

Y12 BTEC Diploma in Sport: Summer Independent Learning Task (SIL)

## Compulsory Task: Body systems

# WELCOME TO

# BTEC LEVEL 3 SPORT



# UNIT 1 ANATOMY AND PHYSIOLOGY

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# SKELETAL SYSTEM



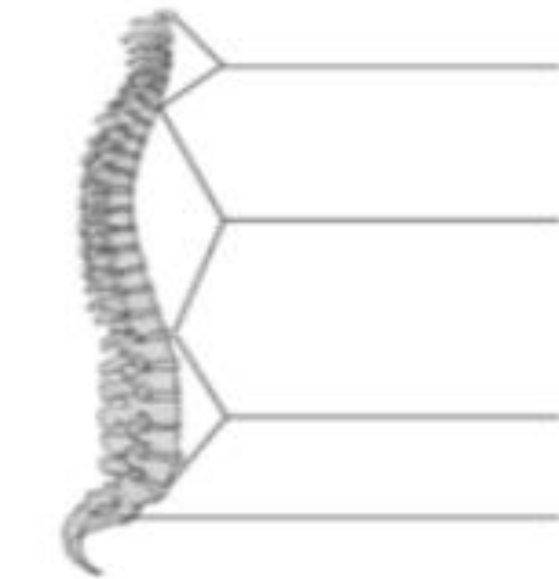
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**LABEL THE ABOVE DIAGRAM WITH THE FOLLOWING COMPONENTS:**

- cranium, clavicle, ribs, sternum, humerus, radius, ulna, scapula, ilium, pubis, ischium, carpals, metacarpals, phalanges, femur, patella, tibia, fibula, tarsals, metatarsals.

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# SKELETAL SYSTEM



www.exploreanatomy.org

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**LABEL THE ABOVE DIAGRAM WITH THE FOLLOWING COMPONENTS:**

- Identify and colour in the Axial and Appendicular Skeleton.
- Identify at least 1 example of each bone type: long bones, short bones, flat bones, irregular bones, sesamoid bones

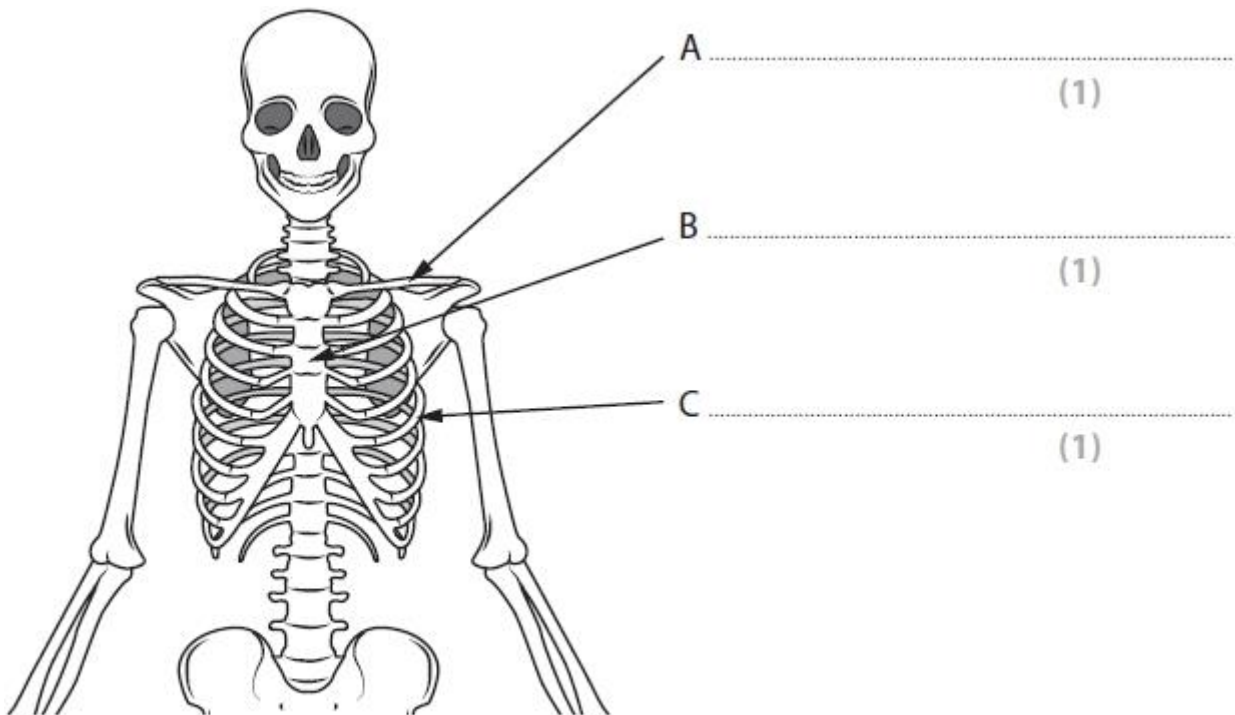
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**Questions**

**Q1.**

**Figure 1** shows the bones of the upper body.

Identify the bones labelled **A-C**.



**Figure 1**

**(Total for question = 3 marks)**

**Q2.**

**Figure 1** shows the regions of the vertebral column.

Identify the regions labelled **B** and **E**.



