1.8 Blood: Composition and Its Role in Sporting Performance: 10-minute Pack

AQA 8582 · Calculators not allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Which component of blood is primarily responsible for carrying oxygen to working muscles?

- ☐ A) Plasma
- ☐ B) Red blood cells
- ☐ C) White blood cells
- ☐ D) Platelets

(Total for Question 1 is 1 mark)

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2 Name the blood component responsible for clotting to seal wounds after a sporting injury, for example after a rugby tackle.

(Total for Question 2 is 1 mark)

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3 State the primary function of plasma in the blood, as relevant to sport and recovery.

(Total for Question 3 is 1 mark)

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4 Identify one role of white blood cells that is important for an athlete's health during heavy training, giving a short example related to training.

(Total for Question 4 is 1 mark)

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5 Table 1 lists four short prompts about blood components in a sporting context. Answer each row.

Table 1

Part	Prompt
(a)	Name the component that carries oxygen to muscles during exercise
(b)	Give one function of platelets after a sporting injury
(c)	Name a substance transported in plasma used for muscle repair
(d)	Give one role of white blood cells in preventing training illness

(a) Answer for row (a). **(1)**

(b) Answer for row (b). **(1)**

(c) Answer for row (c). **(1)**

(d) Answer for row (d). **(1)**

(Total for Question 5 is 4 marks)

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6 Describe two substances transported in blood plasma that help an athlete during recovery after training, and give one short function for each substance in recovery.

(Total for Question 6 is 2 marks)

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7 A rugby player suffers a cut to the lower leg during a match. Explain two ways platelets help the player immediately after the injury to reduce blood loss and begin repair.

(Total for Question 7 is 3 marks)

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Mark scheme · 1.8 Blood: Composition and Its Role in Sporting Performance: 10-minute Pack

Question 1

B (red blood cells) **B1**

Answer: B (red blood cells)

Question 2

platelets **B1**

Answer: Platelets

Question 3

transports nutrients, hormones, carbon dioxide and heat around the body, oe **B1**

Answer: Plasma transports nutrients, hormones, carbon dioxide and heat around the body.

Question 4

fight infection / destroy pathogens / produce antibodies, any one, oe **B1**

Answer: Fight infection, for example by producing antibodies to a virus contracted during heavy training.

Question 5

(a) red blood cells **B1**

(a) Answer: Red blood cells

(b) form a platelet plug / initiate clotting to stop bleeding, oe **B1**

(b) Answer: Form a platelet plug to initiate clotting and stop bleeding.

(c) amino acids (or glucose), oe **B1**

(c) Answer: Amino acids

(d) recognise and destroy pathogens / produce antibodies, any one, oe **B1**

(d) Answer: Recognise and destroy pathogens, for example by producing antibodies.

Question 6

nutrients such as glucose or amino acids, moved to muscles for refuelling and repair, oe **B1**

hormones such as insulin or growth factors, which regulate metabolism and aid tissue repair, oe **B1**

Answer: Plasma transports nutrients such as glucose and amino acids to muscles for refuelling and repair, and hormones such as insulin and growth factors that regulate metabolism and help tissue repair.

Question 7

platelets stick together at the site of the wound to form a temporary platelet plug, reducing blood loss, oe **B1**

platelets release clotting factors which trigger a series of reactions leading to fibrin formation that stabilises the clot and seals the wound, oe **B1**

this clotting process helps begin tissue repair and reduces the risk of continued bleeding and infection during the match, oe **B1**

Answer: Platelets aggregate at the wound to form a temporary plug that reduces blood loss, and they release clotting factors that trigger fibrin formation to stabilise the clot and seal the wound, which helps start repair and reduces the risk of further bleeding and infection.

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