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) (i) 0.3 s;

1

(ii) 0.2 - 0.4 s;

1

(b) thicker / more muscle in the left ventricle;

1

(c) Artery

1. thickest wall, enabling it to carry blood at high pressure / withstand pressure surges;
2. most elastic tissue, which smoothes out flow / maintains pressure;
3. most muscle which maintains pressure;
4. muscle in wall to control blood flow;

Vein

5. thin wall does not have to withstand high pressure;

Capillary

6. thin wall, allowing diffusion / exchange;
7. only endothelium present, allowing short diffusion pathway;

All vessels

8. have endothelium that reduces friction;

6 max

[9]

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Q2.

(a) (i) rate of flow increases to max at 1200 and then decreases;
increasing transpiration / evaporation from leaves;
transpiration creates tension / increases transpirational pull;
water molecules are cohesive / stick together;
produces a water column;

3 max

(ii) (increase transpiration) produce a higher tension / reduces the pressure in the xylem reducing the diameter / adhesive forces between xylem and water;

1

(b) water moves in dead cells / xylem is non-living tissue;
the process is passive / no energy is needed;

2

[6]

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Q3.

(a) (i) 62

ignore units

1

(ii) fetal haemoglobin has higher affinity for oxygen / takes up oxygen (becomes saturated) at lower partial pressure;
at partial pressures when adult haemoglobin dissociates fetal haemoglobin takes up oxygen;

2

(b) (i) new 'S' shaped curve draw to the right of the adult curve;

1

(ii) haemoglobin dissociates / unloads more readily /
more oxygen delivered to cell / muscles / respiring tissue;
at a particular partial pressure more oxygen is released;

2

[6]

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