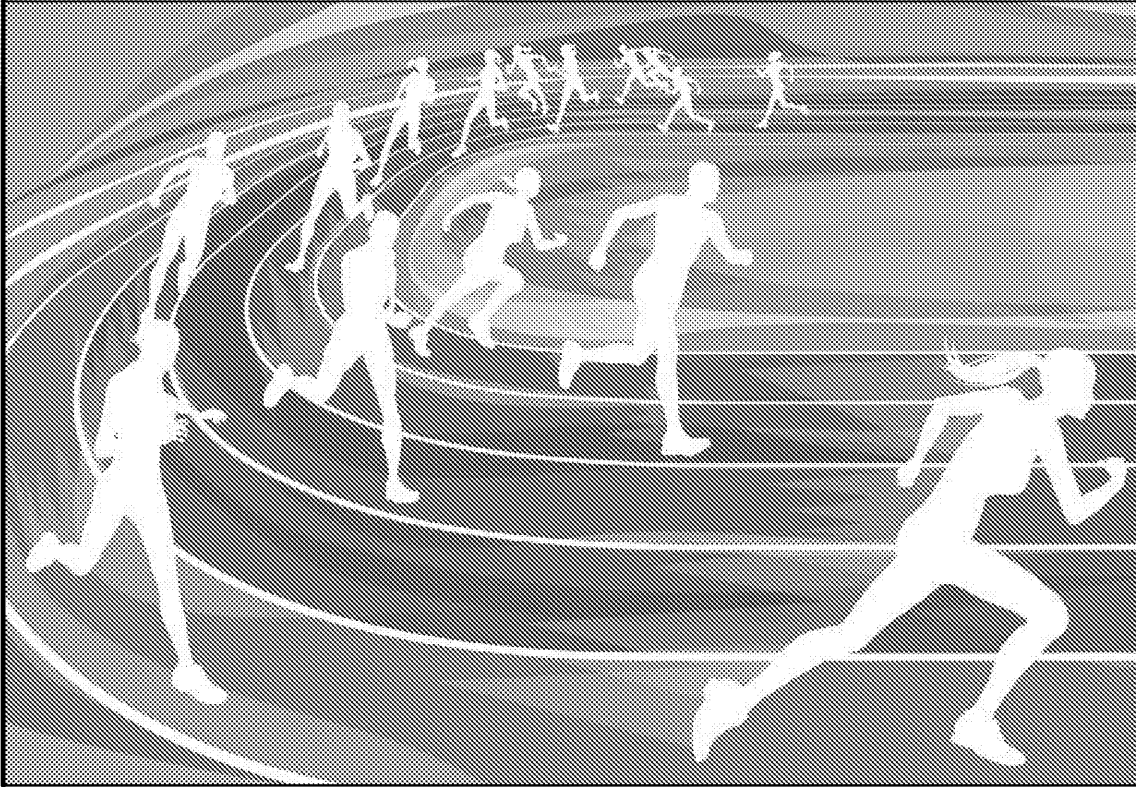


Practice Assessments for BTEC First in Sport Unit 7



POD 5613

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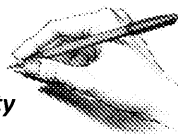
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Teacher's Introduction

This assessment pack has been developed to provide students with the opportunity to practise for the external assessment for this unit. The questions have been developed in the same style and format with the mark scheme used in the external assessment.

Each assessment should be completed in one hour. There are 50 marks available in each paper, with answers provided for peer or teacher marking.

We have also included a grid to show the content of the assessment to indicate which topics are covered by each assessment.

Marking guidance for the longer response questions can be downloaded from here: zzed.co.uk/5613

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** resulting from minor specification changes, suggestions from teachers and peer reviews, or occasional errors reported by customers*

Topics
Learning Aim A
A.1 Voluntary Muscles
Major muscles and their locations
A.2 Types of Muscles
Voluntary
Involuntary
Heart
A.3 Voluntary Muscle Movements
Antagonistic muscle pairs
A.4 Types of Contraction
Concentric contraction
Eccentric contraction
Isometric contraction
A.5 Muscle Movement and its Performance
Slow-twitch fibres (type I)
Fast-twitch fibres (type IIa)
Fast-twitch fibres (type IIb)
Recruitment of muscle fibres at varied levels of muscular effort
A.6 Bones of the Skeleton
Major bones
Different types of bones
Two subdivisions of the human skeleton
Ribcage structure
Vertebral column structure
A.7 Functions of the Skeletal System
Protection
Muscle attachment and movement
Shape
Support
Blood production
Mineral storage
A.8 Classification of Joints
Fixed (immovable)
Slightly moveable (cartilaginous)
Freely moveable (synovial)
A.9 Types of Cartilage
Fibrocartilage
Hyaline cartilage
Elastic cartilage
A.10 Synovial Joint Structure
Joint synovial capsule
Bursa
Bone ends
Synovial membrane
Synovial fluid
Tendon
Ligament

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A.11 Joint Movement
Flexion
Extension
Adduction
Abduction
Rotation
Circumduction
Plantarflexion
Dorsiflexion
Elevation
Depression
A.12 Joint Movement and Muscle-Group Contractions Related to Sports Performance
Analyse a variety of sports performers in action (in terms of joint movement and contractions)
Learning Aim B
B.1 Structure of the Cardiovascular System
Structure of the cardiovascular system
Heart
Types of blood vessels
B.2 Functions of the Cardiovascular System
Transport of oxygen to muscles and vital organs
Transport of carbon dioxide away from muscles and vital organs
Transport of nutrients to cells
Transport of hormones to organs and cells
Protection against infection and disease
Clotting to stop bleeding from open wounds
Regulation of body temperature (thermoregulation)
Thermoregulation if internal temperature rises
Thermoregulation if internal temperature falls
B.3 Structure of the Respiratory System
Structure of the respiratory system
B.4 Functions of the Respiratory System
Inspiration
Expiration
Gaseous exchange
B.5 Functions of the Cardiorespiratory System
Circulation of blood through the lungs, heart and body
Transporting oxygenated blood to body tissues
Uptake of oxygen into the body for energy production
Unloading of waste products, such as carbon dioxide, from the body

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Unit 7: Anatomy and Physiology for Sports Performance