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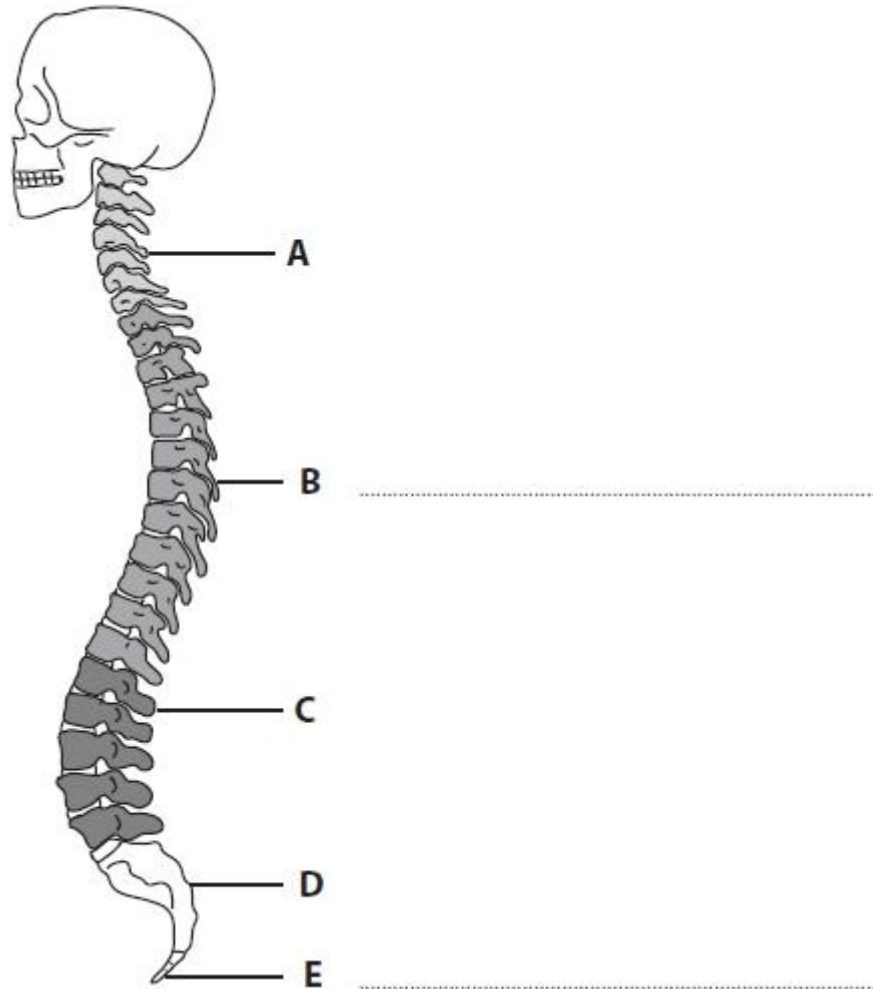


Figure 1

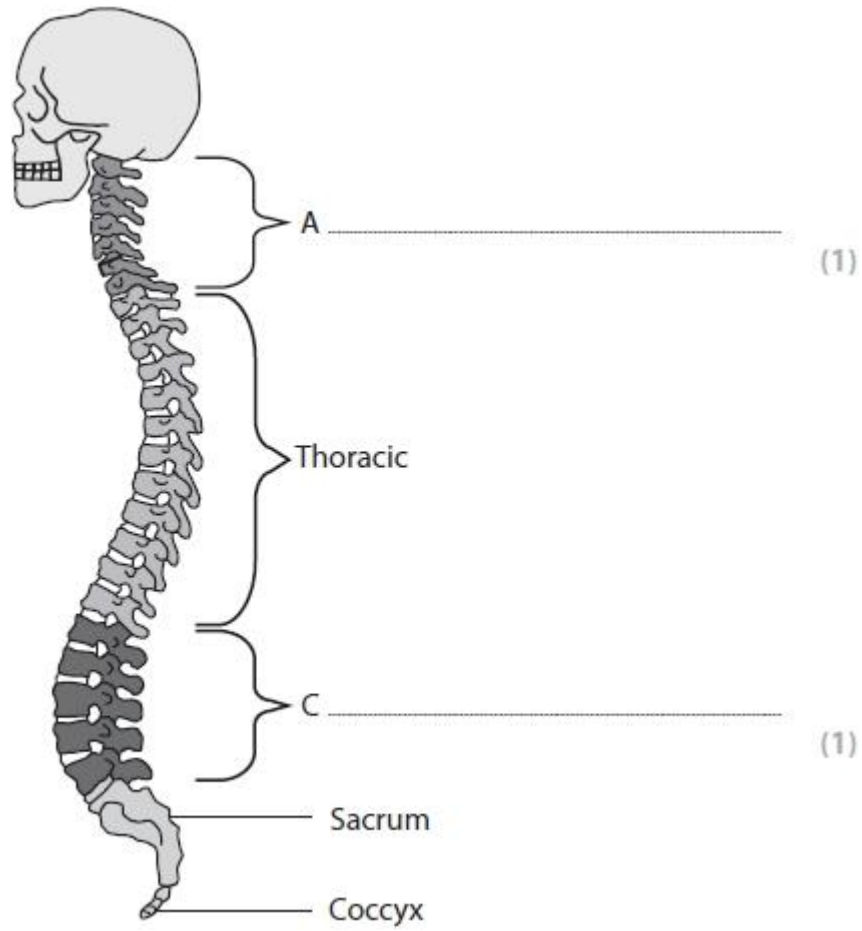
(Total for question = 2 marks)

Q3.

Figure 1 shows the regions of the vertebral column.

Identify the regions labelled **A** and **C**.

