bowman's Capsule | Human Excretory System – Kidney Structure and Function | Urinary Bladder – Storage and Control of Urine

Q107. § 5.2.1 Autotrophic Nutrition | § 5.2.2 Heterotrophic Nutrition | § 5.2.3 How do Organisms obtain their Nutrition? **[1]**

In human beings, when the process of digestion is completed, the (i) proteins, (ii) carbohydrates, and (iii) fats are respectively finally converted into :

A (i) Amino acids, (ii) glucose and (iii) fatty acids
B (i) Amino acids, (ii) glucose, (iii) fatty acids and glycerol
C (i) Glucose, (ii) fatty acids and glycerol, (iii) amino acids
D (i) Sugars, (ii) amino acids, (iii) fatty acids and glycerol

Previously asked in: 2024 31/4/1 Q6

◆ **Life Processes** | End products of digestion of proteins, carbohydrates, and fats

Q108. § 5.2.4 Nutrition in Human Beings | § 5.3 RESPIRATION **[5]**

Answer the following:

(i) State the role of rings of cartilage present in the throat. [1]

(ii) Discuss the role of the ribs and diaphragm when air is taken in during the breathing cycle. [2]

(iii) Why do we get muscle cramps during heavy exercise ? Explain. [2]

Previously asked in: 2025 31/2/1 Q35 (b)

◆ **Life Processes** | Anaerobic respiration and muscle cramps during exercise | Role of cartilage rings in the trachea | Role of ribs and diaphragm in inhalation (breathing cycle)

Q109. § 5.2.2 Heterotrophic Nutrition § 5.2.3 How do Organisms obtain their Nutrition? § 5.2.4 Nutrition in Human Beings **[5]**

Answer the following:

(i) "The length of the small intestine in various animals depends on the food they eat." Justify the statement. [2]

(ii) Discuss the role of the pancreas and bile juice in the digestion of food in human beings. [2]

(iii) How is the small intestine designed to absorb digested food ? [1]

Previously asked in: 2025 31/2/1 Q35 (a)

◆ Life Processes | Length of small intestine in relation to diet (herbivores vs carnivores) | Role of pancreas and bile juice in digestion | Structure and adaptations of small intestine for absorption of digested food

Q110. § 5.1 WHAT ARE LIFE PROCESSES? § 5.2 NUTRITION **[1]**

Assertion (A) : Animals will not get energy if they eat (consume) coal as food.
Reason (R) : Specific enzymes are needed for the breakdown of a particular food.

(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
(B) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).
(C) Assertion (A) is true, but Reason (R) is false.
(D) Assertion (A) is false, but Reason (R) is true.

Previously asked in: 2025 31/2/1 Q20

◆ Life Processes | Enzymes and digestion of food substances | Nutrition and energy release from food

Q111. § 5.2.3 How do Organisms obtain their Nutrition? § 5.2.4 Nutrition in Human Beings § 5.3 RESPIRATION **[1]**

Pancreas secretes pancreatic juice which contain certain enzyme that helps in digestion of food. Choose the correct option from the following :

A Trypsin digests emulsified fats and lipase digests proteins.
B Trypsin digests proteins and lipase digests emulsified fats.
C Trypsin and lipase both digests fats.
D Trypsin digests proteins and lipase digests carbohydrates.

Previously asked in: 2026 31/1/1 Q5

◆ Life Processes | Digestion in humans - pancreatic enzymes

Q112. § 5.4 TRANSPORTATION **[5]**

Option (B):

(a) Draw a well-labelled diagram of nephron and label atleast 4 of its parts.

(b) Write the role of capillary cluster inside Bowman's capsule.

(c) What is meant by selective reabsorption ?

Previously asked in: 2026 31/4/1 Q16 (B)

◆ Life Processes | Excretion in humans - structure of nephron | Glomerulus and filtration in Bowman's capsule | Selective reabsorption in nephron

Q113. **[2]**

Varun is diabetic. His latest ultrasound reports showed a blockage in his pancreatic duct. How will this affect the dual functioning of the pancreas ?

Previously asked in: 2026 31/4/1 Q12 (A)

◆ Life Processes | Digestive Glands and Pancreas (Dual Endocrine-Exocrine Function)

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