Examiners' Report
Lead Examiner Feedback

January 2021

Pearson BTEC Nationals
In Sport and Exercise Science (31814H)
Unit 2: Functional Anatomy

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Introduction

This is the seventh series of external examinations with regards to the new specification. Centres and learners should be acknowledged for their preparation.

Overall, most learners were prepared and knowledgeable on various content from the specification for this assessment

The paper was divided into 12 questions. The questions were designed to progress from the lowest number of marks gained to the highest marks, in order to develop learner confidence whilst progressing through the paper. Questions 1 – 9 allowed learners to address questions from 2 to 6 marks, whilst question 10 to 12 ranged from 8 to 14 marks; requiring an extended response from the learners.

Each question was based on functional anatomy, allowing the learner to demonstrate knowledge and understanding of a range of specification content. Questions 1 to 10 generally addressed sections A to E of the specification; whilst questions 11 and 12 allowed the learner to demonstrate their knowledge and understanding of the interrelationships of the muscular and skeletal systems in movement analysis.

Questions 1 to 9 on the paper were assessed using a traditional points-based approach, where a mark was given for each appropriate point (more information can be found below in the individual question section of the report).

Questions 10 to 12 required an extended response, and these were marked using a 'levels based' approach to assessment where the overall quality of the response was considered rather than number of facts stated alone.

Individual Questions

The following section considers each question on the paper, providing examples of learner responses and a brief commentary of why the responses gained the marks they did. This section should be considered with the live external assessment and corresponding mark scheme.

Q1

This was an accessible question with the vast majority of learners achieving both marks for naming two other bones in the foot.

Answer ALL questions. Write your answers in the space provided.

The calcaneus is a bone in the foot.

1 Name **two other** bones in the foot.

1 [redacted] phalanges

2 Metatarsals

(Total for Question 1 = 2 marks)

This response gained 2 marks
Two other bones were accurately named.

Some learners would state the names of bones in the lower leg or the named bones located in the hands; carpals and metacarpals which received no credit.

Answer ALL questions. Write your answers in the space provided.

The calcaneus is a bone in the foot.

1 Name **two other** bones in the foot.

1 tarsals

2 [redacted] tibia

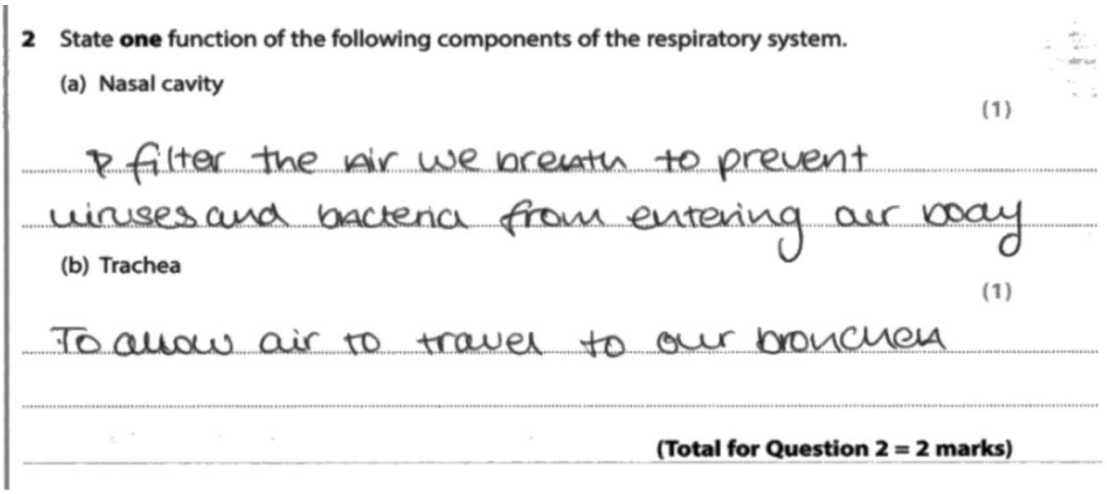
(Total for Question 1 = 2 marks)

This response gained 1 mark
Tarsals were accurately named. There was no credit for tibia as the question was specific to bones in the foot.

Q2(a)
The responses for this had a largely consistent approach. A proportion of learners were confident in stating the function of the nasal cavity.

Q2(b)

The responses for this had a had a more consistent approach. A high proportion of learners were confident in stating the function of the trachea as providing direction for air into the bronchi.



