

Blood and blood vessels

Q1.a(2018)

A description including the following:

- the blood flow through the {brain/other organs} stays the same (1)
- the blood flow through the {muscles /heart} is increased during exercise (1)
- the blood flow through the digestive system is decreased during exercise (1)

Q1.b(2018)

An explanation that links **two** of the following:

- there is increased blood flow to the muscles (1)
- to allow for { respiration/ release of energy} (in the muscles) (1)

Q1.c(2018)

B left ventricle

1. The only correct answer is B

A is not correct because the left atrium receives blood from the pulmonary vein

C is not correct because The right atrium receives blood from the vena cava

D is not correct because the right ventricle has deoxygenated blood

Q1.d(2018)

Substitution

$$4.9 \div 0.07 \quad / \quad 4\,900 \div 70 \quad (1)$$

Evaluation

70 (beats per minute)

Q2.a(2022,4)

An explanation linking:

- artery has {thicker / more muscular} wall (1)
- because of the (blood) pressure (higher in artery than in vein) (1)

Q2.b(2022,4)

valve / valves

Q3.a(2022,4)

$$5 \times 60 = 300 \quad (1)$$

OR

$$60 \div 100 = 0.6 \quad (1)$$

$$(300 \div 100) = 3 \text{ (dm}^3\text{)}$$

Q3.b(2022,4)

An explanation linking:

- because (during exercise muscles) require **more** {oxygen / glucose} (1)
- for respiration / to release energy (1)

OR

- to remove **more** carbon dioxide / to remove lactic acid (1)
- as this is a product of respiration (1)

Q4.a(2024,4)

plasma

(accept phonetic spellings)

Q4.b(2024,4)

The only correct answer is **D oxygen**

A is incorrect because carbon dioxide is not needed for respiration

B is incorrect because urea is not carried by red blood cells or needed for respiration

C is not correct because amino acids are not needed for respiration

Q4.c(2024,4)

- phagocytes (1)
- lymphocytes / B cells / memory cells (1)

Q5.a(2024,4)

$$470 \div 100 \text{ or } 4.7 \text{ (1)}$$

$$(4.7 \times 44) = 206.8 \text{ (1)}$$

207

OR

$$44 \div 100 \text{ or } 0.44 \text{ (1)}$$

$$(0.44 \times 470) = 206.8 \text{ (1)}$$

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OR

$$44 \times 470 \text{ or } 20680 \text{ (1)}$$

$$(20680 \div 100) = 206.8 \text{ (1)}$$

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Q5.b(2024,4)

Any two from:

- wear gloves / wash hands (1)

- sterilise skin (of donor) (1)

- use sterile needle (1)

- cover the wound after taking the blood (1)

Q6.a(2020,4)

Correct answer (1 mark):

C — platelets

Q6.b(2020,4)

Correct answer (1 mark – any ONE):

- Prevents excessive blood loss

Other acceptable answers:

- Prevents pathogens entering the body
- Reduces the risk of infection
- Seals a wound

Q7.(2020,4)

Mark-scheme answer (2 marks):

- Veins contain valves.
- The valves **prevent blood flowing backwards**, so blood moves in one direction towards the heart.