AQA

REVISE AQA GCSE (9–1)

Physical Education

REVISION WORKBOOK

For the 9–1 exams

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REVISE AQA GCSE (9–1) Physical Education

REVISION WORKBOOK

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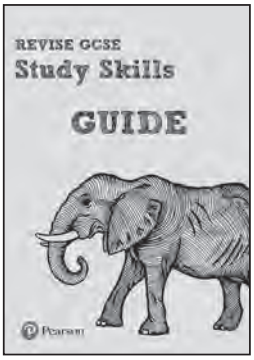

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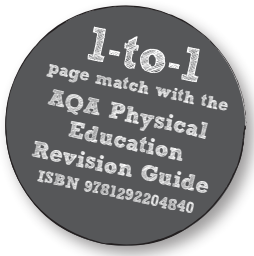

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A small bit of small print:
AQA publishes Sample Assessment Material and the Specification on its website. This is the official content and this book should be used in conjunction with it. The questions have been written to help you practise every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

Bones of the skeleton

1 (a) Name the **two** bones located at the head/neck.

……

(2 marks)

(b) Name the bone that sits in front of the knee joint.

……

(1 mark)

Read the question carefully: you are not being asked to name the bones at the knee joint.

2 Identify the **two** bones labelled **A** and **B** in **Figure 1**.

A ……

B ……

(2 marks)

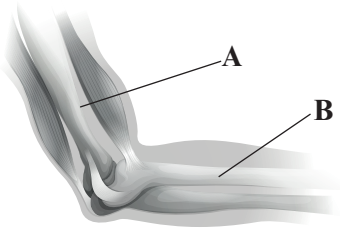


Figure 1

3 Identify the **two** bones labelled **A** and **B** in **Figure 2**.

A ……

……

B ……

……

(2 marks)

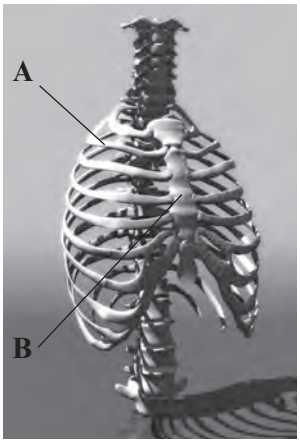


Figure 2

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)

Had a go ☐ Nearly there ☐ Nailed it! ☐

Structure of the skeleton

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

Figure 1

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

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

2 Which of the following statements is correct?

A The scapula 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 State, using **two** different examples, how the structure of the skeletal system aids movement.

Guided

The skeleton creates joints, for example .....

.....

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

4 **Figure 2** shows **three** different types of bones, labelled **A–C**.

(a) Identify the bone type in **Figure 2** that is designed for fine, controlled movement.

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

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

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

A

B

C

Figure 2

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 cranium 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)**

Had a go ☐ Nearly there ☐ Nailed it! ☐

Structure of a synovial joint

1 Which of the following options is correct?

A The joint capsule holds the bones of the joint in place ⬭

B The synovial membrane surrounds the synovial joint ⬭

C The bursae attach the muscles to the bone ⬭

D The synovial fluid reduces friction in the joint ⬭ **(1 mark)**

Synovial joints are important to sports performers because they allow movement to complete sport and exercise.

Figure 1 is a picture of a synovial joint.

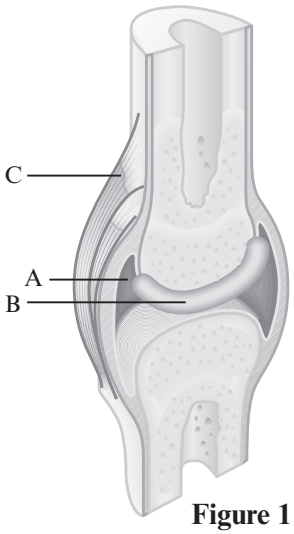


Figure 1

2 (a) Identify the components labelled **A** and **B** in **Figure 1**.

A .....

B .....

(2 marks)

Guided

(b) Explain, using an example, the importance of the component labelled **C** in **Figure 1** to a sports performer.