2 State **one** function of the following components of the respiratory system.

(a) Nasal cavity

(1)

to filter the air we breath to prevent viruses and bacteria from entering our body

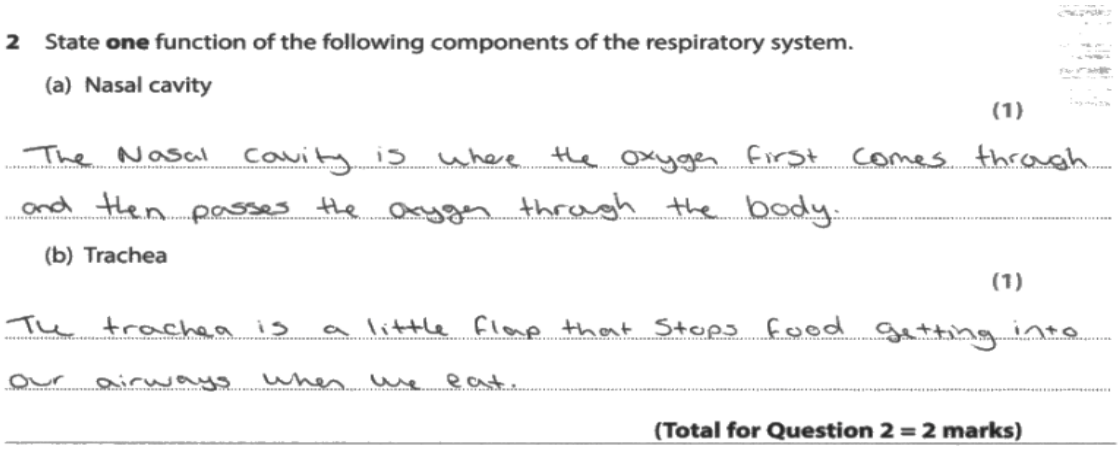
(b) Trachea

(1)

To allow air to travel to our bronchea

(Total for Question 2 = 2 marks)

This response gained 2 marks



2 State **one** function of the following components of the respiratory system.

(a) Nasal cavity

(1)

The Nasal cavity is where the oxygen first comes through and then passes the oxygen through the body.

(b) Trachea

(1)

The trachea is a little flap that stops food getting into our airways when we eat.

(Total for Question 2 = 2 marks)

This response gained 0 marks

This is evidence of some of the responses seen and receiving no credit. Occasionally, learners would state the nasal cavity being the first part of inspiration. This is a response about the structure and not the function. On a few occasions, there was confusion between the trachea and epiglottis as evidenced here.

Q3.

This question assesses an area of D1 that learners will have only seen assessed once in a previous series. It is worth noting to all centres that all areas of the unit content can be assessed within this examination. The question was not attempted by a high proportion of learners, despite being placed in a table format.

The learners who achieved two marks were able to correctly identify the bony landmark from the description.

Bony landmarks are features of a bone.

3 Identify the bony landmarks from the descriptions in **Table 1**. An example has been given.

Description	Bony landmark
Projection of a bone to provide a site for muscle attachment	Tuberosity
A shallow dip in the bone	1 Fossa
The round prominence at the end of the bone	2 Condayle

Table 1

(Total for Question 3 = 2 marks)

This response gained 2 marks.

Q4.
This was an accessible question and examined a frequently assessed area. It also used a table format to allow learners to demonstrate knowledge of muscle fibre types and link the specific characteristic of myoglobin content. For each fibre type an associated level of myoglobin content was required.

Table 2 shows an example of a muscle fibre type and its myoglobin content.

4 State **two other** muscle fibre types **and** the myoglobin content of each fibre type.

Muscle fibre type	Myoglobin content
Type I	High
Type 2a	Medium
Type 2c	low

Table 2

(Total for Question 4 = 4 marks)

This response gained 4 marks.
The learner accurately states Type IIa and IIx (using a '2' and a 'b' instead of x were acceptable) and the accurate amount of myoglobin content as per the mark scheme.

Table 2 shows an example of a muscle fibre type and its myoglobin content.

4 State **two other** muscle fibre types **and** the myoglobin content of each fibre type.

Muscle fibre type	Myoglobin content
Type I	High
type 2	medium
type 2b	low

Table 2

(Total for Question 4 = 4 marks)

This response gained 2 marks

This is evidence of the common error made in this question. Type 2 is an incorrect muscle fibre type and therefore the linked myoglobin content was not awarded. Type 2 b and low are correct as per the mark scheme. There was an array of muscle fibre types seen.

Q5

This question asked learners to explain how blood cells transport oxygen.

The command word was 'explain' so the response required by the learners was to provide linked explained points, that the red blood cells transport oxygen as they contain haemoglobin and when oxygen is being transported, it is so as oxyhaemoglobin.

Some learners provided explanations about the shape and surface area of red blood cells. This was accurate as it accurately links to role of oxygen transportation.

5 Explain how blood cells transport oxygen.

Red blood cells are responsible for carrying oxygen in the form of oxyhaemaglobin (oxygen combined to haemaglobin) to the respiring muscles and/or via diffusion. Red blood cells are flat c/disc shaped to allow for a large surface area to carry more oxygen

(Total for Question 5 = 3 marks)

This response gained 3 marks.

This response demonstrates the two approaches chosen by learners. Approach 1 was the most commonly used. This was explaining the role of haemoglobin inside the red blood cells. Approach 2 was linking red blood cells to having a large surface area for oxygen due to their biconcave disc shape. Both approaches, if linked correctly would achieve full credit.

