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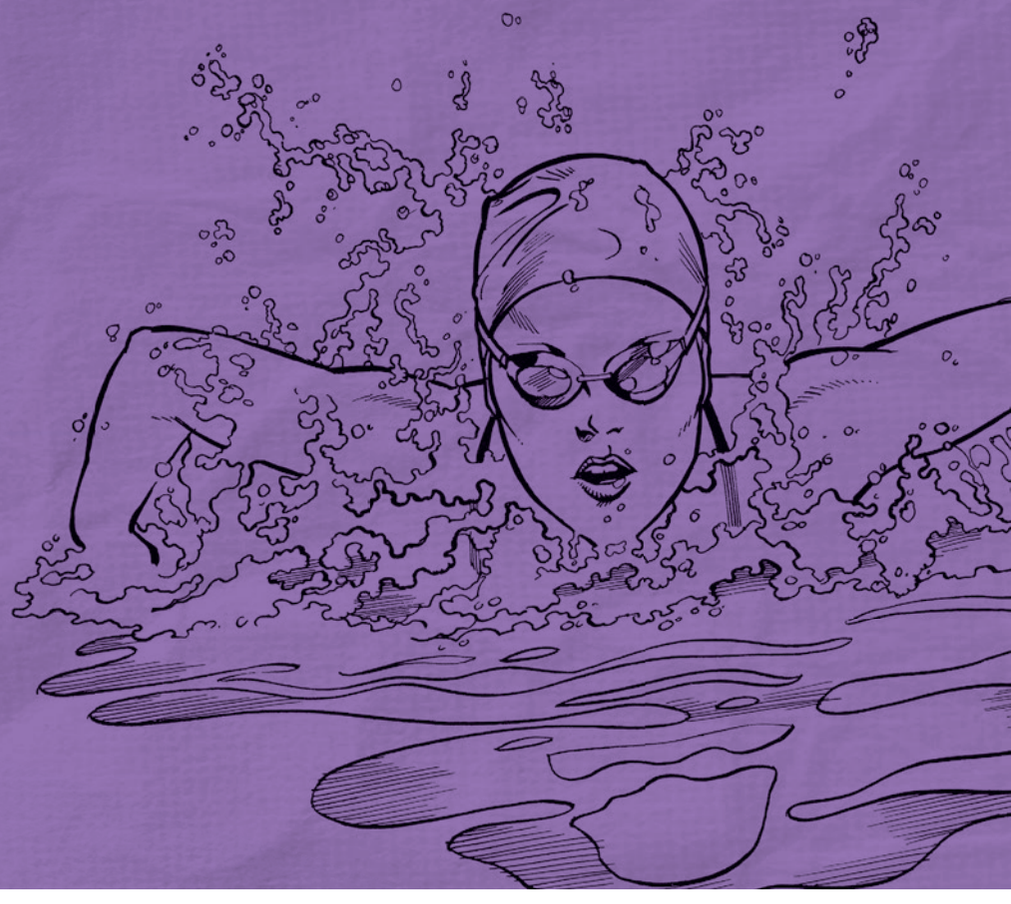
REVISE EDEXCEL GCSE (9–1)

Physical Education

REVISION WORKBOOK



For the 9–1 exams

Pearson

REVISE EDEXCEL GCSE (9–1)
Physical Education
Level 1 / Level 2 Full Course (1PE0) & Short Course (3PE0)

REVISION WORKBOOK

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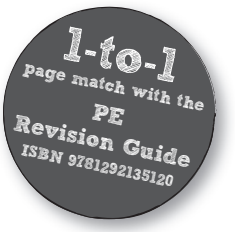


Contents

Students studying the full course need to study all topics and those studying the short course need to study the topics highlighted.

A small bit of small print
Edexcel publishes Sample Assessment Material and the Specification on its website. This is the official content and this book should be used in conjunction with it. The questions in 'Now try this' have been written to help you practise every topic in the book. Remember: the real exam questions may not look like this.

