ALBERTA SCIENCE 10 · UNIT 3 · 25 QUESTIONS

Biology — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **Which organelle in a plant cell captures light energy for photosynthesis?**

- A Nucleus
- B Chloroplast
- C Mitochondrion
- D Vacuole

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2 **The main role of the cell membrane is to**

- A Form a rigid outer support
- B Contain the genetic material
- C Control the movement of substances into and out of the cell
- D Produce proteins

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3 **Diffusion results in the net movement of particles from a region where they are**

A More concentrated to a region where they are less concentrated

B Less concentrated to a region where they are more concentrated, using energy

C Outside a cell to a region outside the organism

D Unable to cross a membrane to a region containing water

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4 **Which structure gives a plant cell much of its rigid shape and support?**

A Vacuole

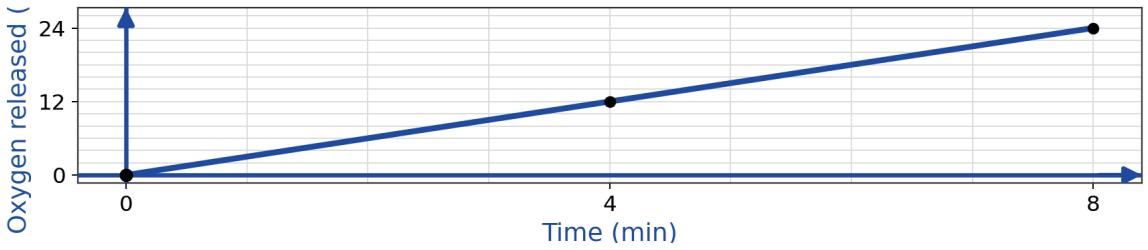
B Chloroplast

C Ribosome

D Cell wall

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5 **The graph shows the volume of oxygen released by an aquatic plant over time. The volume released after 8 min, in millilitres, is**



A 12

B 24

C 36

D 48

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6 **Osmosis is best described as the movement of**

- A Solute from a region of lower concentration to a region of higher concentration
- B Water across a selectively permeable membrane toward a region with a higher solute concentration
- C Any substance across a membrane using cellular energy
- D Water only through the xylem of a plant

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7 **An animal cell is placed in a solution that has a higher solute concentration than the cytoplasm. The most likely result is that**

- A Water will enter the cell and the cell will burst
- B There will be no net movement of water
- C Water will leave the cell and the cell will shrink
- D The cell will manufacture salt to balance the concentrations

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8 **Active transport is distinguished from passive transport because active transport**

A Moves substances from a lower concentration to a higher concentration using cellular energy

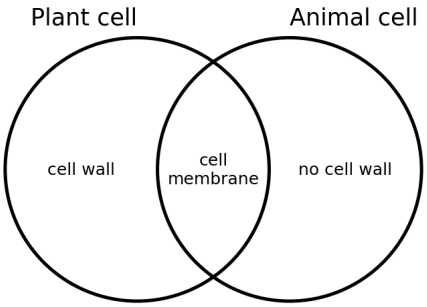
B Moves substances from a higher concentration to a lower concentration without energy

C Moves only water across a membrane

D Occurs only in the presence of sunlight

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9 **The Venn diagram compares a plant cell and an animal cell. The feature shown in the overlap of the two circles is**



A a cell wall

B a cell membrane

C chloroplasts

D a large central vacuole

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10 **The two products of photosynthesis are**

- A Carbon dioxide and water
- B ATP and carbon dioxide
- C Water and oxygen
- D Glucose and oxygen

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11 **In both plant and animal cells, most usable energy is released from glucose during cellular respiration in the**

- A Mitochondrion
- B Chloroplast
- C Nucleus
- D Cell wall

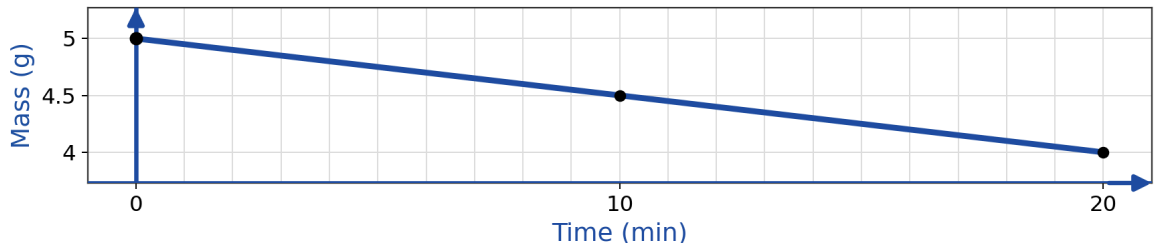
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12 **Oxygen moves from an air sac in the lung into the blood, where the oxygen concentration is lower. This movement occurs mainly by**