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Practice Assessment 1

Time allowed: 1 hour

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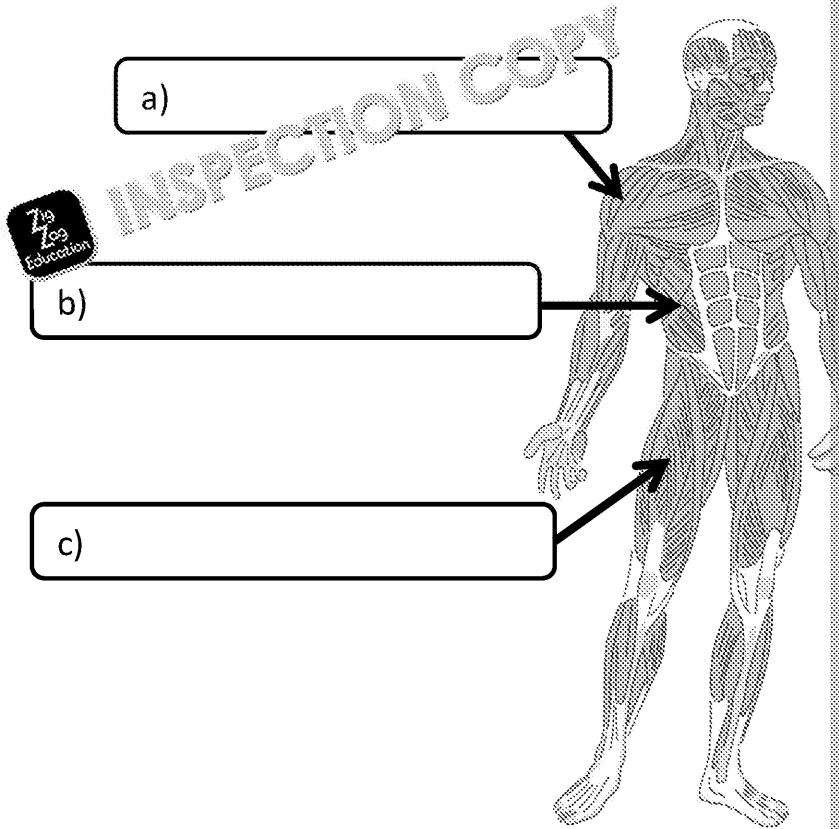
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1.

Identify the muscles that are labelled on the diagram below

Quadriceps	Deltoids
Abdominals	Hamstrings



2.

Which of the following is **not** an example of an antagonist?

Biceps and triceps

Quadriceps

Trapezius and obliques

Rectus abdominis

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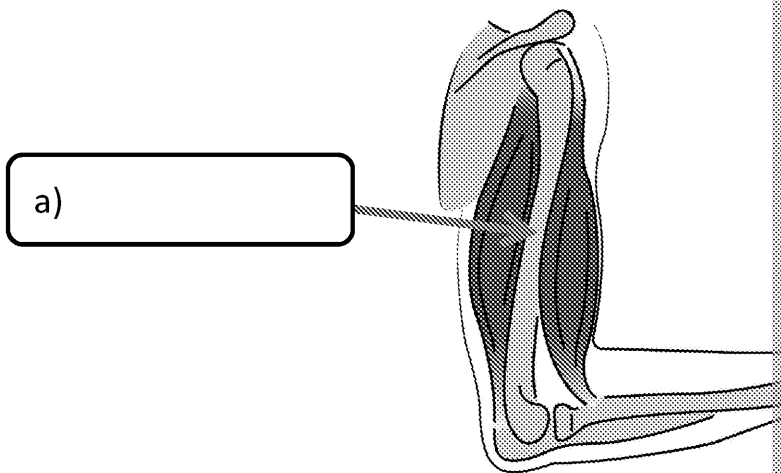
3. Choose from the words below to complete the sentences about muscle-fibre types.

slowly	quickly	low
short duration, high intensity		long duration, low intensity

Slow-twitch fibres (type I) contract and generate force.

Fast-twitch fibres (type IIb) fatigue and are suited to activity.

4. The diagram below shows a flexed arm during a biceps contraction.



a) Name the bone which is labelled on the diagram

b) Which type of fibre is labelled on the diagram above?

c) Which type of joint is the elbow joint?

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d) Which type of joint movement occurs at the elbow during the downwards phase of a biceps curl?

5. Cartilage is flexible connective tissue found in different parts of the body. There are different types of cartilage with different functions.

Write the name of the type of cartilage that is being described in each of the sentences below.



Acts as a shock absorber between the vertebrae and intervertebral discs of the spinal column

b)

Located in the epiglottis and the larynx

c)


Located at the end of bones and allows for smooth movement between articulating surfaces

6. Identify each of the different joint movements that are described below.

a) The action at the elbows during the upwards phase of a biceps curl

b) The action of the arms during the outwards phase of a biceps curl

c) The action at the ankles as a ballerina stands on tiptoes



d) The action at the shoulders as a weightlifter bends down to pick up a barbell

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7. Which of the following is the correct definition for voluntary muscle?

Muscle under conscious control, which allows movement to occur

Muscle that is not under conscious control, which allows movement to occur

Muscle under conscious control, which is located in the digestive system

Muscle that is not under conscious control, which is located in the digestive system

8. Different sporting actions require different types of muscle contraction.

a) Define the term 'isometric contraction'.

b) Give an example of a sporting action in which an isometric contraction occurs.

9. The adult skeletal system is made up of 206 bones.

Label the two different parts that the human skeleton is made up of.

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b) Two functions of the skeletal system are to provide support and protection.
State two more.

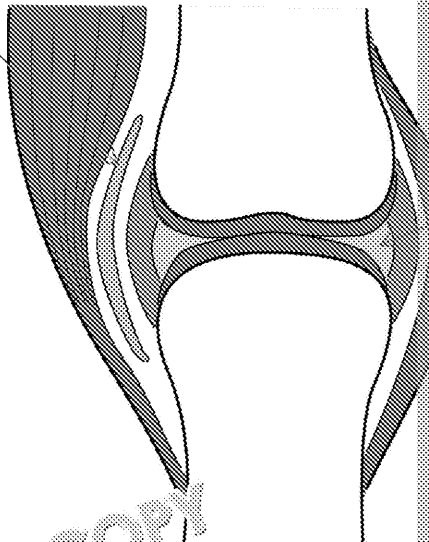
10. Synovial joints are the most common joints found in the human body.

a) Identify the components of a synovial joint that are shown in the diagram below, by writing the name of the component in the box below, choosing from the words in the box.



