

Life Processes, Control and Coordination

Science · Class 10 · Topic-wise Practice Worksheet

TIME 45 minutes	QUESTIONS 18	TOTAL MARKS 24	MAX. SCORE ___ / 24
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Name: _____ Class/Sec: _____ Date: _____

INSTRUCTIONS

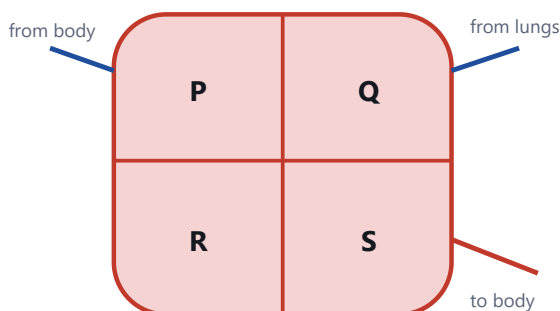
- There are **18 questions** in this worksheet. All questions are compulsory.
- Each question has four options (A), (B), (C) and (D). Exactly **one** option is correct.
- Questions 1–15 carry **1 mark** each. Questions 16–18 (Achievers Section) carry **3 marks** each.
- There is no negative marking. Study every diagram and table carefully.

Section A — Scientific Reasoning

Q1–Q8 · 1 mark each

- Green plants prepare their own food by photosynthesis. This mode of nutrition is called _____.
 (A) Heterotrophic (B) Autotrophic
 (C) Saprophytic (D) Parasitic
- Photosynthesis takes place in the _____.
 (A) Mitochondria (B) Chloroplasts
 (C) Ribosomes (D) Vacuoles
- Bile, which helps in the digestion of fats, is secreted by the _____.
 (A) Pancreas (B) Stomach
 (C) Liver (D) Small intestine
- During vigorous exercise, the anaerobic breakdown of glucose in human muscles produces _____.
 (A) Ethanol and carbon dioxide (B) Pyruvate and oxygen
 (C) Only carbon dioxide and water (D) Lactic acid
- Oxygen is carried in human blood mainly by _____.
 (A) Haemoglobin in the red blood cells (B) Plasma
 (C) White blood cells (D) Platelets
- The structural and functional unit of the kidney is the _____.
 (A) Neuron (B) Nephron
 (C) Alveolus (D) Ureter
- A reflex action such as pulling the hand away from a hot object is controlled by the _____.
 (A) Cerebrum (B) Cerebellum
 (C) Spinal cord (D) Medulla
- The plant hormone that promotes the growth of a shoot towards light is _____.
 (A) Ethylene (B) Absciscic acid
 (C) Cytokinin (D) Auxin

9. The diagram shows the four chambers of the human heart. Which labelled chamber pumps oxygenated blood out to the whole body?



The four chambers of the heart, seen from the front, so the left side of the heart appears on the right

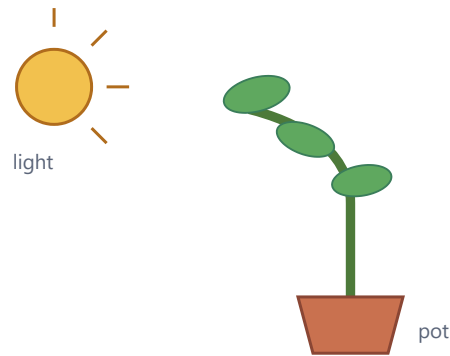
- (A) P (B) Q
(C) R (D) S
10. Most of the water lost from a plant by transpiration escapes through the _____.
(A) Stomata of the leaves (B) Roots
(C) Bark of the stem (D) Flowers
11. A person whose pancreas produces too little insulin is likely to suffer from _____.
(A) Goitre (B) Diabetes
(C) Dwarfism (D) Anaemia
12. One row of the table below is **incorrectly** matched. Which row is it?

Row	Gland or organ	Secretion and its role
(A)	Salivary gland	Insulin, which lowers blood sugar
(B)	Adrenal gland	Adrenaline, released in fright or excitement
(C)	Thyroid	Thyroxine, which regulates metabolism
(D)	Pituitary	Growth hormone, which controls growth

Table 3.1 — Glands and their secretions

- (A) (A) (B) (B)
(C) (C) (D) (D)
13. The transport of food from the leaves to other parts of a plant is called _____.
(A) Transpiration (B) Transportation by xylem
(C) Translocation (D) Osmosis
14. Human beings have a double circulation, meaning that blood passes through the heart twice in one complete cycle. This is useful because it _____.
(A) Allows the heart to work without valves (B) Slows the blood down so it can be cleaned
(C) Reduces the number of heartbeats needed (D) Keeps oxygenated and deoxygenated blood from mixing, allowing efficient oxygen supply

15. In the figure, a potted plant kept near a window has grown bent towards the light. This response is called _____.



A potted plant growing towards a source of light

- (A) Phototropism
(B) Geotropism
(C) Hydrotropism
(D) Chemotropism

Achievers Section

Q16–Q18 · 3 marks each

16. **Assertion (A):** Arteries have thick, elastic walls.

Reason (R): Blood leaves the heart under high pressure and travels through the arteries in spurts.