5 Explain how blood cells transport oxygen.

Red blood cells transport oxygen. They contain haemoglobin which binds to the oxygen and takes it around the body.

(Total for Question 5 = 3 marks)

This response gained 2 marks

This is further evidence of approach 1. The learner has linked red blood cells and haemoglobin for 2 marks.

5 Explain how blood cells transport oxygen.

Red blood cells transport oxygen throughout the body. They recieve oxygen when they are pumped through the heart. This blood is then transported throug the body to all working muscles via veins etc.

(Total for Question 5 = 3 marks)

This response gained 1 mark

This demonstrates an approach which did not gain credit. It was an approach whereby learners would link oxygen transport with the functions of the heart or gaseous exchange at the lungs. This learner did correctly identify the type of blood cell to access 1 mark.

Q6a

This question was a relatively highly accessible question and assessed learners' knowledge and understanding of the structures within a synovial joint.

Figure 1 shows the synovial joint at the knee.

6 (a) Name the joint structures labelled **A**, **B** and **C**.

(3)

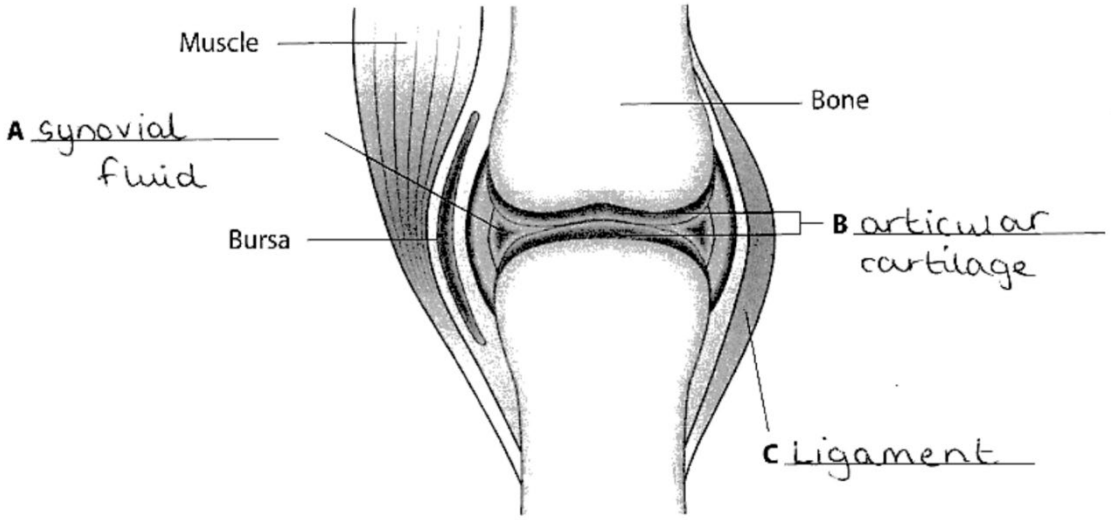
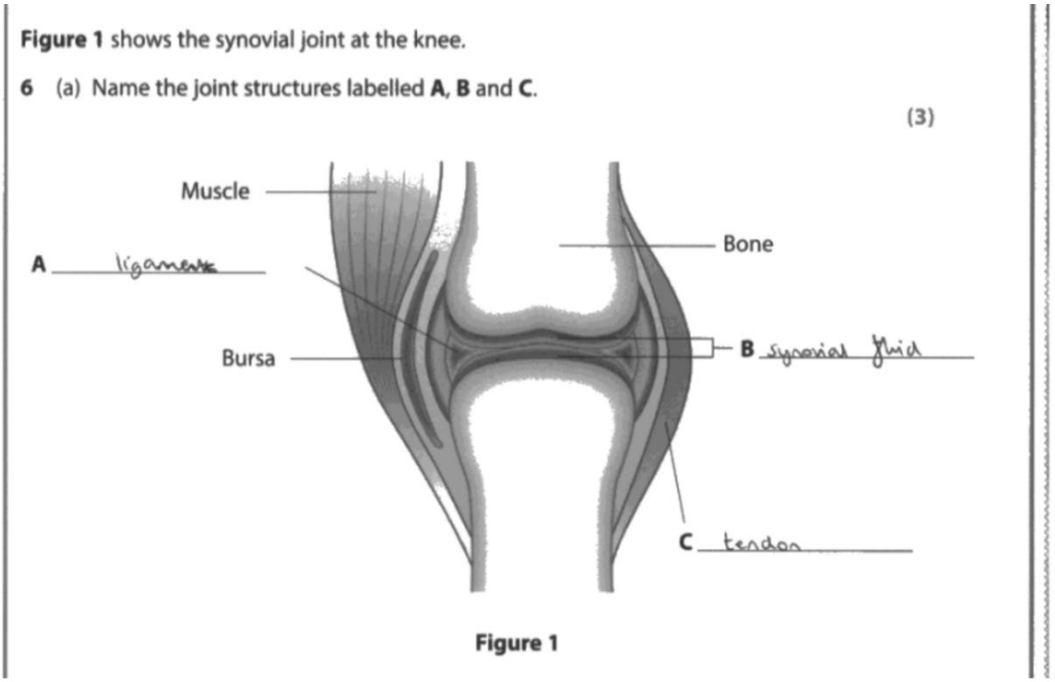