- Synovial membrane
- Synovial fluid

i)

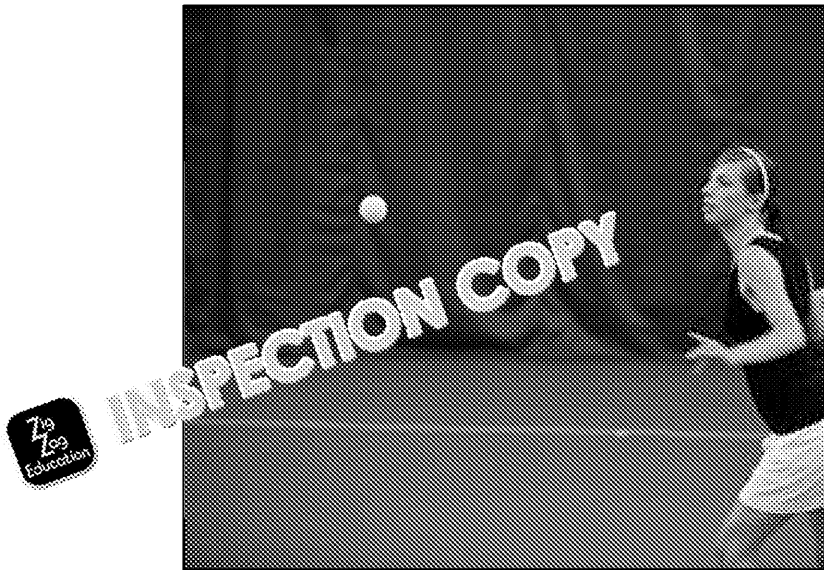


Synovial joints also contain tendons and ligaments. State the difference between these two types of connective tissue.

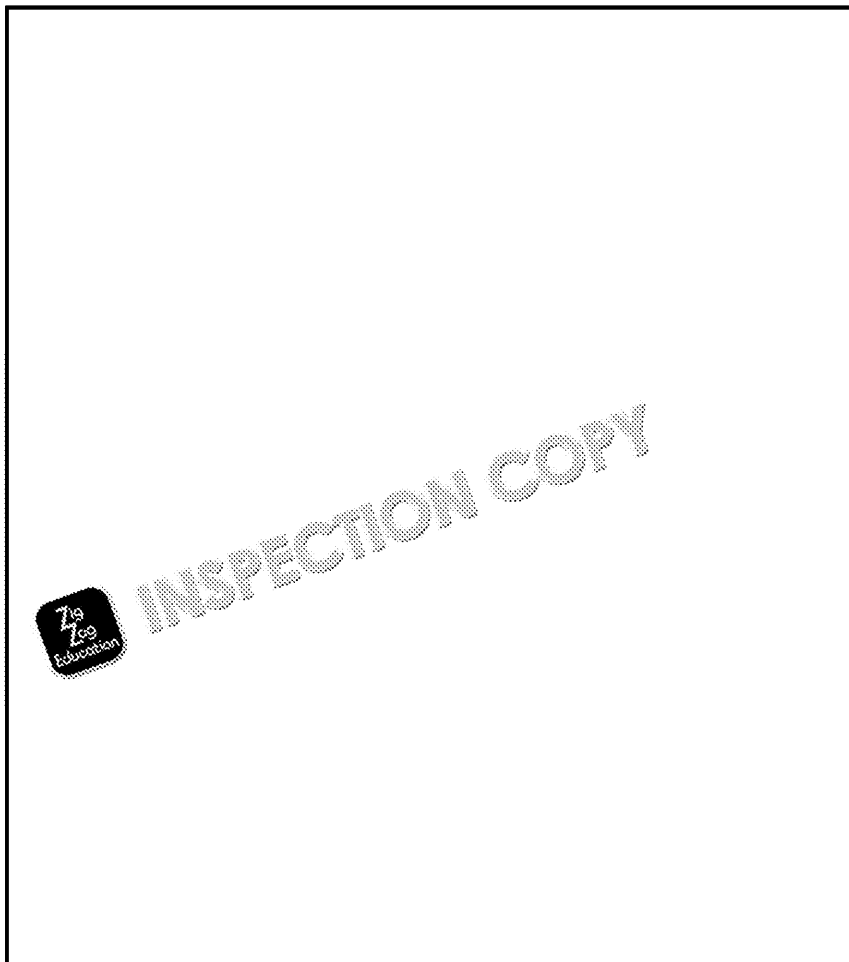
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11. The picture below shows a tennis player completing a forehand.



Analyse how muscle contractions and movements interplay to complete a forehand.



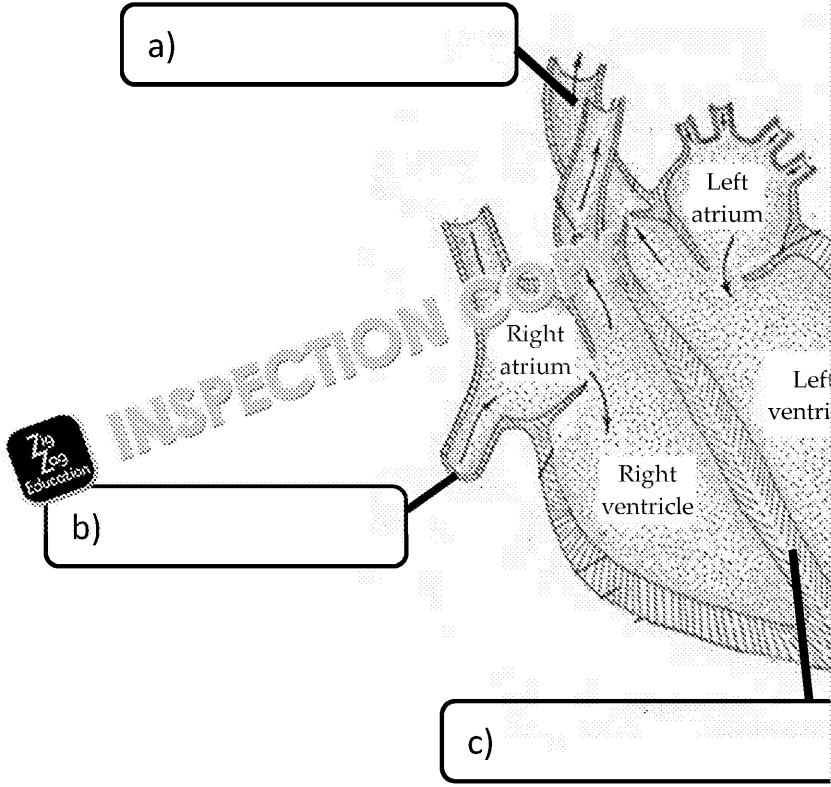
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12.