- (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

17. A meal of bread and butter is eaten. In which order do these events occur?

- (i) Bile emulsifies the fat.
(ii) Salivary amylase begins to break down starch.
(iii) The products of digestion are absorbed through the villi.
(iv) Hydrochloric acid in the stomach makes the medium acidic.

- (A) (ii) → (iv) → (i) → (iii)
(B) (ii) → (i) → (iv) → (iii)
(C) (iv) → (ii) → (i) → (iii)
(D) (i) → (ii) → (iv) → (iii)

18. A boy touches a hot pan and pulls his hand back before he feels the pain. The best explanation is that _____.

- (A) The impulse travelled to the brain and back before he felt anything
(B) The spinal cord produced the response through a reflex arc, and the message reached the brain only afterwards
(C) The muscles acted without any nerve impulse at all
(D) Pain receptors in the hand contracted the muscles directly

Answer Key

1	B	2	B	3	C	4	D	5	A
6	B	7	C	8	D	9	D	10	A
11	B	12	A	13	C	14	D	15	A
16	A	17	A	18	B				

Solutions

1. Answer: (B) Autotrophic

Autotrophic nutrition means making food from simple inorganic substances using an outside energy source, here sunlight. Animals, which take ready-made food, are heterotrophic.

2. Answer: (B) Chloroplasts

Chloroplasts contain chlorophyll, the green pigment that traps sunlight, so they are the site of photosynthesis. Mitochondria carry out respiration instead.

3. Answer: (C) Liver

Bile is made in the **liver** and stored in the gall bladder. It contains no enzyme; it breaks large fat globules into smaller ones, a process called emulsification, so that enzymes can act on them.

4. Answer: (D) Lactic acid

When oxygen runs short, muscle cells convert pyruvate into **lactic acid**, whose build-up causes cramps. Yeast, by contrast, produces ethanol and carbon dioxide under the same conditions.

5. Answer: (A) Haemoglobin in the red blood cells

Haemoglobin, the red pigment of the red blood cells, binds oxygen where it is plentiful and releases it in the tissues. Only a little oxygen dissolves in the plasma itself.

6. Answer: (B) Nephron

Each kidney contains about a million **nephrons**, and each nephron filters the blood and reabsorbs what the body needs. The neuron is the unit of the nervous system and the alveolus that of the lungs.

7. Answer: (C) Spinal cord

The impulse travels along a reflex arc through the **spinal cord**, which sends the response straight back without waiting for the brain. This short cut is what makes the reaction so fast.

8. Answer: (D) Auxin

Auxin gathers on the shaded side of the shoot tip and makes those cells grow longer, so the shoot bends towards the light. Absciscic acid, in contrast, inhibits growth.

9. Answer: (D) S

Blood returning from the lungs enters the left atrium (Q) and passes down into the left ventricle, marked **S**, which pumps it out through the aorta to the whole body. P and R are the right atrium and right ventricle, which handle deoxygenated blood on its way to the lungs.

10. Answer: (A) Stomata of the leaves

The **stomata**, tiny pores guarded by pairs of guard cells, open for gas exchange, and water vapour escapes through them at the same time. Transpiration also helps pull water up the xylem.

11. Answer: (B) Diabetes

Insulin lowers the level of glucose in the blood, so too little of it leaves the blood sugar high — the condition called **diabetes**. Goitre comes from a shortage of iodine and dwarfism from too little growth hormone.

12. Answer: (A) (A)

The salivary glands secrete saliva containing the enzyme amylase, which begins the digestion of starch; insulin comes from the pancreas. So row **(A)** is wrong, while the other three are correctly matched.

13. Answer: (C) Translocation

Translocation is the movement of the food made in the leaves through the phloem, and it uses energy from ATP. Xylem, by contrast, carries water upward only.

14. Answer: (D) Keeps oxygenated and deoxygenated blood from mixing, allowing efficient oxygen supply

With separate right and left sides, the heart **keeps oxygen-rich and oxygen-poor blood apart**, so tissues receive fully oxygenated blood. Warm-blooded animals need this efficiency to maintain a constant body temperature.

15. Answer: (A) Phototropism

Growth in response to the direction of light is **phototropism**, and a shoot shows it positively by bending towards the light. Geotropism is a response to gravity and hydrotropism to water.

16. Answer: (A) Both A and R are true and R is the correct explanation of A

Each contraction of the ventricles pushes blood into the arteries at high pressure, so their walls must be thick and elastic to withstand and smooth out those surges. Both statements are true and the high pressure is exactly **why** the walls are built that way, so R explains A. Veins, carrying blood at low pressure, have thin walls and valves instead.

17. Answer: (A) (ii) → (iv) → (i) → (iii)

Digestion begins in the mouth, where salivary amylase acts on starch. The food then reaches the stomach, where hydrochloric acid creates an acidic medium for pepsin. In the small intestine bile emulsifies the fat, and finally the villi absorb the products. So the order is **(ii) → (iv) → (i) → (iii)**.

18. Answer: (B) The spinal cord produced the response through a reflex arc, and the message reached the brain only afterwards

In a reflex arc the sensory neuron passes the impulse to a relay neuron in the **spinal cord**, which sends it straight to the motor neuron of the arm muscle. The response is therefore made before the signal travelling on to the brain produces the sensation of pain — which is why the hand moves first and the pain is felt a moment later.