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**Figure 1**

**(Total for question = 2 marks)**

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# MUSCULAR SYSTEM

 newcollaborative  
Learning Trust



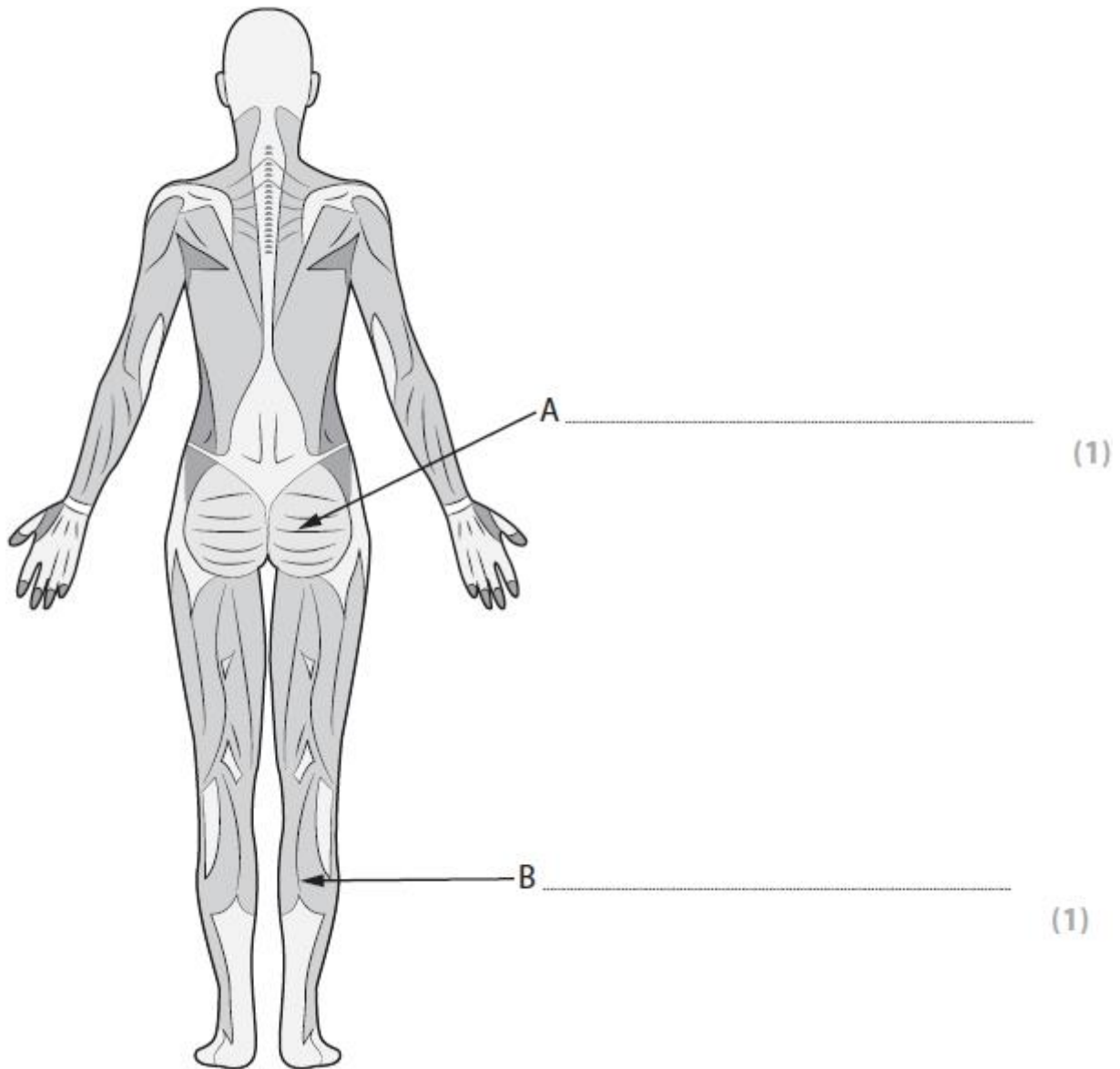
Identify and describe the 3 different types of muscle found within the body.

***LABEL THE DIAGRAM ABOVE WITH THE FOLLOWING MUSCLES:***

biceps, triceps, deltoids, pectoralis major, rectus abdominis, rectus femoris, vastus lateralis, vastus medialis, vastus intermedius, semimembranosus, semitendinosus, biceps femoris, gastrocnemius, soleus, tibialis anterior, erector spinae, teres major, trapezius, latissimus dorsi, obliques, gluteus maximus

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**Q4.**  
**Figure 2** shows the posterior view of the skeletal muscles of the body.  
Identify the muscles labelled **A** and **B**.



**Figure 2**

**(Total for question = 2 marks)**

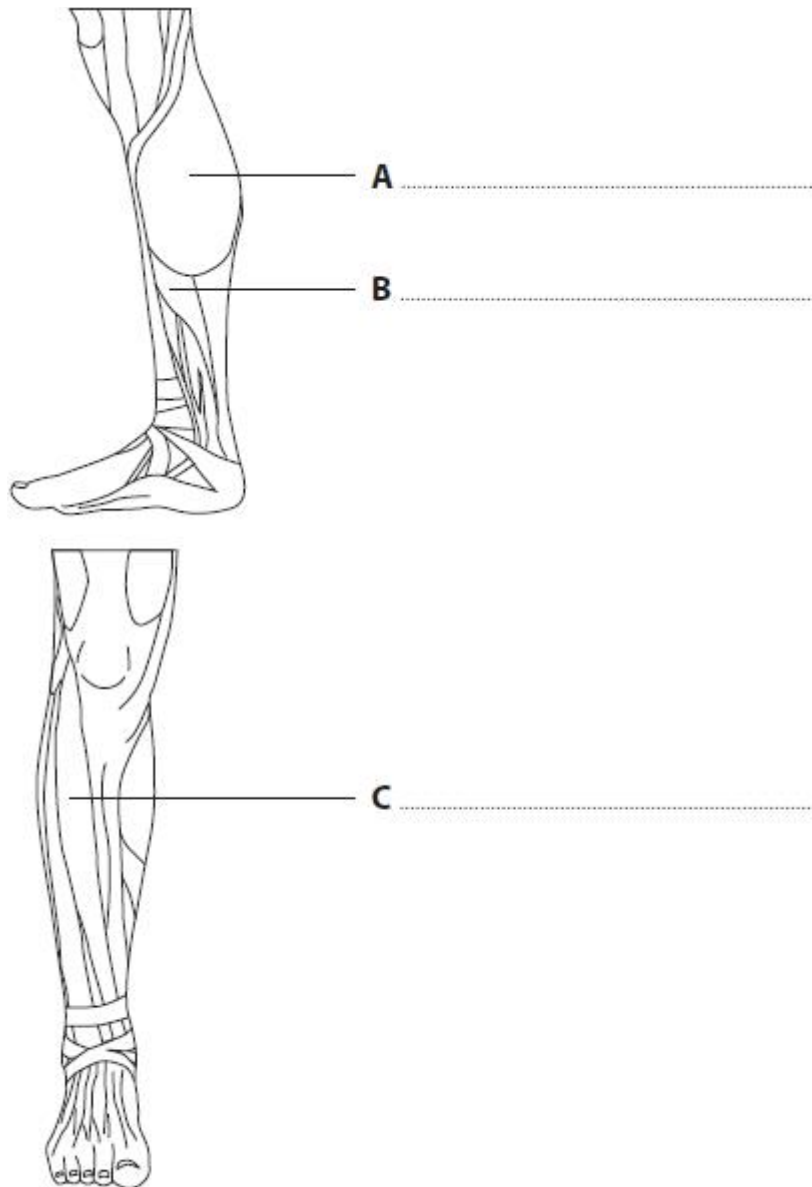


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**Q5.**

**Figure 2** shows the muscles in the lower leg.

Identify the muscles labelled **A–C** in **Figure 2**.