Name the different components of the heart that are below.



13.

Two functions of the cardiovascular system are circulate carbon dioxide around the body, and providing cells with more.

Blank space for answer.

14.

Explain how the process of inspiration occurs.

Blank space for answer.

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15. Blood is transported around the body through blood vessels. There are two types of blood vessel, each with a different structure and function.

Complete the table by choosing the correct words from the list below, filling in the gaps.

low large valves oxygenated high small

	Structure	Function
Arteries	<ul style="list-style-type: none"> Thin walls Small lumen No valves 	<ul style="list-style-type: none"> Transport oxygenated blood away from the heart Transport blood at high pressure
Veins	<ul style="list-style-type: none"> Thin walls Larger lumen compared to arteries Have valves to prevent backflow of blood 	<ul style="list-style-type: none"> Transport deoxygenated blood from the heart Transport blood at low pressure

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Unit 7: Anatomy and Physiology for Sports Performance



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Practice Assessment 2

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1. There are three different types of muscle in the human

a) Give two examples of where you might find involu
body.

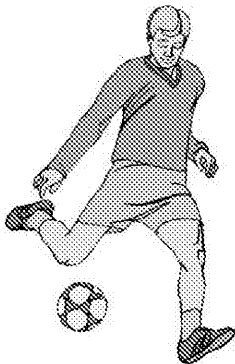
[Empty box for answer]

b) Describe two characteristics of heart or cardiac mu

[Empty box for answer]

2. Muscles work in pairs called antagonistic muscle pairs.

a) Identify the antagonistic muscle pair which is work
player kicks a football.



[Empty box for answer]

b) Which of the following is the correct definition of a

- The prime mover
- Muscles that steady movements
- The muscle that opposes the pull of the agonist
- The muscle which relaxes and lengthens

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3. Identify the type of muscular contraction that is occurring following examples.

a) Contraction of muscles during the downward phase of a jump

[Empty box for answer a)

b) Contraction of the quadriceps as a runner sprints up a hill

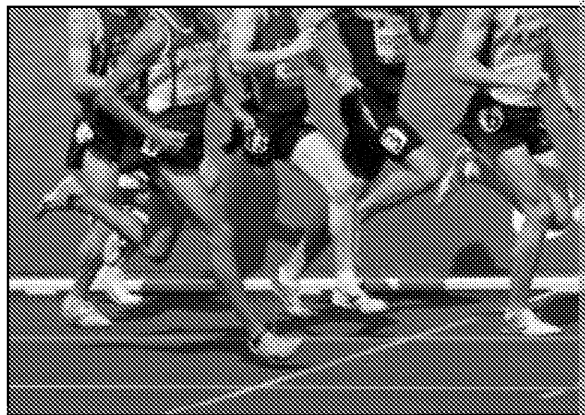
[Empty box for answer b)

c) Contraction of the latissimus dorsi muscles during a tug of war

[Empty box for answer c)

4. Different athletes have different proportions of muscle fibres.

Explain why middle-distance runners (e.g. 1,500m runner) have a higher proportion of type IIa fibres than type I fibres.



[Large empty box for answer to question 4, containing a watermark 'INSPECTION COPY' and a 'Zig Zag Education' logo]

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5. There are five different types of bones in the human body. Give an example of where each of the following different types of bones is found in the human body.

Give an example of where each of the following different types of bones is found in the human body.

a) Flat

b) Irregular

c) Sesamoid

6. Name the different types of ribs described below using the terms in the box.

Frontal ribs	True ribs
Floating ribs	

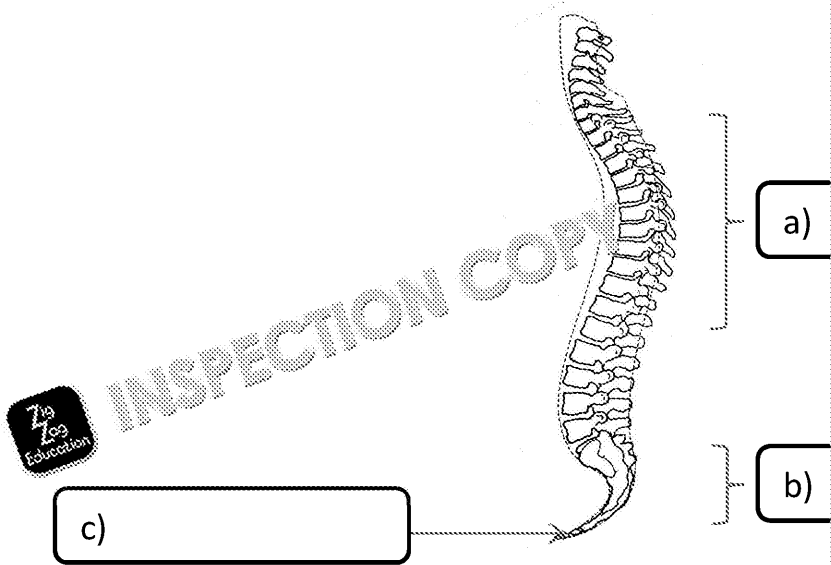
- a) Ribs which are only attached to the vertebrae (at the back) and are not attached at the front
- b) Ribs which are attached to the vertebrae (at the back) and sternum (at the front)
- c) Ribs which are attached to the vertebrae (at the back) and the rib cage (at the front) rather than the sternum

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7. The spine is made up of 33 vertebrae, and is divided into

a) Name the different sections of the vertebral column diagram below.



b) Which joint classification do the joints between vertebrae have?

8. Synovial joints are the most common classification of joint.

a) Name the type of synovial joint which has the greatest range of movement.

b) Name the type of synovial joint which allows rotation of one bone on another.