Functions of the skeleton

Guided

1 The skeleton has many functions.

(a) One of the functions of the skeleton is to provide protection. Give **two** examples from physical activity to explain how the skeleton provides protection.

The skull protects the brain if hit in the head by a hockey stick .....

.....

.....

..... **(4 marks)**

(b) In the table below, state **two** functions of the skeleton other than protection, and give an example of their use in physical activity.

Function of the skeleton	Example of use in physical activity

(4 marks)

2 For each image, identify a **different** role of the skeletal system and describe how the role is achieved in the image

Use the images to help you answer the question.

Figure 1 .....

.....

.....

.....

Figure 1

Figure 2 .....

.....

.....

.....

Figure 2

(4 marks)

3 Choose words from the box to complete the statement below.

muscles	ligaments	bones	movement	levers	support

..... act as ..... to provide

..... when contracting .....

(connected via a tendon) pull them. **(4 marks)**

Classification of bones

1 Identify the type of bone shown in **Figure 1**.

Figure 1

Give the type **not** name of the the bone. Look at the shape of the bone to help identify the type.

..... **(1 mark)**

2 Which of the following statements is correct?

- ☐ **A** The scapular is an irregular bone.
- ☐ **B** The ribs are short bones.
- ☐ **C** The cranium is a flat bone.
- ☐ **D** Short bones act as levers. **(1 mark)**

3 Describe, using different examples, **two** functions of flat bones.

Guided

The sternum is a flat bone. It is used for protection, for example .....

.....

..... **(4 marks)**

4 Figure 2 shows four different types of bones, labelled **A–D**.

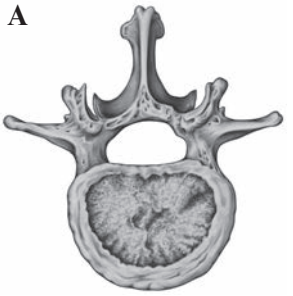
(a) Identify the bone type in **Figure 2** that is designed for strength or weight bearing.

..... **(1 mark)**

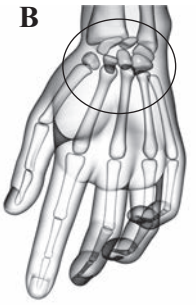
(b) What is the classification name for this type of bone?

..... **(1 mark)**

A



B



C

D

Figure 2

Structure of the skeleton

1 (a) Name the **two** bones located in the lower arm.

……. **(2 marks)**

(b) Name the bones that can be found in both the feet and the hands.

……..

(1 mark)

Read the question carefully: you need to think of the bones that are in **both** the feet **and** the hands, not two different bones.

2 Identify the two regions of the vertebral column labelled **B** and **D** in **Figure 1**.

B …….

D …….

(2 marks)

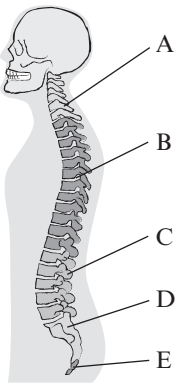


Figure 1

3 Identify the two bones labelled **A** and **B** in **Figure 2**. Use an example from physical activity to explain their function.

……..

……..

……..

……..

(4 marks)

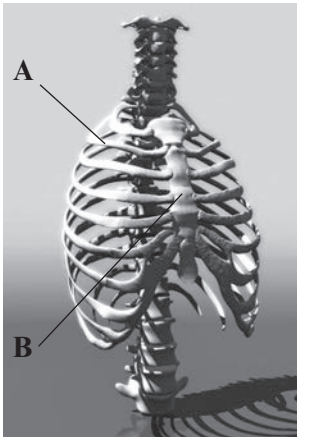


Figure 2

4 State the location of the femur and the name of one of the bones that it forms a joint with.

Guided

Figure 3

The femur is located in the upper leg ……..

……

……

……. **(2 marks)**

Classification of joints

1 (a) Define the term **joint**.

……. **(1 mark)**

(b) For each of the images in **Figure 1**:

- name the joint indicated by the arrow
- state the **type** of joint indicated by the arrow.