**Figure 2**

**(Total for question = 3 marks)**

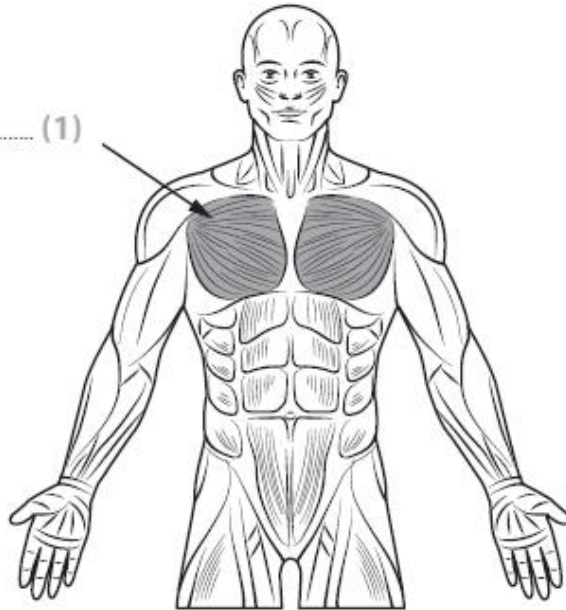
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**Q6.**

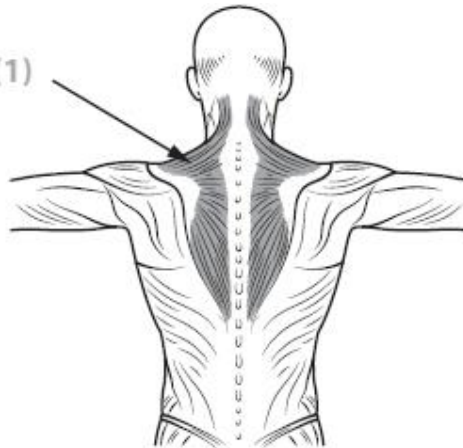
**Figure 2** shows the muscles in the upper body.

Identify the muscles labelled **A-C**.

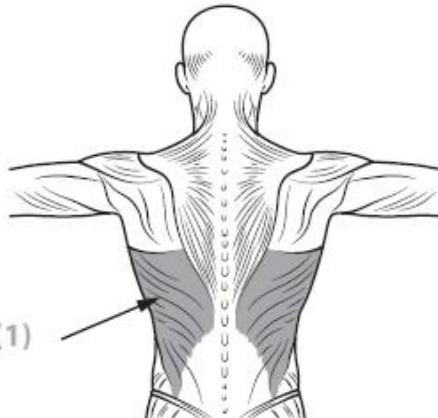
A ..... (1)



B ..... (1)



C ..... (1)



**Figure 2**

(Total for question = 3 marks)

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**Q7.**

**Figure 3** shows an athlete jumping over a hurdle.



**Figure 3**

Complete **Table 2** by

(a) identifying the agonist muscles

(2)

(b) identifying the type of contraction of the agonist for each movement.

(2)

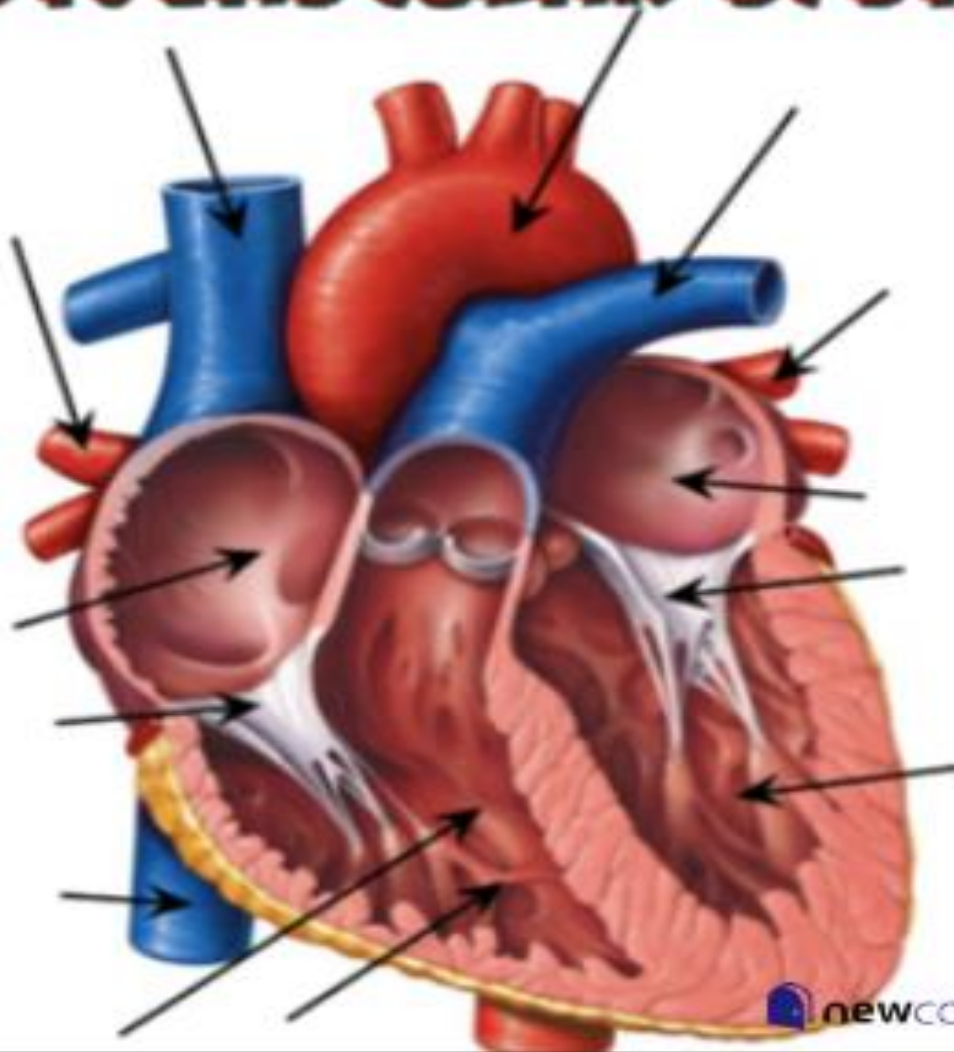
Joint movement	(a) Agonist	(b) Type of contraction
Knee extension (lead leg)		
Knee flexion (trail leg)		

**Table 2**

**(Total for question = 4 marks)**

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# CARDIOVASCULAR SYSTEM



Describe the 5 different types of blood vessel (Arteries, Arterioles, Capillaries, Venules, Veins)

**LABEL THE ABOVE DIAGRAM WITH THE FOLLOWING COMPONENTS:**

atria, ventricles, bicuspid valve, tricuspid valve, aortic valve, pulmonary valve, aorta, vena cava - superior and inferior, pulmonary vein, pulmonary artery



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**Q8.**  
 One characteristic of cardiac muscle is that it is non-fatiguing.  
 State **one other** characteristic of cardiac muscle.