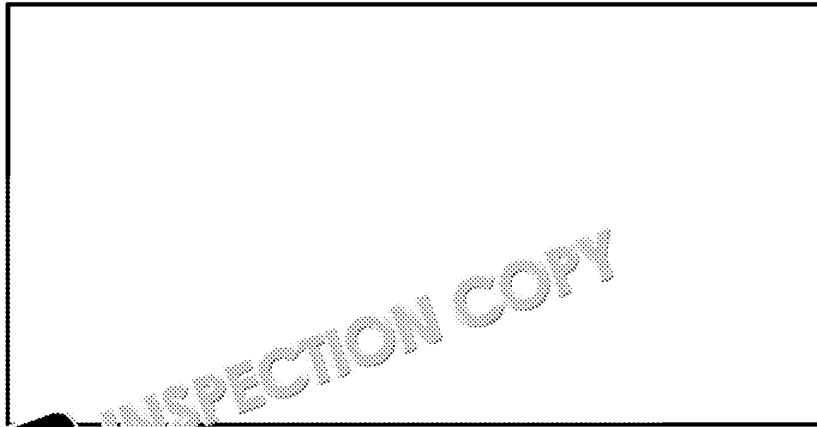
c) Name the type of synovial joint which allows side to side movement of flat bones.

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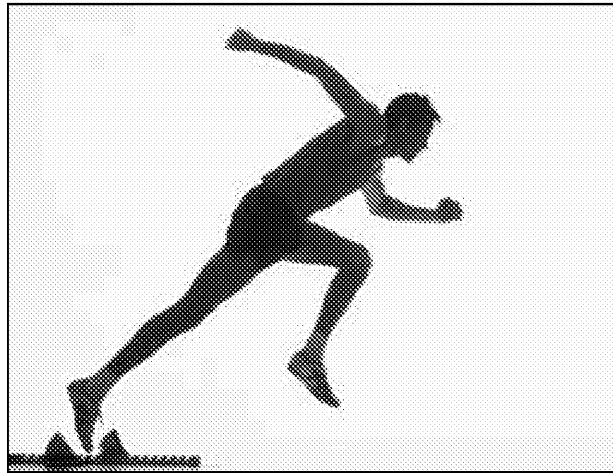


9.

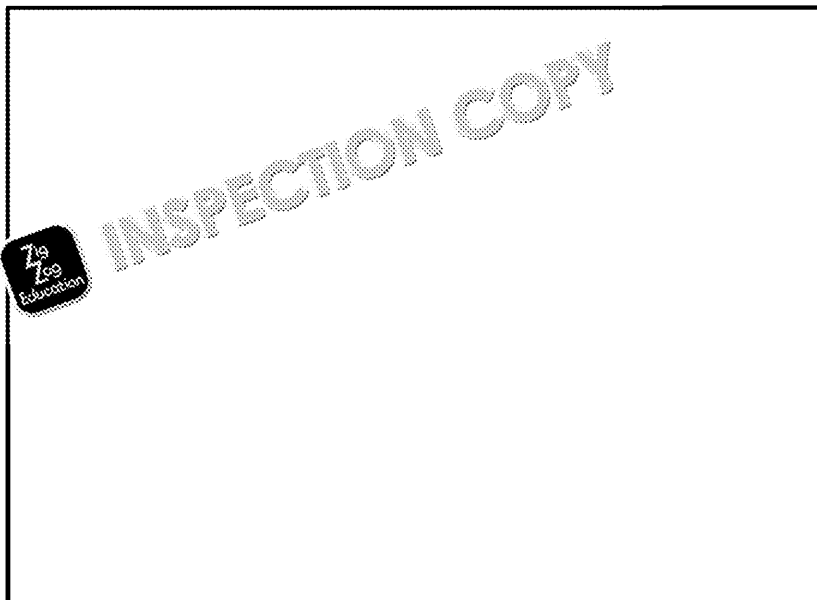
Explain the difference between rotation and circumduction. Give an example of when each might be used in sport.



10. The picture below shows an athlete taking part in a 100m sprint.



Analyse how joints and muscles interact to allow an athlete to perform a 100m sprint.



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11. Describe two ways in which the cardiovascular system circulates blood through the body.

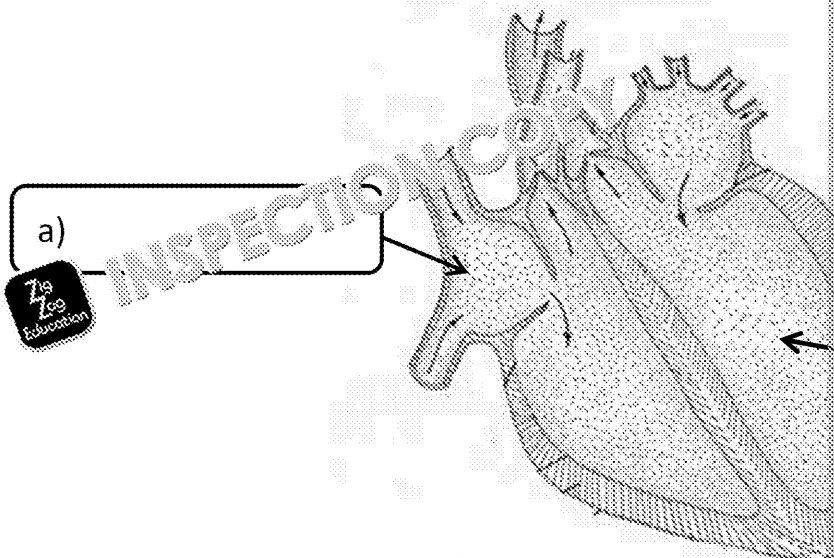
Blank area for answer to question 11.

12. Describe the main function of the coronary arteries.

Blank area for answer to question 12.

13. Name the chambers of the heart that are labelled on the diagram using the words in the box.

- Left atrium
- Left ventricle



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14. Explain how the structure of capillaries makes them work for their function.

Blank area for answer to question 14.



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15. Define the term 'thermoregulation'.

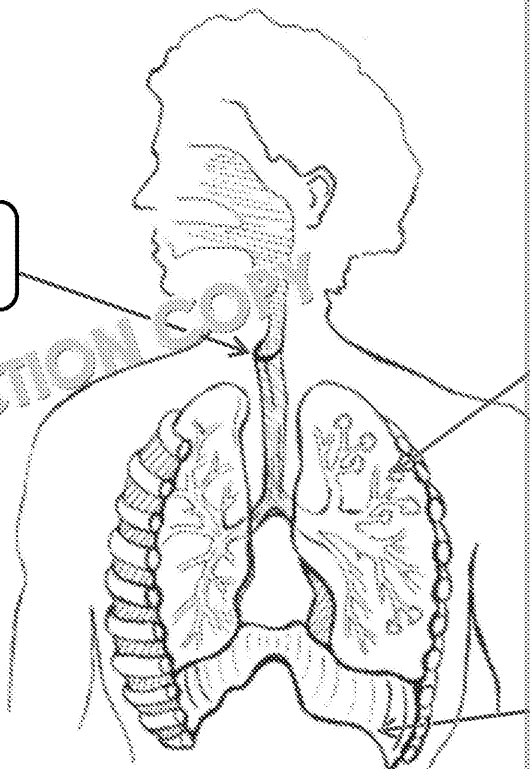
Blank area for answer to question 15.

