

**Name of the Student:** \_\_\_\_\_

**Max. Marks : 24 Marks**

**Time : 24 Minutes**

**Mark Schemes**

**Q1.**

- (a) plasma transports proteins / dissolved substances / food (molecules) / urea / hormones

**or**

blood cells are suspended in the plasma

1

platelets are involved in blood clotting

1

- (b) the right side of the heart pumps blood to the lungs

**and**

the left side of the heart pumps blood around (the rest of) the body

1

- (c) **Level 3 (5–6 marks):**

A detailed and coherent evaluation is provided which considers a range of relevant points and comes to a conclusion consistent with the reasoning.

**Level 2 (3–4 marks):**

An attempt to relate relevant points and come to a conclusion. The logic may be inconsistent at times but builds towards a coherent argument.

**Level 1 (1–2 marks):**

Discrete relevant points made. The logic may be unclear and the conclusion, if present, may not be consistent with the reasoning.

**0 marks:**

No relevant content

**Indicative content**

**pros of statins:**

- decreases blood cholesterol
- slows down build-up of fatty material in arteries
- (so) blood can flow to heart muscle cells

**cons of statins:**

- drug has to be taken regularly **or** may forget to take drug
- drug will need to be taken long-term
- side-effects of taking the drug
- effects of drug will take time to happen

**pros of stents:**

- blocked artery is held open
- (so) blood can flow to heart muscle cells

- will remain in place / work for a long time
- rapid recovery time

**cons of stents:**

- risk of infection from procedure
- risk of surgery eg heart attack
- risk of thrombosis **or** blood clot

a justified conclusion

Q2.

- (a) (i) doesn't have valves  
*allow veins have valves*

1

has a thicker wall **or** thicker layer of muscle  
*allow has a smaller lumen*  
*ignore references to elastic (in walls)*

1

- (ii) any **two** from:
- (artery has) more oxygen
  - (artery has) more glucose  
*allow (artery has) more amino acids / fatty acids*
  - (artery has) less carbon dioxide
  - (artery has) less lactic acid  
*ignore urea*  
*ignore reference to pressure*  
*accept converse for veins if veins is clearly stated*

2

- (b) any **two** from:
- no rejection  
*allow no tissue matching required*
  - abundant supply
  - low risk of infection  
*allow named example ie HIV, CJD*
  - longer shelf life  
*allow less space needed for storage*  
*ignore side effects*

2

[6]

Q3.

(a) 5624

**allow 2 marks** for:

- correct HR = 148 **and** correct SV = 38 plus wrong answer / no answer

**or**

- only one value correct **and** ecf for answer

**allow 1 mark** for:

- incorrect values **and** ecf for answer

**or**

- only one value correct

3

- (b) (i) **Person 2** has low(er) stroke volume / SV / described  
eg **Person 2** pumps out smaller volume each beat  
do **not** allow **Person 2** has lower heart rate

1

- (ii) **Person 1** sends more blood (to muscles / body / lungs)

1

(which) supplies (more) oxygen

1

(and) supplies (more) glucose

1

(faster rate of) respiration **or** transfers (more) energy for use

ignore aerobic / anaerobic

allow (more) energy release

allow aerobic respiration transfers / releases more energy (than anaerobic)

do **not** allow makes (more) energy

1

removes (more) CO<sub>2</sub> / lactic acid / heat

allow less oxygen debt

**or** less lactic acid made

**or** (more) muscle contraction / less muscle fatigue

if no other mark awarded,

allow person 1 is fitter (than person 2) for max 1 mark

1

[9]