.....

(1)

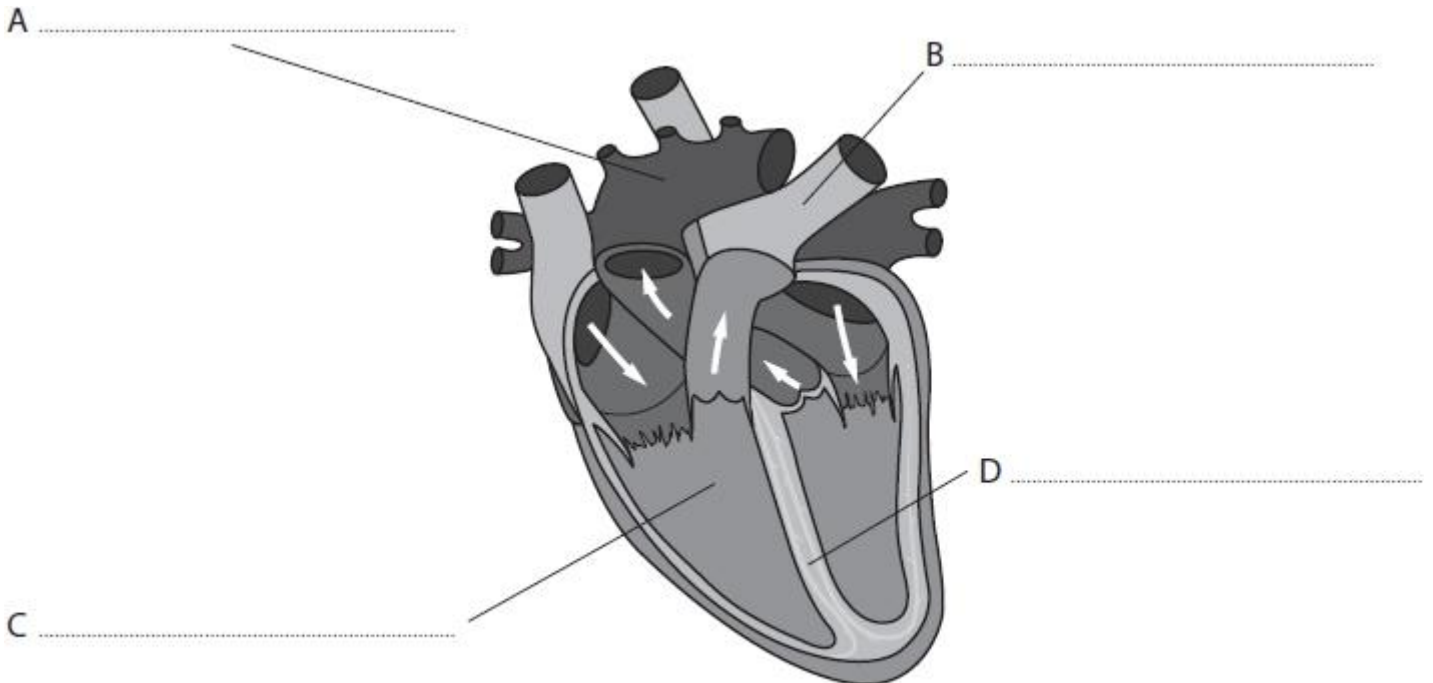
(Total for question = 1 mark)

**Q9.**  
 State the function of the tricuspid valve.

.....  
 .....  
 .....  
 .....

(Total for question = 2 marks)

**Q10.**  
**Figure 3** shows the heart.  
 Identify the structures of the heart labelled **A–D** in **Figure 3**.

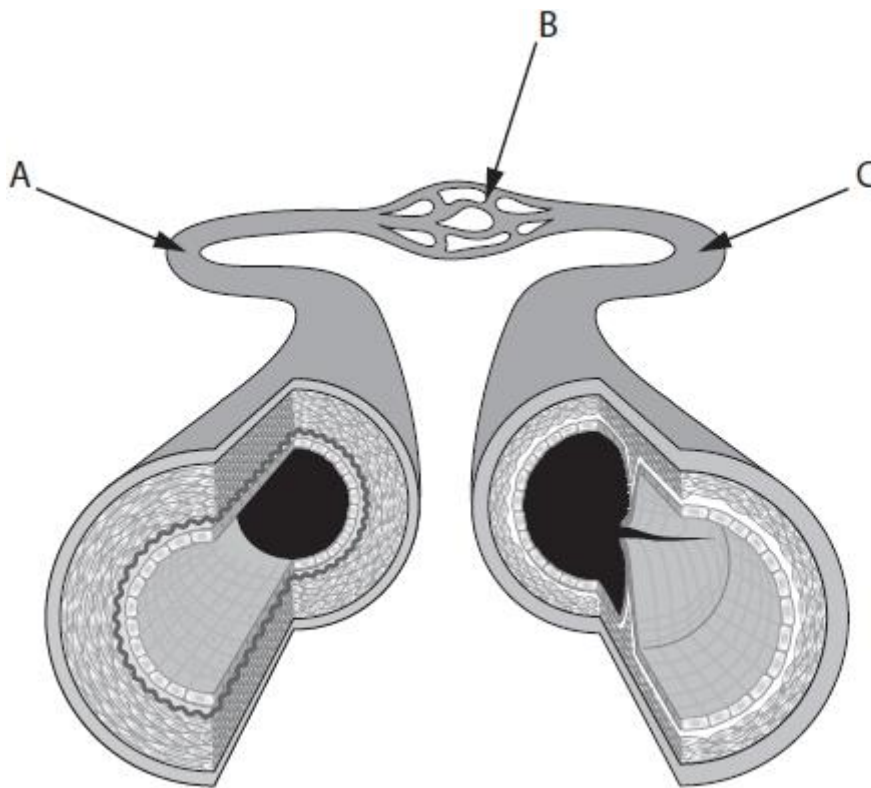


**Figure 3**

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(Total for question = 4 marks)

