



CHEMISTRY ONLINE
— **TUITION** —

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BIOLOGY

ORGANISMS EXCHANGE SUBSTANCES

Level & Board	AQA (A-LEVEL)
TOPIC:	MASS TRANSPORT IN ANIMALS
PAPER TYPE:	SOLUTION - 2
TOTAL QUESTIONS	5
TOTAL MARKS	28

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Mass Transport in Animals - 2

1.

(a) Valve A

Left atrioventricular

Chamber B

Left ventricle

(b) Good hygiene practices should be observed at all times. Keep hands away from mouth, nose, eyes and face during and after dissection and wash hands immediately after handling dissection material.

OR

- Use a sharp scalpel
- Disinfect bench/equipment
- Cover any cuts
- Cut away from self
- Safe disposal

(c)

- Pressure in left atrium is higher than in ventricle/B causing valve to open
- Pressure in left ventricle/B is higher than in atrium causing valve to close

(d) Caffeine could stimulate more action potentials along the sympathetic neurons to the SAN (sinoatrial node), thus increasing the heart rate.

(e) 73 cm^3

(f) **Group to be given**

A drink with sugar and no caffeine

Reason

To show that sugar alone is not causing the increases in HR

2.

(a)

D

G

F

(b) Coronary arteries

3.

(a) The binding of one molecule of oxygen to hemoglobin makes it easier for a second oxygen molecule to bind, explain why. The binding of the first oxygen changes the tertiary structure of the hemoglobin. This uncovers the second binding site, allowing the second oxygen to bind.

OR

- binding of first oxygen changes tertiary structure of hemoglobin
- uncovers second binding site

4.

(a)

	Valve opens	Valve closes
Semi-lunar valve	2	3
Atrioventricular valve	4	1

(b) between 6135.79 to 6400

(c) Ventricles contraction produce high blood pressure. This forces water and other substances out of the capillaries.

(d) Lymphoedema is a type of chronic (ongoing) swelling that affects the soft tissues in your body. It occurs when your lymph nodes or vessels, which make up your lymphatic system, become blocked or damaged. This damage or blockage causes a build-up of fluid in your body's soft tissues.

OR

Excess tissue fluid cannot be reabsorbed

5.

(a) The sigmoid or S-shape of the curve is due to the positive cooperativity of hemoglobin. In the pulmonary capillaries, the partial pressure of oxygen is high allowing more molecules of oxygen to bind hemoglobin until reaching the maximum concentration.

OR

First oxygen binds to Hb causing change in shape, shape change of Hb allows more O₂ to bind easily saturation with O₂

(b)

HbA has lower affinity for O₂ at low pp

Easier unloading of O₂ for aerobic respiration

(c)

A large/significant increase in HbF

HbF has higher affinity for O₂ than faulty HbA

Higher proportion of HbF in blood so more oxygen carried

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I am Sorry !!!!!



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- Founder & CEO of Chemistry Online Tuition Ltd.
- Completed Medicine (M.B.B.S) in 2007
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