Figure 1

This response gained 3 marks

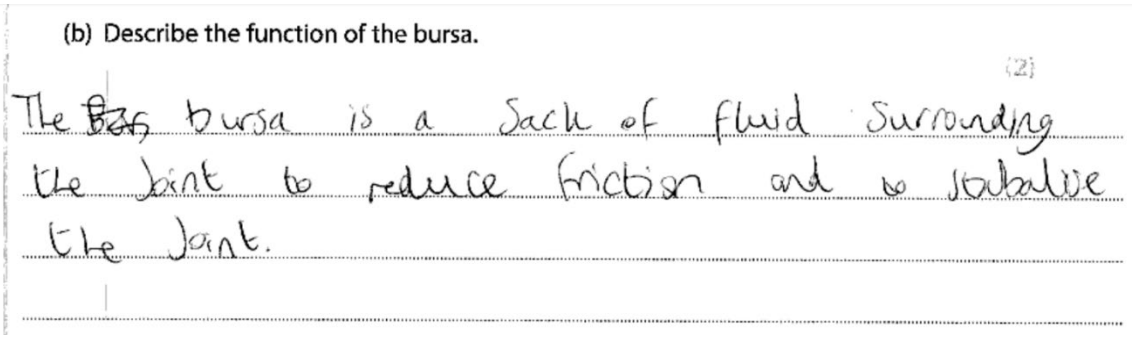
All 3 components have been labelled correctly.



This response gained 0 marks
The components are incorrectly labelled. This does also evidence a common mistake, where learners would identify C as a tendon, rather than the ligament.

Q6b
This question was linked to the structure of synovial joints and assessed learners' knowledge of the function of the bursa, as labelled in question 6a.

The command verb is 'describe'. Therefore, to achieve full marks, learners are required to identify the function and expand their answer with a linked descriptive point. The function of 'reducing friction' was often mistaken with supporting or protecting the joint. Both of these terms were too generic to receive credit.



This response gained 2 marks
This learner has accessed both marking points; a sack of fluid (1) to reduce friction (1)

(b) Describe the function of the bursa. (2)

Protects the joints and bones and it also allows movement

(Total for Question 6 = 5 marks)

This response gained 0 marks

This is very typical of the type of response seen for this question. The learner described the function as 'protection'. Occasionally, learner would also allude to 'allowing movement' as seen here too. This is all too vague and did not receive any credit.

Q7

This question showed an image of a female holding a high plank position. Learners were asked to explain the type of muscle contraction used to hold this position.

The response required by the learners was to identify the muscle contraction and then provide two additional and linked explanatory points, the muscle being under tension but not changing length.

Some Learners would explain in their responses that there was no movement, or the movement was static. This was not creditworthy as the question included holding the position.

Figure 2

7 Explain the type of muscle contraction used to hold a plank position.

Holding a plank position is an isometric contraction An isometric contraction occurs when there is tension in the muscles but the muscles are not changing in length. It is a static movement

(Total for Question 7 = 3 marks)

This response gained all 3 marks

This was typical of those learners accessing full marks on this question. They identified the correct muscle contraction (1) and provided two linked points; occurs

when there is tension in the muscles (1) but are not changing length (1). Some learners would refer to not shortening or lengthening. Both of which also received credit.

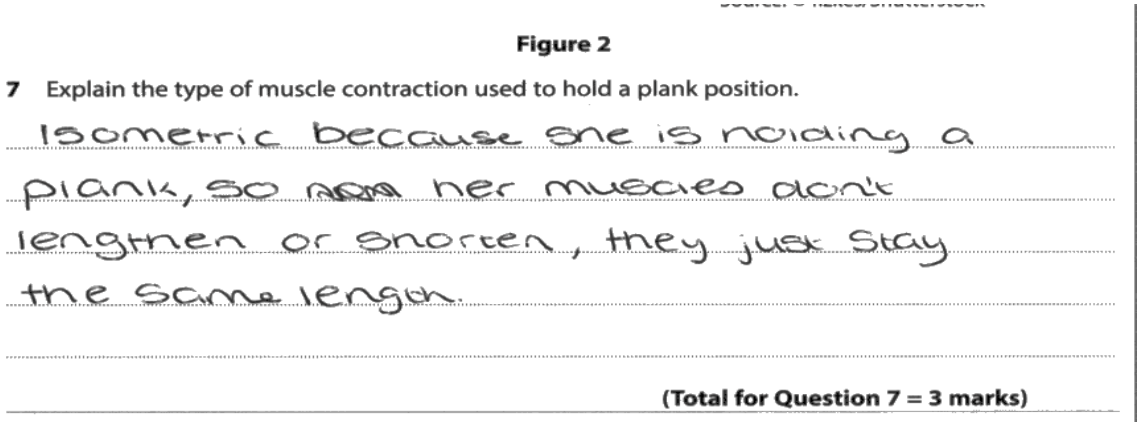


Figure 2

7 Explain the type of muscle contraction used to hold a plank position.

Isometric because she is holding a plank, so her muscles don't lengthen or shorten, they just stay the same length.