**Q11.**  
**Figure 2** shows the various types of blood vessel.  
 Name the blood vessels labelled A–C in **Figure 2**.



(Source: © Blamb/Shutterstock)

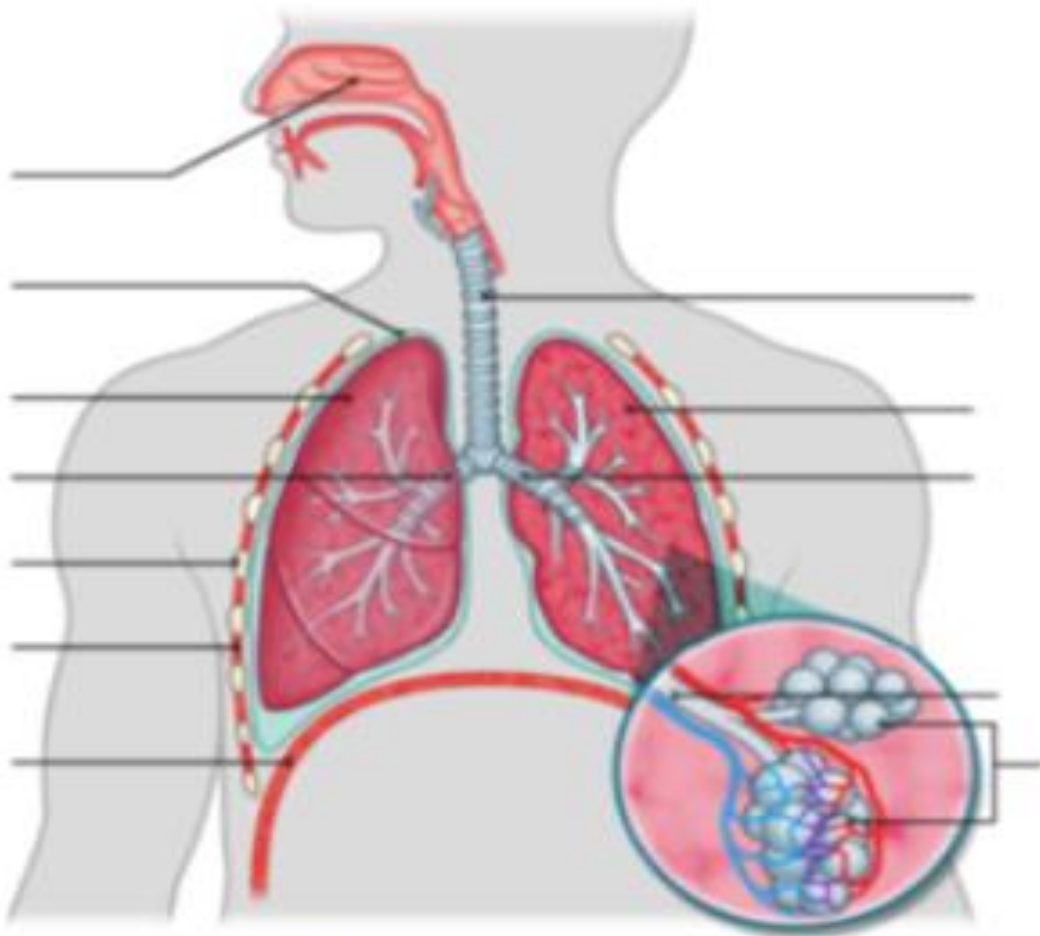
**Figure 2**

- A .....
- B .....
- C .....

(Total for question = 3 marks)

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# RESPIRATORY SYSTEM



**LABEL THE ABOVE DIAGRAM WITH THE FOLLOWING COMPONENTS:**

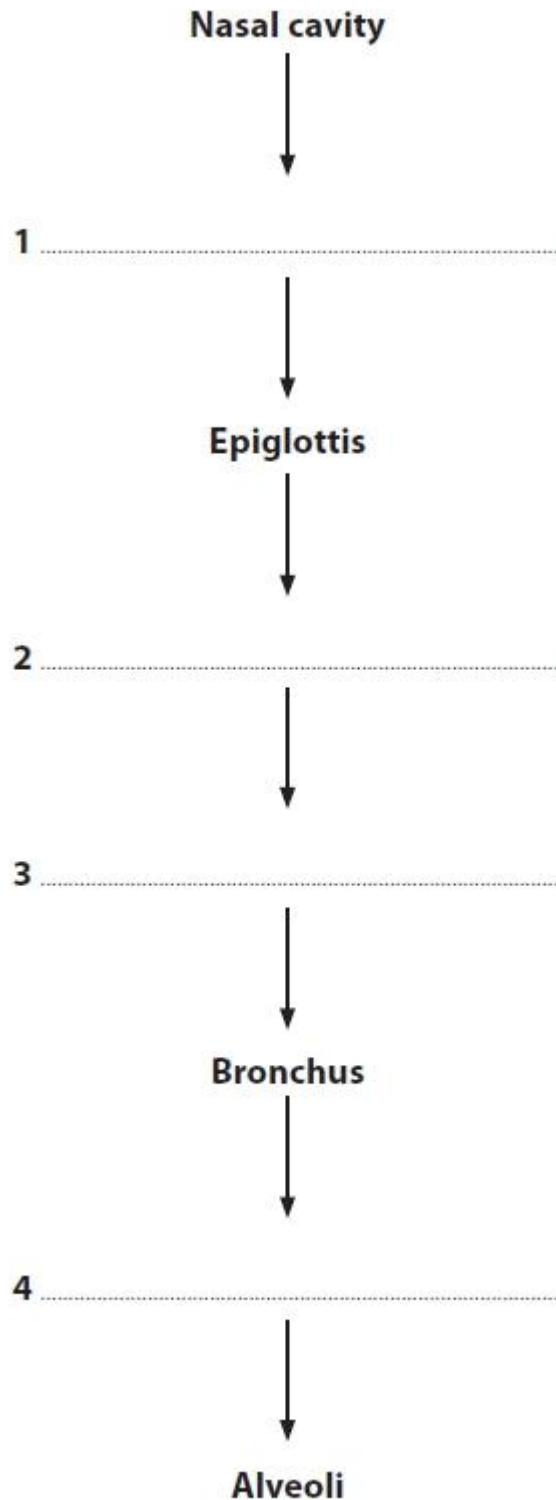
**nasal cavity; epiglottis; pharynx; larynx; trachea; bronchus;  
bronchioles; lungs (lobes, pleural membrane, thoracic cavity,  
visceral pleura, pleural fluid, alveoli); diaphragm; intercostal  
muscles (external and internal)**

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Q12.