Look at the movements the athletes are performing to help you identify the joint type.

Figure 1

Joint A Name ……..

Type ……..

Joint B Name ……..

Type …….. **(4 marks)**

2 Which one of the following is an example of a condyloid joint?

☐ **A** neck

☐ **B** knee

☐ **C** wrist

☐ **D** ankle **(1 mark)**

3 Using an example from sport, describe the range of movement possible at a hinge joint.

Guided

The elbow is a hinge joint. The range of movement at a hinge joint is flexion and ……..

…….

……. **(2 marks)**

Movement at joints 1

EXAM ALERT

1 (a) Describe the term **flexion** in relation to movement at a joint, and give an example from physical activity.

Make sure that any example you give is very clearly an example of the specific movement asked for. Kicking a football would be too vague.

.....

.....

..... **(2 marks)**

(b) Describe the term **extension** in relation to movement at a joint, and give an example from physical activity.

.....

..... **(2 marks)**

Guided

2 The following images show people participating in a range of physical activities.

(a) Circle all occasions in **Figure 1** and **Figure 2** where flexion is occurring and name the joint.

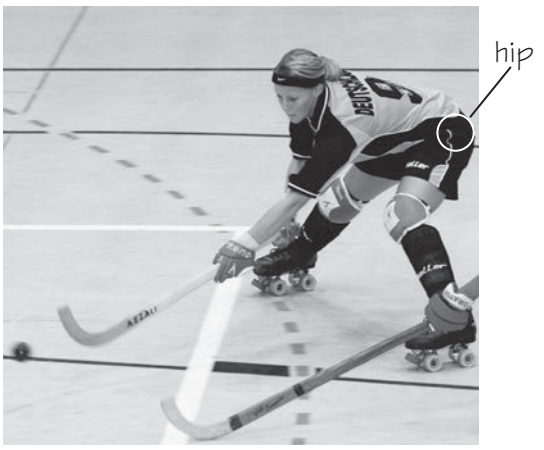


Figure 1

Figure 2

(5 marks)

(b) Circle all occasions in **Figure 3** and **Figure 4** where extension is occurring and name the joint.

Figure 3

Figure 4

(5 marks)

Movement at joints 2

1 (a) Describe the term **abduction** in relation to movement at a joint and give an example from physical activity.

.....

..... **(2 marks)**

Guided

(b) Describe the term **rotation** in relation to movement at a joint and give an example from physical activity.

Rotation is ....., for example the ..... action in cricket. **(2 marks)**

2 The following images show people participating in physical activities.

Remember abduction means to take something away.

(a) Which of **Figure 1** or **Figure 2** shows abduction at the shoulder?

Figure 1

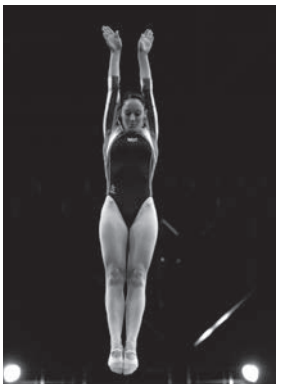


Figure 2

..... **(1 mark)**

(b) Which of the following is correct in identifying movement at the joints in **Figure 3** and **Figure 4**?

☐ **A** There is no rotation taking place in either image.

☐ **B** Abduction at the knee can be seen in Figure 4.

☐ **C** Both images show abduction of the arm at the shoulder.

☐ **D** The swimmer in Figure 3 is rotating the arm at the elbow. **(1 mark)**

Figure 3

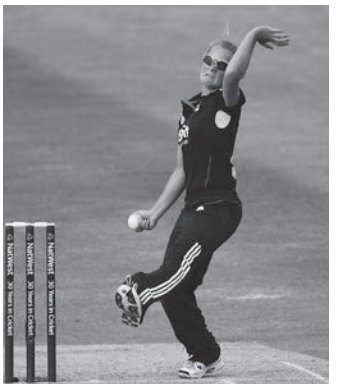


Figure 4

Movement at joints 3

1 Identify the joint action in **Figure 1**.

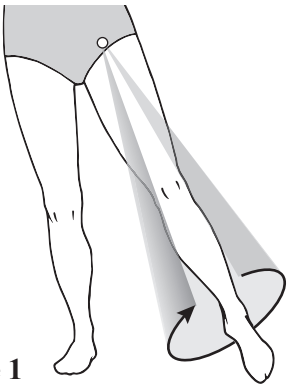


Figure 1

Notice the shape drawn by the leg and the arrow showing the movement. This should remind you which joint action moves in the shape of a cone.