(Total for Question 7 = 3 marks)

This response gained 2 marks

The learner identifies the correct muscle contraction and links the contraction to muscles not changing in length,

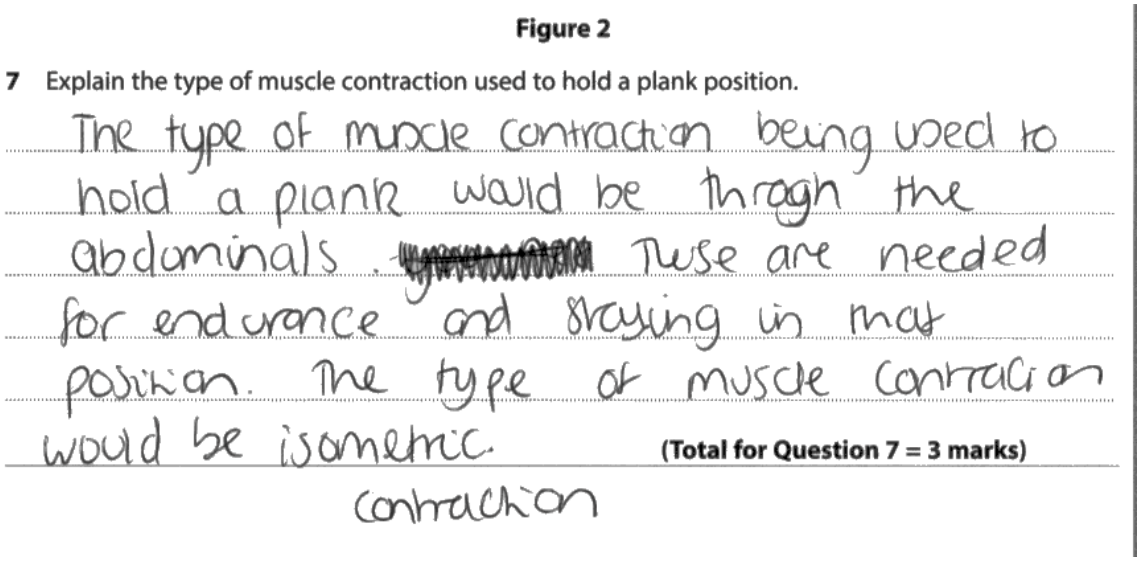


Figure 2

7 Explain the type of muscle contraction used to hold a plank position.

The type of muscle contraction being used to hold a plank would be thrugh the abdominals. These are needed for endurance and staying in that position. The type of muscle contraction would be isometric. contraction

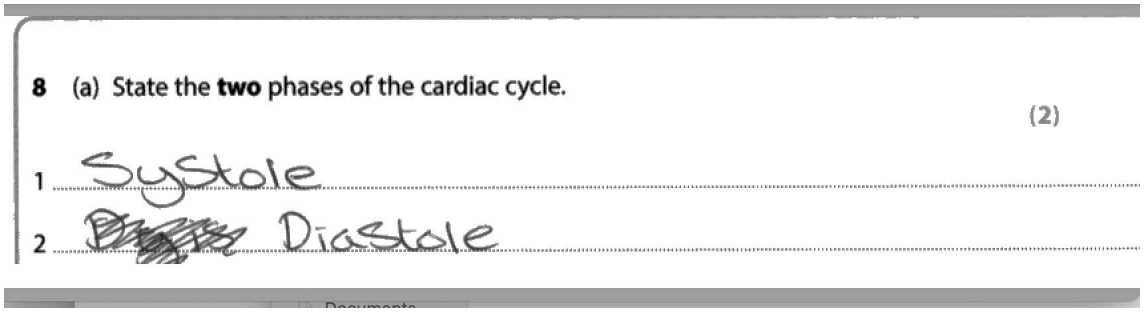
(Total for Question 7 = 3 marks)

This response gained 1 mark

This learner was able to identify isometric muscle contraction.

Q8a

This question was assessed learners' understanding of the two phases of the cardiac cycle. The majority of learners answered accurately. There was some confusion between pulmonary and systemic.


8 (a) State the **two** phases of the cardiac cycle.