16. Name the components of the respiratory system that are shown in the diagram below.

a)



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17. Which of the following statements best describes what happens during the stage of expiration?

Diaphragm and external intercostal muscles contract

Diaphragm and internal intercostal muscles contract

Diaphragm and external intercostal muscles relax

Diaphragm and internal intercostal muscles relax

18. Which of the following is **not** a function of the cardiovascular system?

Uptake of oxygen into the body

Supplying deoxygenated blood to body tissues

Unloading carbon dioxide from the body

Transporting blood through the lungs, heart and body

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Unit 7: Anatomy and Physiology for Sports Practice

Practice Assessment 3

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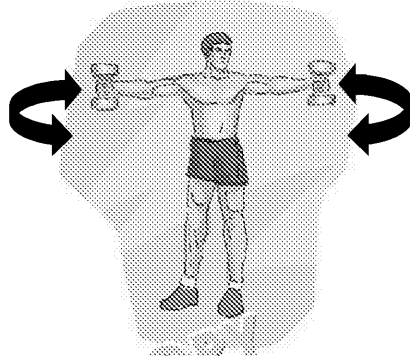
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1. The picture below shows an individual performing an exercise.



a) Name the type of movement that occurs at the shoulder as the individual moves the weights in front of their chest.

b) Identify the antagonistic muscle pair that is working to perform this movement.

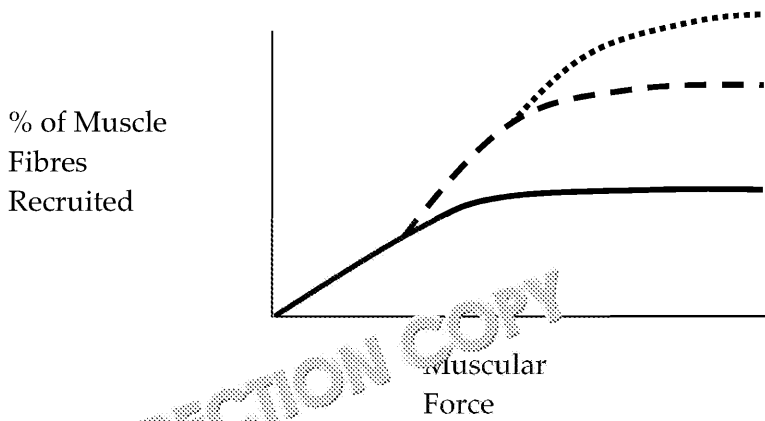
2. a) Describe four differences between type I muscle fibres and type II muscle fibres.

Blank area for the answer to question 2a.

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b) Explain what is represented by the graph below.

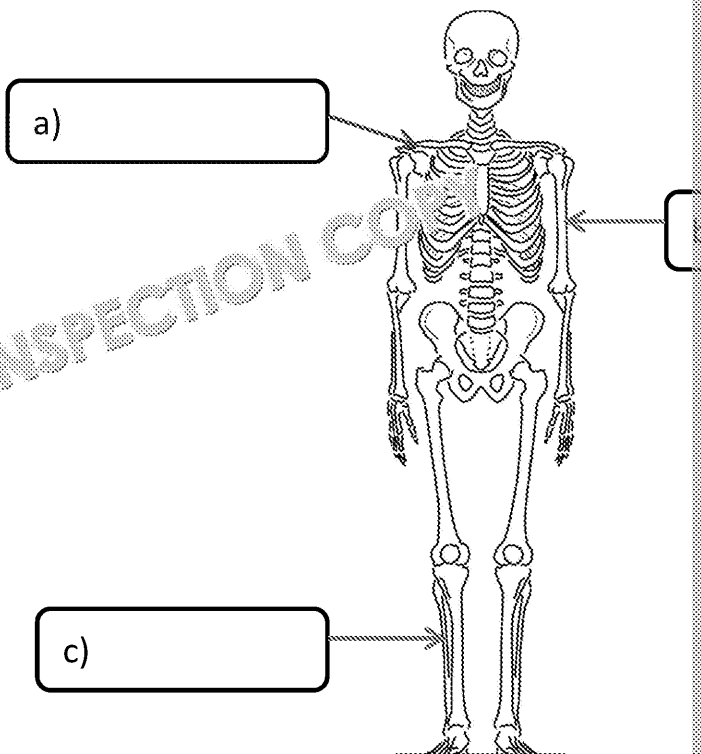


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3.

Name the bones that are labelled on the diagram below.

Radius	Clavicle
Fibula	Sternum



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4. Give an example of where a fixed joint might be found

5. Describe the structure of the joint synovial capsule, and its function is.

6. Name the types of joint movements that are occurring below.

a) The action at the ankle during the strike phase of



b) The upwards movement of the scapulae during a



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7. The table below shows the joints, muscles and muscle a phase of a penalty kick.

Complete the table by filling in the gaps.

Joint	Muscle
Hip	
Knee	Quadriceps



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8. The majority of muscles in the human body are voluntary. List three characteristics of voluntary muscles.

9. Which of the following are **not** a function of the skeleton?



Transport of red blood cells

Protection of vital organs

Providing a site for muscle attachment

Providing shape

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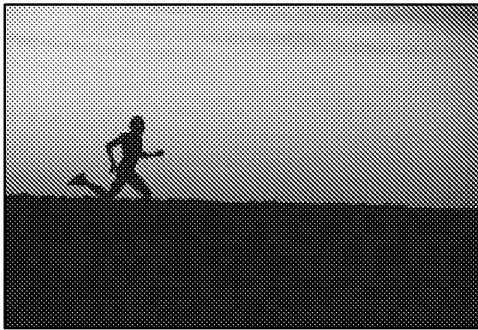
10.