..... **(1 mark)**

2 Describe the following terms and give an example for each from sport and physical activity.

(a) dorsi-flexion

.....

..... **(2 marks)**

(b) plantar-flexion

.....

..... **(2 marks)**

Guided

EXAM ALERT

3 **Figure 2** shows a footballer preparing to kick a ball. Analyse the joint actions occurring at each of the footballer's ankles.

Make sure you comment on all phases of the movement. Use the number of marks available as a guide to the amount you need to write.

Figure 2

..... is occurring at the ankle of the leg about to kick the ball. This means that the toes are ..... in preparation to kick the ball. The action at the ankle next to the ball is

.....

.....

..... **(4 marks)**

Ligaments, tendons and muscle types

1 Name the type of tissue that connects the triceps to the ulna.

First identify if the question is asking about two bones, two muscles, or one of each.

..... **(1 mark)**

2 Describe the role of the ligaments in sporting activity.

.....

..... **(2 marks)**

3 Name the type of muscle located in the blood vessels.

..... **(1 mark)**

4 There are three different muscle types. Two of these types are said to contract unconsciously. Using an example, explain what is meant by **unconscious** muscle contraction.

.....

..... **(2 marks)**

5 Identify the muscle type that forms the heart.

..... **(1 mark)**

6 Explain how tendons aid movement.

Guided

Tendons attach muscles to bone. This means that when the muscle .....

.....

.....

..... **(2 marks)**

Muscles

1 (a) Using the image of the squash player below, label the location of the pectoralis major and the external obliques. **(2 marks)**

(b) Analyse when the squash player will use each of these muscles during a game.

Always try to fully describe the movement so it is clear what you mean to someone reading it.

Guided

EXAM ALERT

The player will need to turn their upper body to play a backhand; they are able to rotate due to the action of the ……..

……

……

…… **(2 marks)**

2 Draw lines to match **two** muscles to their correct role.

Deltoid	Rotates the trunk
Latissimus dorsi	Extends the leg at the hip
Pectoralis major	Flexes the arm at the elbow
External obliques	Abducts the arm at the shoulder

(2 marks)

3 Identify the muscle labelled **A** in **Figure 1** and explain its role.

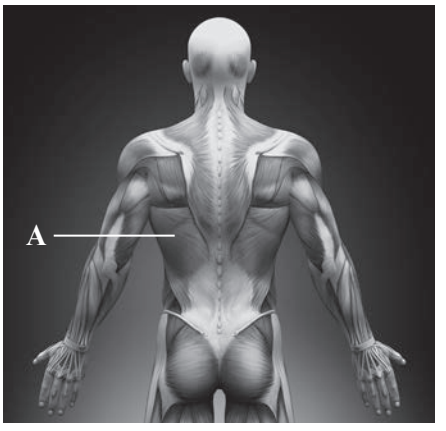


Figure 1

Muscle A is ……..

The role of muscle A is ……

…… **(2 marks)**

Antagonistic muscle pairs: biceps and triceps

1 Name the muscle, at the front of the upper arm, identified as **A** in **Figure 1**.

Figure 1

..... **(1 mark)**

2 (a) Define the term **antagonistic muscle pairs**.

.....

.....

.....

..... **(2 marks)**

(b) Name the muscle that works antagonistically with muscle **A** in **Figure 1**.

..... **(1 mark)**

(c) Analyse how these muscles act as an antagonistic pair.

Guided

When the biceps contract the triceps .....