**Figure 5** is an incomplete flow diagram of the route that air passes through when travelling from the nasal cavity to the alveoli.

Identify the **four** structures needed to complete the flow diagram shown in **Figure 5**.



**Figure 5**



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(Total for question = 4 marks)

**Q13.**

Name the structures, A–C, described in **Table 1**.

Structure	Description
A .....	A flap of cartilage at the base of the tongue, which prevents food from entering the windpipe.
B .....	Large single tube strengthened by rings of cartilage.
C .....	Tiny airways that carry oxygen to the alveoli.

**Table 1**

(Total for question = 3 marks)

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## Compulsory Task 2

### Creating positive lifestyle habits

Think about members of your family or close friends (four in total) and how you might change one negative factor of their lifestyles. (Do not name them on the worksheet.) What would you change and what would you suggest as an alternative?

Remember to provide a justification for your suggested change (see example below):



Subject	Negative factor	Positive alternative	Justification
	Smoking	Stop smoking and start gentle exercise routine (walk dog twice a day)	Stopping smoking and starting exercise routine will reduce hypertension and risk of CHD

Subject	Negative factor	Positive alternative	Justification
1			
2			
3			
4			

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What do the following terms mean to you...?

**Exercise:** Physical activity requiring effort, carried out to sustain or improve health and fitness...

**Health:** A complete state of social, physical & mental well-being with the absence of illness / injury.

**Lifestyle:** The way in which a person lives, influenced by a number of factors...

## Diet Poster Task:

Create a poster explaining the below points about diet...!!!

- Define diet
- Calorie recommendations (why males and females are different)
- 5-a-day (why a different 5?) Why eat fruit & veg?
  - E.g vitamins and minerals
- Food groups (job of each one + a food e.g.) + Water consumption!!!
- Why different people need different diets (compare 2 people)
- Diet effects:
  - A good diet leads to...? (x5 explained points)
  - A poor diet leads to...? (x5 explained points)
- Images



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**Strongly Recommended Task:**

Watch 6 and read 4 and complete the tasks as outlined below in the green box:

**OCR A LEVEL PHYSICAL EDUCATION  
 DEVELOP YOUR KNOWLEDGE OF SPORTING CONTEXT IN  
 PREPARATION FOR YOUR 2 YEAR COURSE**



Books to Read

<i>The English Game</i> (Sport and Society)		<input type="checkbox"/>
<i>Unstoppable</i> (Sport Psychology)		<input type="checkbox"/>
<i>Icarus</i> (Drugs/Performance)		<input type="checkbox"/>
<i>Stop at Nothing</i> (Doping in Sport)		<input type="checkbox"/>
<i>Coach Carter</i> (Sport Psychology)		<input type="checkbox"/>
<i>The Game Changers</i> (Diet and Nutrition)		<input type="checkbox"/>
<i>Supersize Me</i> (Diet and Nutrition)		<input type="checkbox"/>
<i>Blindside</i> (American Football)		<input type="checkbox"/>
<i>Last Chance U</i> (American Football)		<input type="checkbox"/>
<i>The Last Dance</i> (Michael Jordan)		<input type="checkbox"/>
<i>Losers</i> (Adversity in Sport)		<input type="checkbox"/>
<i>Moneyball</i>		<input type="checkbox"/>
<i>Formula 1 Drive to Survive</i>		<input type="checkbox"/>

<i>All or Nothing</i> Manchester City		<input type="checkbox"/>
<i>All or Nothing</i> New Zealand All Blacks		<input type="checkbox"/>
<i>This is Football</i>		<input type="checkbox"/>
<i>4 Minute Mile</i>		<input type="checkbox"/>
<i>The Program</i> (Lance Armstrong)		<input type="checkbox"/>
<i>Andy Murray - Resurfacing</i> (Injury Rehabilitation)		<input type="checkbox"/>
<i>Dan Carter - Perfect</i>		<input type="checkbox"/>
<i>The Unknown Runner</i>		<input type="checkbox"/>
<i>The Race to Dope</i> (Doping System in Sport)		<input type="checkbox"/>
<i>Muscle and Medals</i>		<input type="checkbox"/>

<i>Subscribe to the Body Coach</i> (Joe Wicks) (Types of Training/Nutrition)	<input type="checkbox"/>	
<i>Kobe Bryant</i> <i>Black Mamba Doc</i>		<input type="checkbox"/>
<i>Being Serena</i> <i>Series</i>		<input type="checkbox"/>
<i>"Is Professionalism Killing Sport"</i> BBC Documentary	<input type="checkbox"/>	
<i>The Psychology of a Winner 2020</i> Documentary	<input type="checkbox"/>	
<i>Trent Alexander Arnold</i> <i>Living the Dream</i>		<input type="checkbox"/>
<i>Tyson Fury</i> <i>Road to Redemption</i>		<input type="checkbox"/>
<i>Crossing The Line</i> Australian Cricket		<input type="checkbox"/>
<i>Jurgen Klopp</i> <i>Journey to Top</i>		<input type="checkbox"/>
<i>Strive for Greatness</i> Lebron James		<input type="checkbox"/>

- Shoe Dog - Phil Knight*  
*History/Story of Nike*
- Bounce - Matthew Syed*  
*Neuroscience/Psychology*
- Black box thinking*  
*Matthew Syed*  
*Psychology*
- Unbeatable - Jessica*  
*Ennis*
- No Limits - Michael Phelps*
- My Time - Bradley Wiggins*
- Between the lines -*  
*Victoria Pendleton*
- Legacy - James Kerr*  
*All Blacks (New Zealand Rugby)*
- The Secret Race - Tyler*  
*Hamilton and Daniel Coyle*  
*Drugs/Energy Systems/Deviance*

Keep up to date with all the latest news in the world of sport, there is always something happening that links to the course.....