(2)

1 Systole

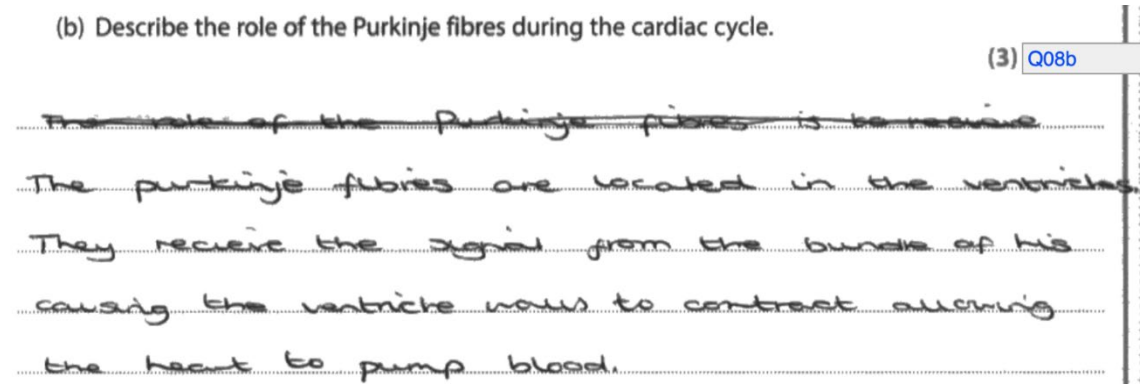
2 Diastole

This response gained 2 marks

Q8b

The command verb for this question is describe. Consequently, in order to gain full marks, learners should provide a logical description of role of the Purkinje fibres during the cardiac cycle.

This question was designed to be accessible but with sufficient scope to stretch and challenge learners to apply their knowledge and understanding of this part of the unit content. There were some excellent answers. However, the responses to this question were varied and on occasions completely left. On the whole, a confident application of the Purkinje fibres role in the process of ventricular contraction was evident in this question.


(b) Describe the role of the Purkinje fibres during the cardiac cycle.

(3) Q08b

~~The role of the Purkinje fibres is to receive~~

The purkinje fibres are located in the ventricles.

They recieve the signal from the bundle of his

causing the ventricle walls to contract allowing

the heart to pump blood.

This response gained 3 marks

This learner shows that the fibres are located in the ventricles (1) and carry a signal (1) from the bundle of His (1). There was an interchangeable nature of the responses within the mark scheme and had the learner missed one of the above the last part of the response; causing the ventricle walls to contract (1) would also be creditworthy

(b) Describe the role of the Purkinje fibres during the cardiac cycle.

(3)

Purkinje fibres are located in the walls of the ventricles. ~~Those~~ Purkinje fibres are important as they cause the ventricles to contract and push blood out of the heart. When they ~~do~~ the heart ventricles ~~can~~ relaxes, this is ~~then~~ diastole and means the heart fills up with blood.

(Total for Question 8 = 5 marks)

This response gained 2 marks.
This response also demonstrates some application from an interchangeable mark scheme. The learner shows understanding of the location of the fibres and (1) their role in contraction of the ventricles (1).

Q9

Diffusion and gaseous exchange are areas of the specification frequently assessed. However, in this particular question learners were asked to describe the process, with particular focus on **removal** of carbon dioxide **at the** working muscles.

There was a continuum of answers. In summary the question was always attempted but learners would appear to revert to a default answer about how carbon dioxide is removed through the process of expiration or diffusion once it arrives at the lungs.

At pass level, learners would accurately identify the process of diffusion/gaseous exchange and were credited for naming the correct process.

Carbon dioxide is a waste product produced by the working muscles during exercise.

9 Describe the process of removing carbon dioxide from the working muscles.

Diffusion / ~~gas gaseous exchange allows~~ means the the High concentration of & Carbon dioxide in the muscles Moves into the & blood vessels which have a low CO_2 concentration This is called a concentration gradient. The gases ~~it~~ ~~it~~ diffuse into & the cappillaries which is possible due to their semi-permeable membrane / 1 cell thick wall. CO_2 is the taken to the lungs by the blood, and is the exhaled out of the body.

(Total for Question 9 = 4 marks)

This response gained 4 marks

The response has started with the process of diffusion (1), accompanied with an accurate description of the concentration of carbon dioxide in both the muscles and the blood (1), and how this creates a concentration gradient (1) and the gas moves into the blood (1).

Carbon dioxide is a waste product produced by the working muscles during exercise. Q09

9 Describe the process of removing carbon dioxide from the working muscles.

Carbon dioxide diffuses from the muscles into the blood in the capillaries as there is a high concentration in the muscles and a low concentration in the capillaries. The carbon dioxide is dissolved as carbonic acid and carried in the plasma. As capillaries have semi-permeable cell membranes gasses such as carbon dioxide are allowed through ~~but~~ The capillaries the transport the deoxygenated blood to the ~~The capillaries store a cell membrane with the muscles, carbon dioxide is then sent to the veins and goes~~ venules,

(Total for Question 9 = 4 marks) Q09_Total

This response gained 4 marks

The response shows an alternative approach. It started with the process of diffusion (1), movement into the blood (1) accompanied with an accurate description of the concentration of carbon dioxide in <u>both</u> the muscles and the blood (capillaries) (1), and how the carbon dioxide if then dissolved as carbonic acid (1).