This allows the runner to .....

.....

..... **(2 marks)**

(d) Explain how the ability to use antagonistic pairs of muscles in his arms helps the sprinter in his performance.

.....

..... **(2 marks)**

(e) Identify the range of movement at the elbow that results from the sprinter's arm muscles working antagonistically.

.....

..... **(1 mark)**

Antagonistic muscle pairs: quadriceps and hamstrings

1 (a) (i) Name the muscle at the front of the thigh, identified as **B** in **Figure 1**.

Figure 1

..... **(1 mark)**

(ii) Identify the role of muscle **B**.

.....

..... **(1 mark)**

(b) Give examples from three different sporting activities of how this muscle is used.

Guided

One example is the follow through with the leg after taking a shot at goal in football .....

.....

.....

.....

..... **(3 marks)**

Note the word **different** in the question: make sure all three examples are from different sports.

(c) (i) Name the muscle that works antagonistically with muscle **B** in **Figure 1**.

..... **(1 mark)**

(ii) Identify the role of this antagonistic muscle.

.....

..... **(1 mark)**

(iii) Give an example of the use of this muscle, when acting as an agonist, in physical activity.

.....

..... **(1 mark)**

Antagonistic muscle pairs: gastrocnemius and tibialis anterior

1 Analyse how the netballers in **Figure 1** are using the muscles in their lower leg to aid their performance.

……..

……..

……..

……..

(3 marks)

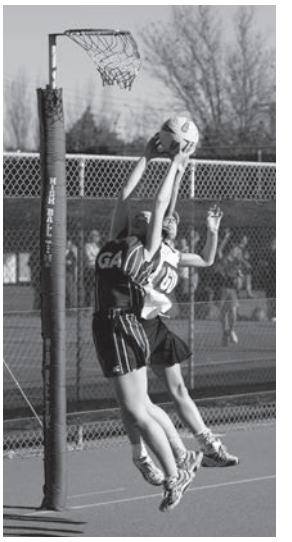


Figure 1

2 (a) Name the muscle located at the back of the lower leg.

…… **(1 mark)**

(b) Give examples from **three** different sporting activities of how this muscle is used in movement.

Guided

One example is pointing the toes when diving ……

……

……

…… **(3 marks)**

3 Analyse how the muscles in the lower leg enable the long jumper to execute the correct technique in **Figure 2**.

Look at the shape of the foot. How do the muscles work together to produce this shape?

Figure 2

……

……

……

…… **(4 marks)**

Antagonistic muscle pairs: hip flexors and gluteus maximus

1 Identify the muscles labelled **A** and **B** in the **Figure 1** below.

A ……..

B ……..

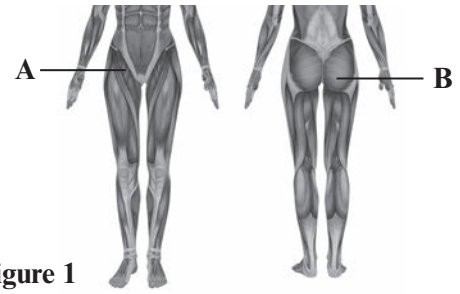


Figure 1

(2 marks)

2 (a) Describe what is meant by extension at the hip.

Remember: if the question says **describe** you do not need to justify your answer.

……..

…… **(2 marks)**

(b) Name the agonist responsible for this action.

…… **(1 mark)**

(c) Give **one** example from physical activity where hip extension is required to execute a technique correctly.

…… **(1 mark)**

3 (a) Name the action occurring at the snowboarder's hip in **Figure 2**.

……

(1 mark)

Figure 2

(b) Name the agonist muscle responsible for the action.

……

(1 mark)

4 Analyse the muscle and joint action occurring at the hip as a football player takes their leg back and then brings it forward to kick the ball.

Guided

The gluteus maximus is the agonist, taking the leg back to extend the

……

……

……

…… **(4 marks)**

Muscle fibre types

EXAM ALERT

1 Identify the muscle fibre types that are being predominantly used in the two activities shown in **Figure 1** and **Figure 2**.

