



OCTOBER 2026

TIME ALLOCATION: 1H: 30 mins

STUDENT'S NAME	
SEQUENCE	1 st SEQUENCE
SUBJECT	BIOLOGY
CLASS	F4
TEACHER'S NAME	MENGE BELTINE .O.

PART A: MULTIPLE-CHOICE QUESTIONS (20 marks)

Choose the correct answer. Each question carries 1 mark.

1. The main reason a multicellular plant needs a transport system is to

- A. produce seeds only
- B. move substances between different parts of the plant
- C. prevent all water loss
- D. increase the number of leaves

2. The tissue mainly responsible for transporting water and mineral salts from roots to leaves is the

- A. phloem
- B. epidermis
- C. xylem
- D. cambium

3. A plant absorbs most of its mineral salts from the soil mainly through the

- A. root hairs
- B. stomata
- C. flowers
- D. fruits

4. The movement of water from the soil into a root hair cell is mainly associated with

- A. osmosis
- B. photosynthesis
- C. transpiration
- D. translocation

5. Which condition would most likely increase the rate of water loss from a leaf?

- A. High humidity
- B. Still air
- C. High temperature
- D. Darkness

6. Transpiration is the loss of water vapour from a plant mainly through the

- A. stomata
- B. root hairs
- C. xylem vessels
- D. phloem sieve tubes

7. A leafy shoot placed in front of a fan wilts faster mainly because the fan

- A. reduces photosynthesis
- B. increases the rate of evaporation from the leaves
- C. blocks water absorption
- D. destroys the xylem

8. The organic food manufactured in leaves is transported mainly through the

- A. xylem
- B. phloem
- C. cortex
- D. epidermis

9. The movement of manufactured organic food from leaves to other parts of a plant is called

- A. transpiration
- B. translocation
- C. guttation
- D. diffusion

10. A farmer notices that a plant wilts during a very hot afternoon but recovers in the evening. The most likely immediate cause is

- A. excessive water loss by transpiration
- B. increased food production
- C. increased mineral absorption
- D. permanent damage to the roots

11. Which sequence correctly shows the general pathway of water from the soil to the leaves?

- A. Root hair → cortex → xylem → leaf
- B. Leaf → phloem → cortex → root hair
- C. Root hair → phloem → xylem → leaf
- D. Cortex → stomata → root hair → xylem

12. Which part of a root mainly contains the xylem and phloem?

- A. Epidermis
- B. Root hair
- C. Vascular tissue/stele
- D. Root cap

13. In a typical young stem, vascular bundles contain

- A. xylem and phloem
- B. stomata and guard cells only
- C. root hairs and chloroplasts
- D. pollen grains and ovules

14. Which observation would provide evidence that a plant is losing water by transpiration?

- A. A leaf produces starch
- B. A transparent bag around leafy shoots becomes misty with water droplets
- C. Roots become longer
- D. Flowers open

15. In an experiment demonstrating transpiration, a control plant is often useful because it

- A. provides a basis for comparison
- B. increases the amount of water lost
- C. prevents the plant from respiring
- D. supplies mineral salts

16. A plant with damaged xylem would be expected to have difficulty

- A. transporting water and mineral salts upward
- B. transporting manufactured food
- C. producing pollen only
- D. absorbing light

17. If the stomata of a leaf close, the immediate effect is likely to be

- A. increased transpiration
- B. reduced transpiration
- C. increased water absorption by roots
- D. increased translocation only

18. Which environmental combination would generally favour a high rate of transpiration?

- A. Cool, humid and still air
- B. Warm, dry and windy air
- C. Cold, humid and dark conditions
- D. Cool, wet and windless conditions

19. A student cuts a stem and observes coloured water appearing in particular vascular tissues. This practical mainly demonstrates the role of

- A. xylem in water transport
- B. phloem in food transport
- C. epidermis in transpiration
- D. cortex in photosynthesis

20. Which statement best explains why a plant may wilt when water loss exceeds water uptake?

- A. Cells lose water and become less turgid
- B. Cells produce too much food
- C. Xylem changes into phloem
- D. Stomata permanently disappear

PART B: STRUCTURAL QUESTIONS (20 marks)

QUESTION 1 [5 marks]

A farmer observes that a young tomato plant remains healthy when regularly watered, but begins to wilt after several days without sufficient water.

- (a) Define transport [1 mark]
- (b) State two substances that are transported from the roots to the leaves. [2 marks]
- (c) Name the tissue responsible for transporting these substances. [1 mark]
- (d) State one importance of root hairs in water and mineral uptake. [1 mark]

QUESTION 2 [5 marks]

A Form 4 student covers the soil of a potted plant with a plastic sheet and encloses the leafy shoot in a transparent plastic bag. After some time, water droplets appear inside the bag.

- (a) Name the process responsible for the water loss from the leaves. [1 mark]
- (b) Through which structures does most of this water leave the leaf? [1 mark]
- (c) Explain why the soil is covered during the experiment. [1 mark]
- (d) Give two environmental factors that can affect the rate of transpiration. [2 marks]

QUESTION 3: Internal structure and transport tissues [4 marks]

Two cross-sections of a young plant are examined. One is identified as a root and the other as a stem.

- (a) Name the vascular tissues found in the stem and root and state their functions. [4 marks]

QUESTION 4 [6 marks]

Explain the mechanism by which water and mineral salts are transported from the surrounding soil to the leaves of a multicellular plant.