

**QB365 Question Paper Software**  
**10th Standard - Science**  
**Life Processes Assertion and reason**

Exam Time: 00:20 Hrs

Date: 2025-10-11

Total Marks: 10

**Questions:**

**Assertion and reason**

1. **Assertion:** ATP is the output of the exothermic reaction that takes place in the cell.

**Reason:** ATP is used further by endothermic reactions.

**Codes**

- (a) If both assertion and reason are true and the reason is correct explanation of assertion.
- (b) If both assertion and reason are true but reason is not a correct explanation of assertion.
- (c) If assertion is true and reason is false.
- (d) If both assertion and reason are false.

2. **Assertion:** Oxygen is more readily soluble in water than carbon dioxide.

**Reason:** Hence it gets transported easily through blood.

**Codes**

- (a) If both assertion and reason are true and the reason is correct explanation of assertion.
- (b) If both assertion and reason are true but reason is not a correct explanation of assertion.
- (c) If assertion is true and reason is false.
- (d) If both assertion and reason are false.

3. **Assertion:** Capillaries are the thinnest blood vessels.

**Reason:** Capillaries connect the branches of arteries and veins

**Codes**

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

4. **Assertion:** The movement of water and dissolved salts in xylem is always upwards.

**Reason:** The upward movement of water is due to low pressure created by transpiration.

**Codes**

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

5. **Assertion:** The large intestine is the largest part of the alimentary canal.

**Reason:** Tiger has a shorter small intestine, than herbivores.

**Codes**

- (a) Both A and R are true and R is correct explanation of the assertion.
- (b) Both A and R are true but R is not the correct explanation of the assertion.

- (c) A is true but R is false.
- (d) A is false but R is true.

6. **Assertion:** Trachea does not collapse, when there is no air in it.

**Reason:** Trachea is supported by cartilage.

**Codes**

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

7. **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) If both A and R are true and R is the correct explanation of A
- (b) If both A and R are true, but R is not the correct explanation of A
- (c) If A is true, but R is false
- (d) If A is false, but R is true

8. **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) If both A and R are true and R is the correct explanation of A
- (b) If both A and R are true, but R is not the correct explanation of A
- (c) If A is true, but R is false
- (d) If A is false, but R is true

9. **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 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

10. **Assertion (A)** Amphibians can tolerate mixing of oxygenated and deoxygenated blood.

**Reason (R)** Amphibians are animals with two-chambered heart.

- (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

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## Answers Key:

### Assertion and reason

1. (b) If both assertion and reason are true but reason is not a correct explanation of assertion.
2. (d) If both assertion and reason are false.
3. (b): Capillaries are the thinnest blood vessels and connect the branches of arteries and veins. Capillaries allow the exchange of materials like nutrients, respiratory gases, hormones, etc. between the blood and body cells through tissue fluid.
4. (a): The plants take in water (containing dissolved minerals) from the soil through their roots. This water, called xylem sap is carried by the xylem vessels to all the parts of the plant. The xylem vessels of the root of the plant are connected to the xylem vessels of its

stem. So, the water (containing dissolved minerals) enters from the root xylem vessels into stem xylem vessels. The xylem vessels of the stem branch into the leaves of plants. So, the water and minerals carried by the xylem vessels in the stem reach the leaves through branched xylem vessels. Since the cells of the leaf are losing water by transpiration, so water from the xylem vessels in the leaf will travel to the cells by osmosis to make up this loss of water. Thus, water is constantly being taken away from the top of the xylem vessels in the leaves thus reduces the effective pressure at the top of the xylem vessels. The pressure at the top of the xylem vessels (in the leaves) is lowered whereas the pressure at bottom of the xylem vessels remains high. Due to this water flows up the xylem vessels.

5. (d): The small intestine is the largest part of the alimentary canal. It is about 6.5 metres long in an adult man. Though small intestine is very long, it is called small intestine because it is very narrow. The length of small intestine differs in various animals depending on the type of food they eat. Meat is a food which is easier to digest. So, tiger which is a carnivorous animal has a shorter small intestine than herbivores.
6. (a): Trachea is a tube which is commonly known as windpipe. The air coming from the nostrils during breathing passes through trachea. Trachea is supported by rings of soft bones called cartilage. Due to this, trachea does not collapse even when there is no air in it.
7. (c) A is true, but R is false. R can be corrected as Amoeba takes in food using its temporary finger-like extension of the cell surface called pseudopodia, whereas in **Paramecium**, or any other unicellular organism the cell shape is definite and food is taken in at a specific spot. Thus, the food is moved to that spot by the movement of cilia which covers the entire surface of the cell.
8. (c) A is true, but R is false. R can be corrected as The inner walls of the small intestine have finger-like projections called villi which are rich in blood supply. These villi increases the surface area for absorption.
9. (d) A is false, but R is true. A can be corrected as The walls of the ventricles are thicker than those of the atria because ventricles have to pump blood in to various organs at high pressure, whereas atria just receive blood from other parts of the body.
10. (c) A is true, R is false. R can be corrected as Amphibians can tolerate mixing of oxygenated and deoxygenated blood as they have lower energy and oxygen requirement. Amphibians are the animals having three-chambered heart.