Always read the question carefully. Check whether the question is referring to **types of muscle fibre** or d**ifferent types of muscle**.

Figure 1

Figure 2

Figure 1 .....

Figure 2 ..... **(2 marks)**

2 Identify a characteristic of **fast twitch type IIa** muscle fibres.

- ☐ **A** high capillary network
- ☐ **B** medium speed of contraction
- ☐ **C** high resistance to fatigue
- ☐ **D** low levels of mitochondria **(1 mark)**

3 Complete the table below to show some of the characteristics of muscle fibre types.

	Slow twitch type I	**Fast twitch type IIa**	**(a) .....**
Force of contraction	low	(b)	very high
Resistance to fatigue	(c)	moderate	low

(3 marks)

Guided

4 Explain why having a greater number of fast twitch type IIx muscle fibres would be an advantage to a sprinter in a 100 m race.

Fast twitch type IIx muscles can contract the most .....

.....

Therefore .....

.....

..... **(3 marks)**

Cardiovascular system 1

1 Select the correct components of the cardiovascular system from the options below.

Water	Heart	Lungs	Blood vessels	Blood	Brain

When given options, always go for the ones you definitely know are correct and eliminate the ones you definitely know are wrong first.

.... **(3 marks)**

2 (a) State **three** functions of the cardiovascular system.

(i) .....

(ii) .....

(iii) .....

(3 marks)

Note the different command words. In (a) **state** requires you to simply state facts, whereas in (b) **explain** requires you to develop the point you are making using more detail (for example, by giving a function and then linking its relevance to physical activity).

(b) Explain the relevance of **one** of the functions of the cardiovascular system to physical activity.

.....

.....

..... **(3 marks)**

3 State what happens to the blood vessels under the surface of the skin to help maintain body heat when playing outside on a very cold day.

..... **(1 mark)**

4 Identify the by-product from energy production that is transported away from the working muscles via the cardiovascular system.

..... **(1 mark)**

Guided

5 Explain the role of the blood vessels in regulating body temperature when body heat increases during physical activity.

The blood vessels under the skin increase in diameter. This is called .....

.....

.....

Figure 1

..... **(4 marks)**

Cardiovascular system 2

1 (a) Identify the parts of the heart labelled **A** and **B** in **Figure 1**.

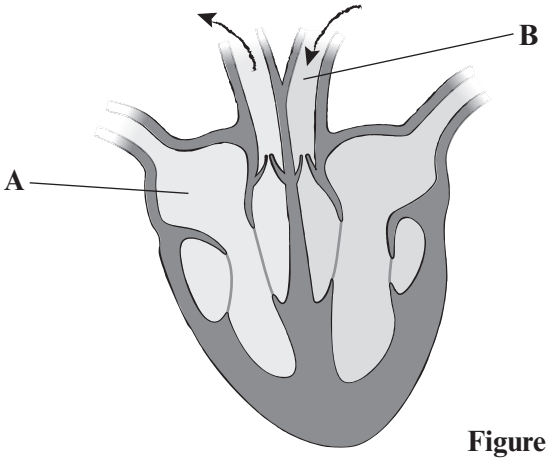


Figure 1

A .....

B ..... **(2 marks)**

(b) Describe the role of the part labelled **B**.

.....

..... **(2 marks)**

2 Describe the location **and** role of the bicuspid valve in circulating blood for performance.

EXAM ALERT

.....

.....

.....

..... **(3 marks)**

Remember to use linking words such as **so that**, **therefore** and **this means** to show how what you know about a topic is relevant to performance.

3 Which **one** of the following accurately describes the location of the septum?

☐ **A** The septum surrounds the heart.

☐ **B** The septum separates the left and right sides of the heart.

☐ **C** The septum separates the left and right atrium.

☐ **D** The septum separates the left and right ventricle. **(1 mark)**

4 Explain the role of the vena cava during performance in physical activity and sport.

Guided

The vena cava is the main ..... that transports ..... blood to the heart. The blood is ..... as the .....