Carbon dioxide is a waste product produced by the working muscles during exercise.

9 Describe the process of removing carbon dioxide from the working muscles.

The process of removing carbon dioxide is when ~~the~~ Gaseous exchange occurs. The diffusion from a high to low concentration allows carbon dioxide to pass through into veins. ~~which~~ This then brings the carbon dioxide up through the heart & and into the lungs to be expelled.

(Total for Question 9 = 4 marks)

This response gained 1 mark

This response is very typical of responses achieving just 1 mark. Learners would show an understanding of gaseous exchange (1). In this instance, a second marking point is not awarded as it is unclear the location of the high and low concentration. A high proportion of learners would refer to veins. This is inaccurate as capillaries and venules are the first blood vessels to be passed by carbon dioxide. It also evident here about descriptions linked to venous return to the heart and a process occurring at the lungs to expel the carbon dioxide. Neither were creditworthy as the question was focussing on the working muscles.

Q10

Responses to extended answer questions are marked using levels-based mark schemes, with the quality of the response determining the level. There are four levels; level 0 where there is no rewardable material presented and then levels 1, 2 and 3; the higher the level the better the quality of response.

This question uses the command verb analyse. This requires learners to examine a topic in detail, breaking it down into its component parts and explaining how each part contributes to the other, and in this instance allows participation in sport and physical activity.

The question asks learners to analyse three **other** functions of the skeletal system as three were stated in the rider statement of the question: supporting framework, movement and blood cell production.

The skeletal system has a number of functions that support participation in sport and exercise activities. These functions include providing a **supporting framework**, producing **movement** and **blood cell production**.

10 Analyse **three other** functions of the skeletal system to support participation in sport and exercise activities.

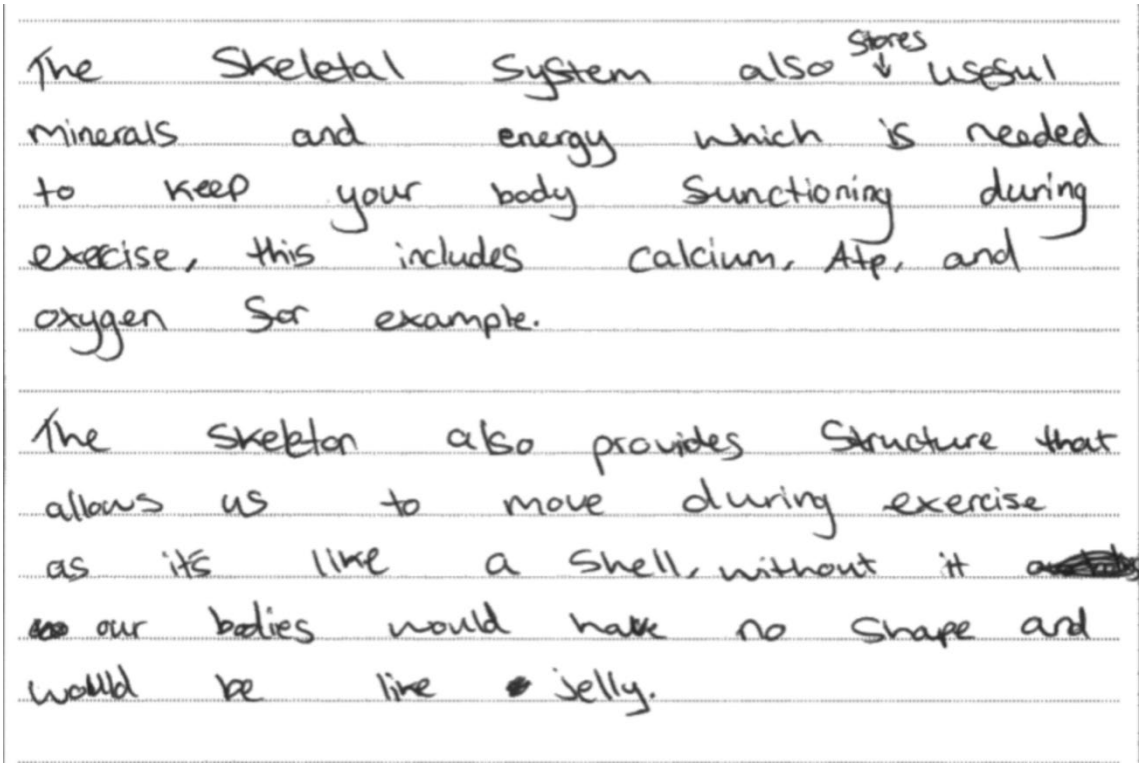
(8)

There were few learners who attempted the question analysing those functions and were not credited as they had already been stated in the question. However, there were some excellent answers, breaking down in accurate detail with a relevant description the three other functions from the unit content: protection, attachment of skeletal muscle and mineral storage.

The link to supporting participation in sport and exercise activities and/or the depth of analysis for mineral storage and skeletal muscle attachment is where differentiation between level 2 and level 3 responses occurred.