Explain how muscles work together to create movement

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11. The pictures below show individuals exercising in different temperatures.



Explain how the body maintains its internal temperature

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12.

Explain how oxygen gets from air into the blood to be body.

13. The table below shows the different steps that occur during expiration. Complete the table by filling in the gaps with the words from the box.

Complete the table by filling in the gaps with the words from the box.

increases	decreases
sternum	internal

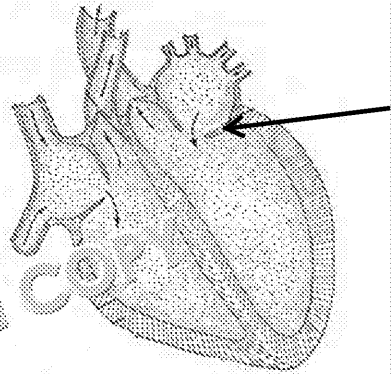
	Expiration
1	Diaphragm and _____ intercostal muscles contract
2	The diaphragm is pushed upwards (becomes _____) and _____ move in and down
3	The volume inside the thoracic cavity _____
4	The air pressure inside the lungs _____
5	This causes air to rush out of the lungs – _____

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14.

Name the component of the heart that is labelled in the diagram and describe its function.



15.

Which of the following is **not** transported by the cardiovascular system?

- Hormones
- Carbon dioxide
- Nutrients
- Blood clots

16.

Describe the main function of each of the following components of the respiratory system.

- a) Nasal cavity
- b) Rings of cartilage
- c) Pleural fluid



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Practice Assessment 1

1. a) Deltoids (1)
b) Obliques (1)
c) Quadriceps (1)
2. Trapezius and obliques (1)
3. Slow-twitch fibres (type I) contract **slowly** (1) and produce **low** (1) force.
Fast-twitch fibres (type IIb) fatigue **quickly** (1) and are good for **short duration**, (1)
4. a) Humerus (1)
b) Long bone (1)
c) Hinge (1)
d) Extension (1)
5. a) Fibrocartilage (1)
b) Flexion (1)
c) Extension (1)
6. a) Flexion (1)
b) Abduction (1)
c) Plantarflexion (1)
d) Depression (1)
7. Muscle under conscious control, which allows movement to occur (1)
8. a) The muscle contracts but it doesn't change length, and no movement occurs (1)
b) E.g. when two equally strong teams perform a rugby scrum (1)
9. a) Axial skeleton (1)
Appendicular skeleton (1)
b) Two of the following (1 mark for each):
 - Muscle attachment and movement (1)
 - Support (1)
 - Blood production (1)
 - Storage of minerals (1)
10. a) i) Bursa (1)
ii) Synovial fluid (1)
b) Tendons attach muscle to bone, whereas ligaments attach bone to bone (1)

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11. **General points**

- A series of concentric muscle contractions occur to allow a tennis player to pass the ball.
- In order for muscles to create movement, they work in pairs called antagonists (one contracts and shortens while the antagonist relaxes and lengthens in the opposite direction. These muscles then switch roles to allow movement to occur in the opposite direction).

Specific movements

Withdrawal phase:

- The triceps contract concentrically to allow the elbow to extend.
- The deltoids contract concentrically to allow abduction and external rotation.

Striking phase:

- During the first stage, the triceps contract concentrically to allow extension at the elbow.
- During the second stage, the biceps contract concentrically to allow flexion at the elbow.
- The pectorals and latissimus dorsi contract concentrically to allow adduction at the shoulder.
- The deltoids contract concentrically to allow flexion at the shoulder.
- The pectorals contract concentrically to allow horizontal flexion at the shoulder.

Level	Marks	Descriptor
		No creditworthy material
1		<ul style="list-style-type: none"> • The answer is not broken down into appropriate phases/stages • Insufficient level of description • Relationships between muscle contractions and the movement are not identified
2	4–6	<ul style="list-style-type: none"> • The answer has been broken down into phases/stages • Each phase/stage is described in detail • Some relationships between muscle contractions and the movement are identified, but not described in detail
3	7–8	<ul style="list-style-type: none"> • The answer has been broken down into phases/stages • Each phase/stage is described or explained in detail • Relationships between muscle contractions and the movement are identified

12. a) Aorta (1)
 b) Inferior vena cava (1)
 c) Septum (1)

13. Two of the following (1 mark for each):
- Transport of hormones (1)
 - Protection against disease and infection (1)
 - Clotting to prevent loss of blood from an open wound (1)
 - Regulation of body temperature (1)

14. • Diaphragm and external intercostal muscles contract (1)
 • Diaphragm flattens and the ribs and sternum move up and out (1)
 • The volume inside the thoracic cavity increases (1)
 • The pressure inside the lungs decreases and air enters (1)

15. a) Small (1)
 b) Oxygenated (1)
 c) Valves (1)
 d) Lungs (1)

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Practice Assessment 2

1. a) In the digestive system, e.g. stomach or intestines (1)
In the circulatory system / blood vessels (1)
b) Involuntary muscle / contracts and relaxes constantly without conscious control (1)
Fairly rapid and sustained contraction (1)
2. a) Quadriceps and hamstrings (1)
b) Muscles that steady movement (1)
3. a) Eccentric
b) Concentric
c) Isometric
4.
 - Type IIa fibres have a faster rate of contraction compared with type I fibres (1)
 - Type IIa fibres generate greater force compared with type I fibres (1)
 - Type IIa fibres are less resistant to fatigue compared with type I fibres (1)
 - Type IIa fibres have higher anaerobic capacity compared with type I fibres (1)
5. a) E.g. skull or scapula (1)
b) E.g. vertebrae or some facial bones (1)
c) Any location where a tendon passes over a joint, e.g. foot, knee or hand (1)
6. a) Floating ribs (1)
b) True ribs (1)
c) False ribs (1)
7. a) i) Thoracic (1)
ii) Sacrum (1)
iii) Coccyx (1)
b) Slightly moveable (cartilaginous) (1)
8. a) Ball and socket joint (1)
b) Pivot (1)
c) Gliding (1)
9.
 - Rotation refers to the circular motion of an object about an axis of rotation (1)
 - circular, cone-shaped motion of a limb that involves a combination of flexion, extension and rotation (1)
 - A diver performing a somersault as they dive is an example of rotation (1).
 - Movement of the arm during a cricket bowl would be an example of circumduction (1)

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10. **General points**

- A series of concentric muscle contractions occur to allow a sprinter to run.
- In order for muscles to create movement, they work in pairs call antagonistic contracts while the antagonist relaxes to create movement in one direction. allow movement to occur in the opposite direction.