.....

..... **(4 marks)**

What do you know about the vena cava? What do you know about the effects of exercise? Link the two together.

Blood vessels

1 Name the **three** different types of blood vessel.

(i) .....

(ii) .....

(iii) ..... **(3 marks)**

2 Name the type of blood vessel that normally carries oxygenated blood.

..... **(1 mark)**

3 Explain why veins need valves to fulfil their function.

.....

.....

.....

..... **(3 marks)**

Guided

4 Explain the role of capillaries in ensuring sufficient oxygen reaches the muscles for aerobic activity.

The role of the capillaries is to allow gaseous exchange by taking .....

.....

.....

.....

..... **(4 marks)**

Break down the question in to smaller parts. What do capillaries do? How does this make sure enough oxygen reaches the muscles? It will help you to think about the movement of oxygen from the lungs. Think about the alveoli in the lungs and the role of the capillaries around the alveoli and in the muscles.

EXAM ALERT

5 Explain how **one** characteristic of an artery makes it suitable for its role.

.....

.....

.....

.....

..... **(4 marks)**

Look for the key words here: **explain** and **characteristic**. Use the number of marks as a guide to the number of points you should be making. This is a 4-mark question so will need to link four points.

Vascular shunting

1 Using examples, describe what is meant by **vascular shunting**.

Guided

Vascular shunting is the term for the process when blood flow to different parts of the body is altered depending on demand for oxygen. For example, when exercising .....

.....

..... **(3 marks)**

2 (a) As demands on the body increase due to exercise, blood flow to different parts of the body alters. Explain how vasodilation and vasoconstriction allow redistribution of blood flow to the digestive system during exercise.

Use your knowledge of the words **constriction** and **dilation** to help, and remember **vaso** relates to blood vessels.

.....

.....

.....

.....

..... **(4 marks)**

(b) Explain why vascular shunting is beneficial for the performer as long as they have not eaten recently.

.....

.....

.....

.....

..... **(4 marks)**

3 Analyse the data in **Figure 1** and **Figure 2** to determine the changes in blood flow as a result of exercise.

Use of data

Percentage blood flow at rest

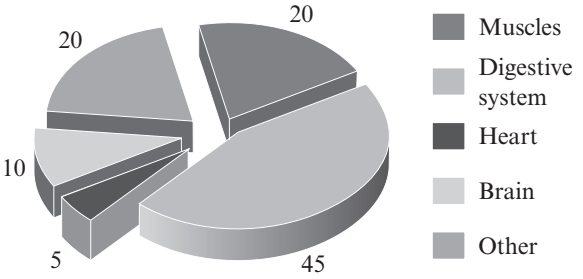


Figure 1

Percentage blood flow during exercise

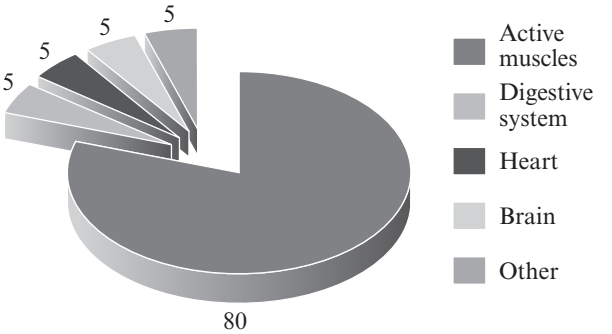


Figure 2

.....

.....

..... **(4 marks)**

Plasma, platelets and blood cells

1 Plasma is the liquid part of the blood. State the other components of the blood.

.....

..... **(3 marks)**

Guided

2 Binna, JC and Squeak play rugby for the school rugby team. During a tackle Binna receives a cut to the head. Due to this open wound she has to leave the pitch. Explain the role of the blood in ensuring Binna's return to the game after a short break.

This is an **explain** question, so you will need to justify why Binna can return to the game.

.....

..... **(3 marks)**

preventing further blood loss and preventing her from being a potential risk to others.