C = ligaments. Their function is to .....

.....

.....

(4 marks)

3 Explain the importance of cartilage to the athlete in **Figure 2**.

Figure 2

.....

.....

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

Types of freely movable joints

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

……. **(1 mark)**

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

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

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 ball and socket joint?

A Neck ⬭

B Knee ⬭

C Shoulder ⬭

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)**

Had a go ☐ Nearly there ☐ Nailed it! ☐

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

(4 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 statements correctly identifies the 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

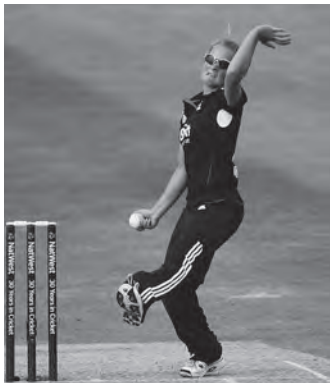


Figure 4

Had a go ☐ Nearly there ☐ Nailed it! ☐

Movement at joints 3

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

Figure 1

Remember: the 'p' for pointing your toes is due to 'plantar flexion'.

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

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

(a) Dorsiflexion

.....

..... **(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)**

Muscles

1 (a) Using the squash player in **Figure 1**, label the location of the pectorals and the deltoids. **(2 marks)**

Figure 1

(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 raise their upper arm at the shoulder to move the racket to play an overhead shot; they are able to do this owing to the action of the .....

.....

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

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

Gluteals	Front of upper leg
Quadriceps	Bottom
Pectorals	Front of upper arm
Triceps	Back of lower leg

(2 marks)

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

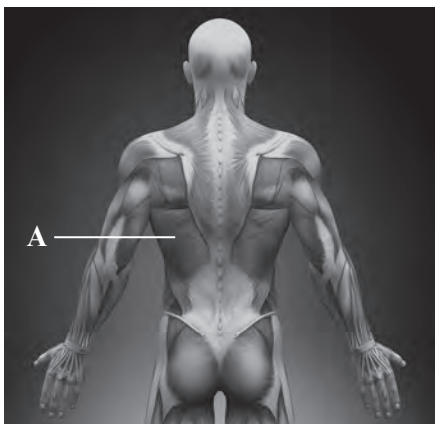


Figure 1

Muscle A is .....

The role of muscle A is .....

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

Had a go ☐ Nearly there ☐ Nailed it! ☐

Antagonistic 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 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.

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

Guided

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

.....

.....

.....

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

(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)**

Had a go ☐ Nearly there ☐ Nailed it! ☐

Antagonistic 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)**

Guided

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

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 pairs: hip flexors and gluteals

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

A ……..

B ……..

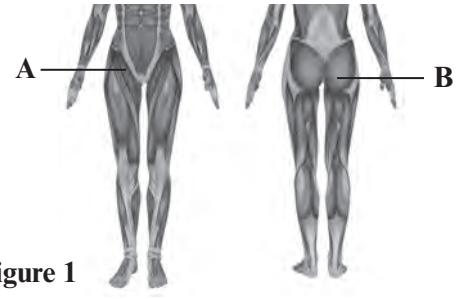


Figure 1

(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)

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

……

(1 mark)

Figure 2

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 gluteals are the agonist, taking the leg back to extend the ……..

……

……

……

……

…… **(4 marks)**

Had a go ☐ Nearly there ☐ Nailed it! ☐

Muscle contractions

1 What is meant by the terms **isotonic** and **isometric** muscle contraction?

.....

.....

.....

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

2 Identify whether the actions shown in the images below are examples of isometric or isotonic muscle contractions.

(a) Arm wrestle when equal force is applied by each competitor

(b) Moment of stillness just prior to pushing off to dive

(c) Running in a long-distance race

(d) Both teams applying equal force in a tug-of-war so the rope is still

....

(4 marks)

3 State the difference between concentric and eccentric muscle contractions.

.....

.....