Choose 2 from the lists above and write a report (minimum 1 xA4 for each) which;  
 (A01) Describes an overview of the Video/Book  
 (A02) Explains the relationship between the video/book and your OCR A level PE Specification  
 (A03) Analyses the video/book and discuss your opinion and conclusion  
 Tick the boxes of the ones you are completing. Feel free to watch as many as you want if you have time

Compulsory Task:



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**Compulsory task 3**

Mark your answers and add the corrections in a different colour pen. Self assessment task:

**Mark Scheme**

Q1.

Question Number	Answer	Mark
	<p>Award <b>one</b> mark for labelling each bone correctly.</p> <ul style="list-style-type: none"> <li>• A – Clavicle (1) (DNA collarbone)</li> <li>• B – Sternum (1) (DNA breastbone)</li> <li>• C – Ribs/Rib Cage (1)</li> </ul> <p><b>Accept phonetic spelling.</b></p> <ul style="list-style-type: none"> <li>• *DNA = Do not accept</li> </ul>	3

Q2.

Question Number	Answer	Mark
	<p>Award <b>one</b> mark for correctly labelling each region.</p> <ul style="list-style-type: none"> <li>• B - Thoracic</li> <li>• E - Coccyx</li> </ul>	2

Q3.

Question Number	Answer	Mark
	<p>Award <b>one</b> mark for identifying each correct region of the vertebral column, up to a maximum of <b>two</b> marks.</p> <p>A - Cervical C - Lumbar</p> <p>Accept phonetic spelling.</p>	2

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Q4.

Question Number	Answer	Mark
	<p>Award <b>one</b> mark for identifying each muscle, up to a maximum of <b>two</b> marks.</p> <p>A - Gluteals B - Gastrocnemius</p> <p>Accept phonetic spelling.</p>	2

Q5.

Question Number	Answer	Mark
	<p>Award <b>one</b> mark for labelling each muscle correctly.</p> <ul style="list-style-type: none"> <li>• A – Gastrocnemius (1) (DNA Calf)</li> <li>• B – Soleus (1)</li> <li>• C – Tibialis anterior/Tibialis ant (1)</li> </ul> <p>Accept phonetic spelling. *DNA = Do not accept</p>	3

Q6.

Question Number	Answer	Mark
	<p>Award <b>one</b> mark for labelling each muscle correctly.</p> <ul style="list-style-type: none"> <li>• A – Pectorals/Pectoralis/Pectoralis Major/Pectorialis Minor (1) (DNA Pecs)</li> <li>• B – Trapezius (1) (DNA Traps)</li> <li>• C – Latissimus dorsi (1) (DNA Lats)</li> </ul> <p><b>Accept phonetic spelling.</b> *DNA = Do not accept</p>	3

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Q7.

Question Number	Answer	Mark									
(a) & (b)	<p>Award <b>one</b> mark for each identification of an agonist muscle, up to a total of <b>two</b> marks.</p> <p>Award <b>one</b> mark for each identification of a type of contraction, up to a total of <b>two</b> marks.</p> <table border="1"> <thead> <tr> <th>Joint movement</th> <th>(a) Agonist</th> <th>(b) Type of contraction</th> </tr> </thead> <tbody> <tr> <td>Knee extension (lead leg)</td> <td>Quadriceps</td> <td>Concentric</td> </tr> <tr> <td>Knee flexion (trail leg)</td> <td>Hamstrings</td> <td>Concentric</td> </tr> </tbody> </table> <p>Accept phonetic spelling. DNA abbreviated versions of the muscle.</p>	Joint movement	(a) Agonist	(b) Type of contraction	Knee extension (lead leg)	Quadriceps	Concentric	Knee flexion (trail leg)	Hamstrings	Concentric	2 + 2
Joint movement	(a) Agonist	(b) Type of contraction									
Knee extension (lead leg)	Quadriceps	Concentric									
Knee flexion (trail leg)	Hamstrings	Concentric									

Q8.

Question Number	Answer	Mark
	<p>Award <b>one</b> mark for identification of a characteristic of cardiac muscle</p> <ul style="list-style-type: none"> <li>Cardiac muscle is involuntary (1)</li> </ul> <p>Accept any other appropriate answer.</p>	1

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Q9.

Question Number	Answer	Mark
	<p>Award <b>one</b> mark for stating the function of the tricuspid valve for a maximum <b>two</b> marks.</p> <ul style="list-style-type: none"> <li>Control blood flow between the <b>right</b> atrium and <b>right</b> ventricle/controls blood flow on the <b>right</b>-hand side of the heart (1) and prevent backflow (1)</li> </ul>	2

Q10.

Question Number	Answer	Mark
	<p>Award <b>one</b> mark for labelling each structure of the heart correctly.</p> <ul style="list-style-type: none"> <li>A – Aorta (1)</li> <li>B – Pulmonary artery/PA (1)</li> <li>C – Right ventricle/RV (1)</li> <li>D – Septum (1)</li> </ul> <p>Accept phonetic spelling.</p>	4

Q11.

Question Number	Answer	Mark
	<p>Award <b>one</b> mark for naming each of the blood vessels correctly.</p> <ul style="list-style-type: none"> <li>Artery/Arteriole – A</li> <li>Capillary – B</li> <li>Venule/Vein – C</li> </ul> <p>Accept specific examples (e.g. Pulmonary Artery/Pulmonary Vein)</p>	3

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Q12.

Question Number	Answer	Mark
	<p>Award <b>one</b> mark for labelling each respiratory structure correctly.</p> <ul style="list-style-type: none"> <li>• 1- Pharynx</li> <li>• 2- Larynx</li> <li>• 3- Trachea (DNA Windpipe)</li> <li>• 4- Bronchioles</li> </ul> <p>Accept phonetic spelling. *DNA = Do not accept</p>	4

Q13.

Question Number	Answer	Mark
	<p>Award <b>one</b> mark for naming each structure.</p> <ul style="list-style-type: none"> <li>• Epiglottis – A</li> <li>• Trachea – B</li> <li>• Bronchioles – C</li> </ul>	3



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