Specific joint movements

- There are two phases – the drive phase and the recovery phase.

During the drive phase:

- The gluteus maximus contracts concentrically to allow the hip to extend.
- The quadriceps contract concentrically to allow the knee to extend.
- The gastrocnemius contracts concentrically to allow plantarflexion at the ankle.

During the recovery phase:

- The quadriceps contract concentrically to allow flexion at the hip.
- The hamstrings contract concentrically to allow flexion at the knee (the gastrocnemius contracts concentrically to allow plantarflexion at the ankle).
- The tibialis anterior contracts concentrically to allow dorsiflexion at the ankle.

Level	Marks	Descriptor
		No creditworthy material
1	1-3	<ul style="list-style-type: none"> • The answer is not broken down into appropriate phases/stages • Insufficient level of description • Relationships between muscle contractions and the movement are not identified
2	4-6	<ul style="list-style-type: none"> • The answer has been broken down into phases/stages • Each phase/stage is described in detail • Some relationships between muscle contractions and the movement are identified, but not described in detail
3	7-8	<ul style="list-style-type: none"> • The answer has been broken down into phases/stages • Each phase/stage is described or explained in detail • Relationships between muscle contractions and the movement are identified and described in detail

11.
 - Platelets in the blood are involved in blood clotting. Blood clotting occurs at the site of a wound to prevent blood loss.
 - White blood cells are part of the immune system and their function is to protect against infection.
12. Coronary arteries supply the heart with oxygenated blood.
13. a) Right atrium
b) Left ventricle
14.
 - The walls are only one cell thick, allowing efficient diffusion of oxygen and nutrients and products such as carbon dioxide out of the blood (1)
 - There are lots of them so they cover a large surface area, making diffusion more efficient (1)
 - They are narrow so red blood cells travel through them in single file, allowing for efficient oxygenation (1)
15. The ability to maintain the body's internal temperature at 37°C (1)
16. a) Epiglottis (1)
b) Alveoli (1)
c) Diaphragm (1)
17. Diaphragm and external intercostal muscles relax (1)
18. Supplying deoxygenated blood to body tissues (1)

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Practice Assessment 3

1. a) Adduction / horizontal flexion (1)
b) Pectoralis major and trapezius (1)
2. a) Four of the following (1 mark for each):
 - Type I fibres contract slowly, whereas type IIa fibres contract quickly (1)
 - Type I fibres generate low force, whereas type IIa fibres generate medium force (1)
 - Type I fibres can work for a long time before they fatigue, whereas type IIa fibres fatigue quickly (1)
 - Type I fibres have high aerobic capacity, whereas type IIa fibres have moderate aerobic capacity (1)
 - Type I fibres have low anaerobic capacity, whereas type IIa fibres have high anaerobic capacity (1)
- b) Ramp-like recruitment of muscle fibres (1)
 - Only type I muscle fibres are required for low force (1)
 - As the required force of contraction increases, type IIa muscle fibres are recruited (1)
 - Type IIb muscle fibres are recruited for maximal contractions (1)

3. a) Clavicle
b) Humerus
c) Scapula

4. Skull/sacrum (1)

5.
 - It is made up of the synovial membrane (inner layer) and fibrous capsule (outer layer) (1)
 - It encloses the joint (1)
 - The synovial membrane produces synovial fluid, which provides lubrication and reduces friction (1)

6. a) Dorsiflexion (1)
b) Elevation (1)

7.

Joint	Muscle	Action when
Hip	Quadriceps (also accept hip flexors)	
Knee	Quadriceps	
Ankle	Gastrocnemius	

8.
 - They are under conscious control (controlled by the nervous system) (1)
 - They allow movement (1)
9. Storage of red blood cells (1)
10.
 - Muscles cannot push, they can only pull, so they work in pairs, called antagonists (1)
 - In these pairs, the agonist contracts (1)
 - At the same time, the antagonist relaxes to create movement in one direction (1)
 - These muscles then switch roles to allow movement to occur in the opposite direction (1)

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11. **General points**

Thermoregulation is the ability to maintain the body's internal temperature at 37°C

- It is important for athletes to regulate their body temperature because it can affect their health and performance if they don't.
- Temperature regulation is under the control of the brain.

Specific points

When the body temperature increases:

- The blood vessels (arterioles) that supply blood to the skin vasodilate, allowing more blood to flow under the skin. This allows more heat to be lost from the skin to the air through convection.
- Sweat is produced by the sweat glands. This sweat evaporates from the skin, cooling the body.

When body temperature decreases:

- The blood vessels (arterioles) that supply blood to the skin vasoconstrict, allowing less blood to flow under the skin. This reduces the amount of heat that is lost from the body.
- Blood is redirected away from the skin to warm the body's warm core, to regulate body temperature.
- The skin and subcutaneous fat (yellow fat under the skin) insulate the body.
- We shiver to generate metabolic heat.

Level	Mark	Descriptor
	0	No creditworthy material
1	1-3	<ul style="list-style-type: none"> • A small number of points identified, but a number of points are not described • Not all points are described • The points lack detail
2	4-6	<ul style="list-style-type: none"> • A number of points identified • All parts are described, or one is explained in detail • The points are described in some detail
3	7-8	<ul style="list-style-type: none"> • Many points identified • All parts are described or explained in detail

12. • Air is breathed into the lungs and alveoli (1)
 • Gaseous exchange occurs at the alveoli and oxygen diffuses into the red blood cells (1)
 • Oxygen combines with haemoglobin in the red blood cells to form oxyhaemoglobin (1)
 • This is then transported to the rest of the body (1)

13.

	Expiration
1	Diaphragm and external intercostal muscles relax, and the internal intercostal muscles contract (1)
2	The diaphragm is pushed upwards (becomes dome-shaped) and the rib cage contracts (1)
3	The volume inside the thoracic cavity decreases (1)
4	The air pressure inside the lungs increases (1)
5	This causes air to rush out of the lungs

14. Bicuspid valve (1)
 Prevents backflow of blood from the left ventricle to the left atrium (1)

15. Blood clots (1)

16. a) Warms/filters/sterilises air (1)
 b) Prevents the trachea from collapsing (1)
 c) Provides lubrication for the movement of lungs / prevents damage (1)

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