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

4 Complete the following statements about the upward and downward phase of the press up:

(a) During the upward phase of the press up the triceps are working

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

(b) During the downward phase of the press up the triceps are working

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

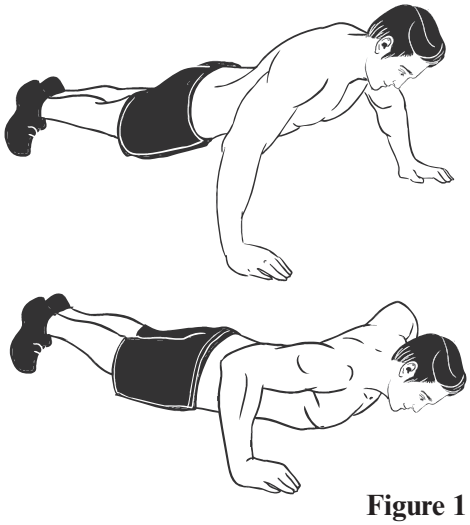


Figure 1

The pathway of air

1 Air can enter the body at two different points.
Identify the **two** places air can enter the body.

1. ……

2. …… **(2 marks)**

2 Before entering the lungs, air follows a specific pathway.
Which **one** of the following contains the air immediately before it passes into the bronchi?

A Mouth ⬭

B Trachea ⬭

C Bronchioles ⬭

D Nose ⬭ **(1 mark)**

3 Identify the lungs and bronchioles on **Figure 1** by drawing a line and labelling them.

EXAM ALERT

If you are asked to add label lines to a diagram make sure it is very clear which part of the diagram the line is pointing to.

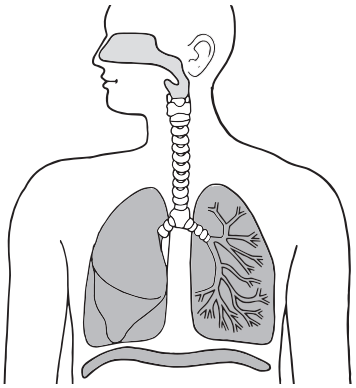


Figure 1

(2 marks)

4 Describe the location of the alveoli.

……

…… **(2 marks)**

Had a go ☐ Nearly there ☐ Nailed it! ☐

Gaseous exchange

1 Identify which **one** of the following statements about the structure of alveoli is true.

A Muscular wall ⬭

B Carried in the blood ⬭

C Has valves ⬭

D Thin-walled ⬭ **(1 mark)**

2 Complete **Figure 1** by adding arrows to the diagram to represent the movement of gases between the tissue cells of the muscle and the capillaries.

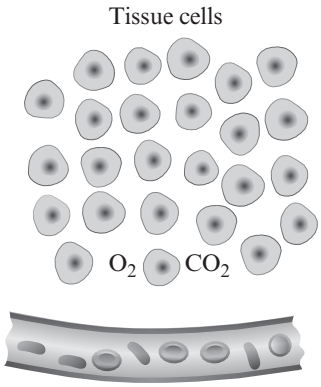


Figure 1

Think about the location where gaseous exchange takes place. What will the muscles be in short supply of during exercise?

(2 marks)

3 Describe the process of gaseous exchange at the muscles.

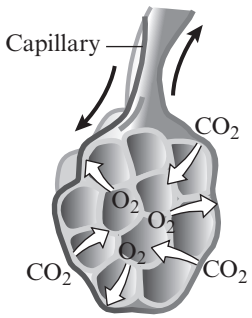
.....

.....

.....

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

4 Using **Figure 2**, explain the movement of gases at the alveoli.



Gas exchange within alveoli

Figure 2

Check the command word used in a question. If it is **explain**, you must give a reason in your answer.

Capillaries around the alveoli contain blood with a low concentration of oxygen and a high concentration of .....

.....

.....

.....

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

Blood vessels

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

1. .....
2. .....
3. ..... **(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 into 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 you will need to make four points.

Had a go ☐ Nearly there ☐ Nailed it! ☐

Redistribution of blood

Guided

1 Using examples, describe what is meant by **redistribution of blood flow**.

Redistribution of blood flow is 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 redistribution of blood flow is beneficial for the performer as long as they have not eaten recently.

