Practice Question Set For A-Level
Subject : Biology
Paper-1 Topic: 3 Organism and substance exchange

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Name of the Student:_____
Max. Marks : 21 Marks **Time : 21 Minutes**

Mark Schemes

Q1.

(a) long cells / tubes with no end walls;
continuous water columns;
no cytoplasm / no organelles / named organelle;
to impede / obstruct flow / allows easier water flow;
thickening / lignin;
support / withstand tension / waterproof / keeps water in cells;
pits in walls;
allow lateral movement / get round blocked vessels;

4 max

(b) (i) increase in transpiration rate / evaporation due to increase in temperature ;
increased (kinetic) energy of water molecules;

OR

increase in light (intensity) increases transpiration rate / evaporation;

greater stomatal aperture / more stomata open so increase in flow rate due to cohesion / attraction of water molecules;

2 max

(ii) adhesion / attraction of water molecules to walls of xylem;
results in tension as water pulled up stem;
pulling in walls;

2

[8]

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Q2.

(a) Immediate / rapid increase, steady rise and plateau clearly identified;

Ignore references to rest period if clearly identified as such

1

(b) Find value of pulmonary ventilation from graph / 26-28;
Divide by breathing rate / 20;

2

(c) Air is from nose / trachea / bronchi / not been in alveoli / dead space;
Gas exchange / diffusion only in alveoli / not in these structures;

2

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Q3.

(a) Epithelium of alveolus, capillary wall / epithelium / endothelium, plasma;

1

(b) Cell wall;
Capsule;
Flagellum;
Mesosomes;
Plasmid;
Genetic material / DNA / nucleoid;
Ribosomes;

Accept references to size only if some idea of range is given

max 2

(c) Large (surface) area;
For diffusion;
or
Short distance to centre of cell / to all haemoglobin;
For diffusion;

2

(d) (i) Correct answer of approximately 7800 / 8000 = 2 marks
Incorrect answer but clearly derived by
dividing diameter of cell A by 7 = 1 mark

2

(ii) Idea of cut through maximum diameter / middle;

1

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