3 Explain the importance of red blood cells to performance in long-distance running.

Think about the role of red blood cells and how this links to the length of this event.

.....

.....

.....

.....

.....

..... **(4 marks)**

4 White blood cells fight infection. Explain how this is an advantage to an elite performer.

.....

.....

.....

..... **(3 marks)**

Composition of air

1 State the difference between the inhaled and exhaled air.

.....

.....

(1 mark)

EXAM ALERT

Although there is only one mark available for question 1, the question asks for the **difference between two things**, so you will need to address both to get the mark. It would not be enough to talk about just one.

2 Identify which of the diagrams in **Figure 1** correctly represents:

(i) the composition of inhaled air .....

(ii) the composition of exhaled air .....

(2 marks)

Use the knowledge you have about the percentages to interpret the diagrams and find the correct ones.

Use of data

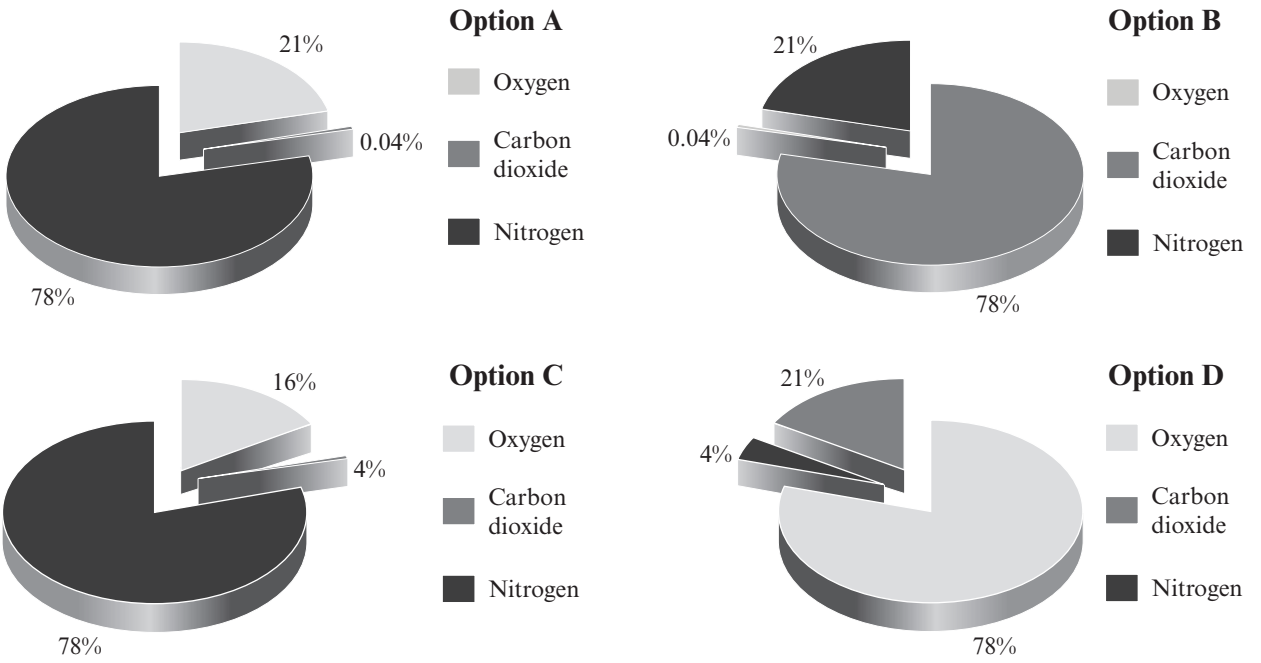


Figure 1

3 Explain why exhaled air has a different percentage of carbon dioxide than inhaled air.

Guided

Exhaled air has a ..... percentage of carbon dioxide than inhaled air, because .....

.....

(3 marks)

4 Explain the impact of physical activity on oxygen levels in exhaled air compared to inhaled air.

.....

.....

.....

(3 marks)