.....

.....

.....

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

Use of data

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

Percentage blood flow at rest

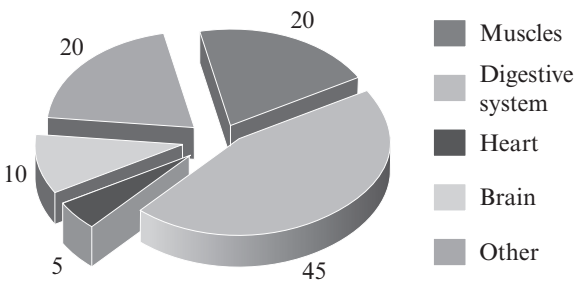


Figure 1

Percentage blood flow during exercise

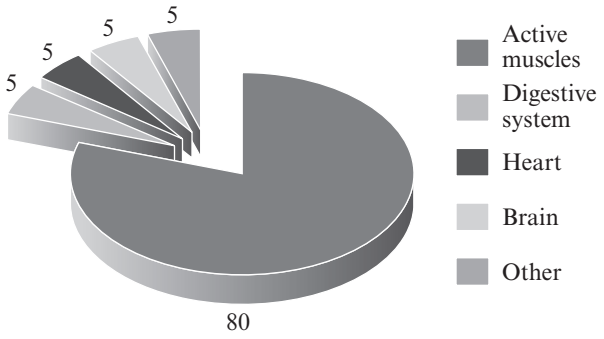


Figure 2

.....

.....

.....

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

Heart structure and the cardiac cycle

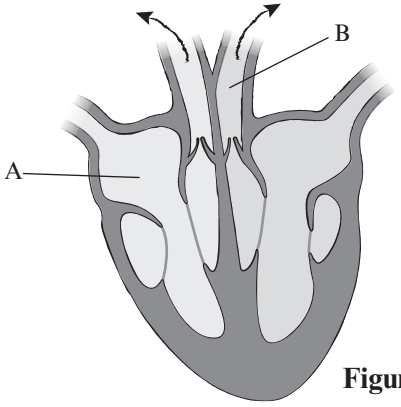


Figure 1

1 (a) Identify the parts of the heart labelled **A** and **B** in **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 valves in circulating blood for performance.

.....

.....

.....

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

3 Which **one** of the following is the chamber of the heart that receives oxygenated blood from the lungs?

A Right atrium ☐

B Left atrium ☐

C Right ventricle ☐

D Left 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.

Had a go ☐ Nearly there ☐ Nailed it! ☐

Cardiac output

1 Which one of the following terms means an increase in heart rate before exercise?

A Redistribution of blood flow ⬭

B Stroke volume ⬭

C Cardiac output ⬭

D Anticipatory rise ⬭ **(1 mark)**

Guided

EXAM ALERT

2 What happens to cardiac output during exercise and how is this achieved?

Remember to answer both parts of this question: what happens to cardiac output and how this change is achieved.

During exercise cardiac output increases .....

.....

.....

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

3 Explain this equation:

Cardiac output = HR × SV

.....

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

Use of data

4 Using the heart rate values in **Figure 1**, describe the intensity of this exercise session.

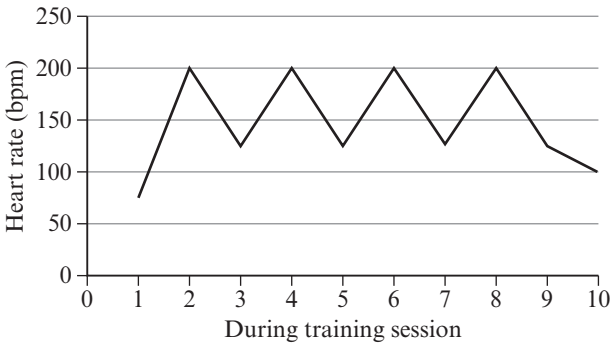


Figure 1

.....

.....

.....

.....

.....

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