- **A** Facilitated transport powered by ATP
- **B** Endocytosis
- **C** Simple diffusion down a concentration gradient
- **D** Active transport

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13 **The graph shows the mass of potato tissue soaking in a concentrated salt solution. The mass after 20 min, in grams, is**



- **A** 4.0
- **B** 4.5
- **C** 5.0
- **D** 5.5

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14 **Which statement correctly describes transport in a flowering plant?**

- **A** Xylem transports water and minerals from roots to leaves, while phloem transports sugars from leaves to other parts
- **B** Phloem transports water and minerals from roots to leaves, while xylem transports sugars
- **C** Both xylem and phloem transport only water
- **D** Xylem transports oxygen, while phloem transports carbon dioxide

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15 **Stomata in a leaf are small openings that**

- **A** Absorb most of the sunlight used by the leaf
- **B** Produce pollen
- **C** Allow gases to be exchanged between the leaf and the air
- **D** Anchor the leaf to the stem

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16 **Some parts of a microscope and the specimen are listed below. 1 Specimen on slide 2 Objective lens 3 Eyepiece lens 4 Light source The order in which light passes through them, recorded as a four-digit number, is _____**

ANSWER _____

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17 **A green plant is kept in darkness overnight. Which process continues in its cells during the night?**

A. Photosynthesis accelerates because no light is present

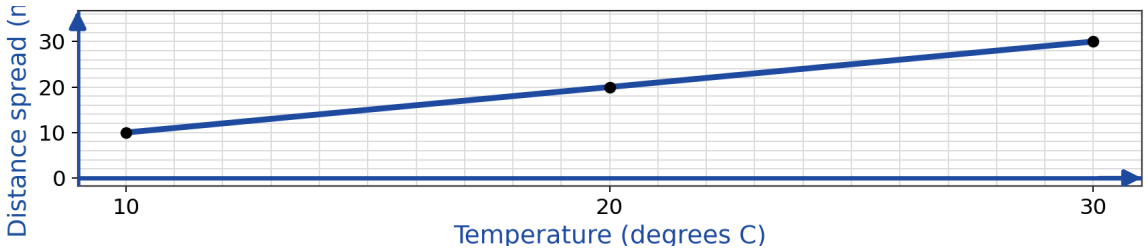
B. Cellular respiration continues in the mitochondria

C. Diffusion stops because the stomata are in darkness

D. Chloroplasts change into mitochondria

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18 **The graph shows how far a drop of dye spreads in 6 min at different temperatures. The distance spread at 20 degrees Celsius, in millimetres, is**



A 10

B 20

C 30

D 40

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19 **A root hair cell is well adapted for absorbing water and minerals because its**

A Chloroplasts capture sunlight underground

B Interior stores most of the glucose made in the leaves

C Thick cell wall prevents water from entering

D Long extension greatly increases the surface area exposed to the soil

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20 **Facilitated diffusion differs from active transport because facilitated diffusion**

A Requires ATP and moves substances against a concentration gradient

B Uses a transport protein to move substances down a concentration gradient without ATP

C Requires the cell membrane to break apart

D Moves only solvent against a concentration gradient

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21 **The equation for photosynthesis is $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$. The total number of oxygen atoms on the product side, recorded as a whole number, is _____**

ANSWER _____

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22 **Transpiration helps move water through a tall plant because**

A. Evaporation of water from the leaves creates a pull that draws water upward through the xylem

B. The roots pump sugars into the leaves

C. Phloem expands and pushes water upward

D. The leaves absorb groundwater directly from the air

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23 **On a hot, dry day, the guard cells of a plant close its stomata. The most likely effects are that**

- **A** Water loss and photosynthesis both increase
- **B** Water loss increases, while photosynthesis decreases
- **C** Water loss decreases, while carbon dioxide intake and photosynthesis increase
- **D** Water loss decreases, while carbon dioxide intake and photosynthesis decrease

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24 **At a total magnification of 40× , the diameter of a microscope field of view is 4.0 mm. Assuming the field diameter is inversely proportional to total magnification, the field diameter at 400× , recorded to the nearest tenth of a millimetre, is _____ mm**

ANSWER _____

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25

Two identical leaves are removed from the same plant. On one leaf, the lower surface, where most stomata are located, is coated so the stomata are blocked. Both leaves are left in the same conditions for several hours. Compared with the uncoated leaf, the coated leaf will most likely

A Lose more mass because its xylem absorbs heat

B Gain mass because its stomata manufacture water

C Lose less mass because less water vapour escapes through the stomata

D Have exactly the same mass because transpiration occurs only through the roots

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ANSWER KEY

1. B
2. C
3. A
4. D
5. B
6. B
7. C
8. A
9. B
10. D
11. A
12. C
13. A
14. A
15. C
16. 4123
17. B
18. B
19. D
20. B
21. 18
22. A
23. D
24. 0.4
25. C

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