This was typical of a level 1 response.

The skeletal system protects vital organs such as the brain, lungs, and heart by acting as a casing. This prevents damage or injury to these organs keeping your body functioning, eg during a rugby game is tackled your lungs could be punctured, the skeleton prevents this and other injuries during exercise.



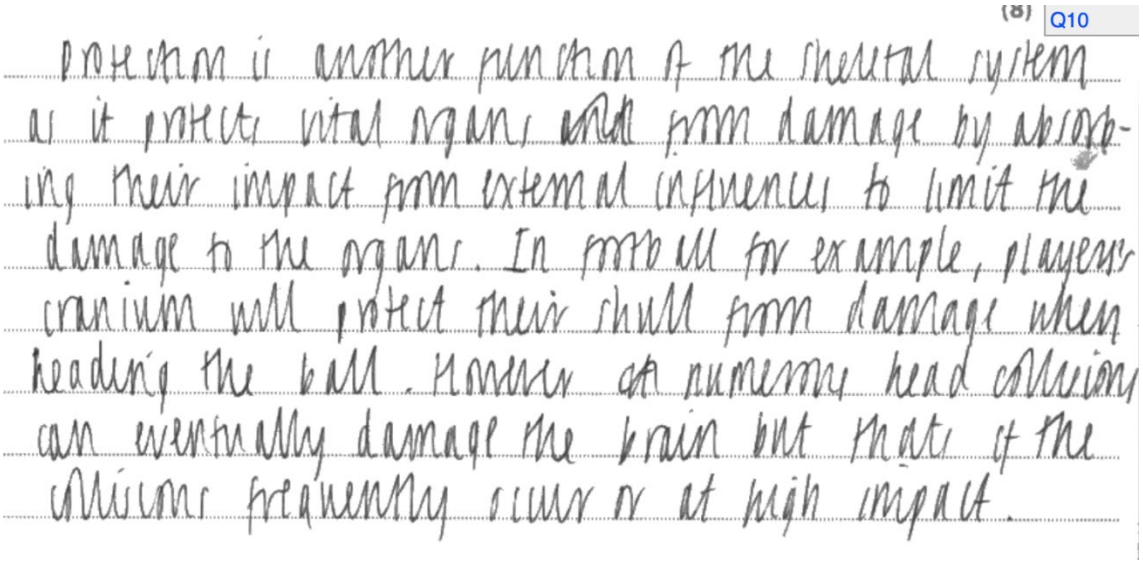
The Skeletal System also stores useful minerals and energy which is needed to keep your body functioning during exercise, this includes calcium, Atp, and oxygen for example.

The skeleton also provides structure that allows us to move during exercise as its like a shell, without it our bodies would have no shape and would be like jelly.

This response gained 3 marks

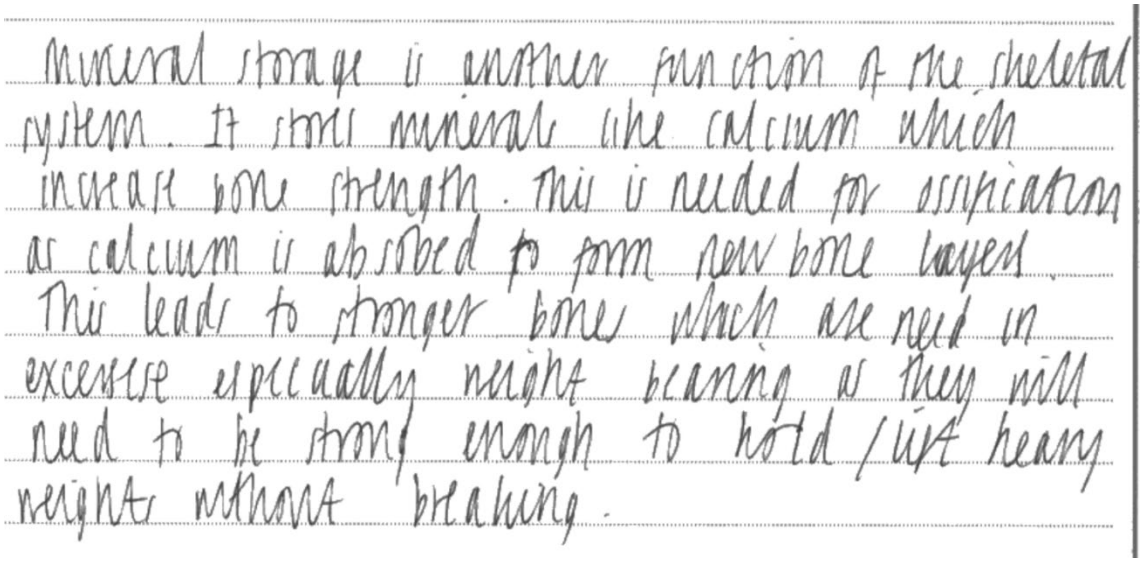
This response is typical of a level 1 response. A paragraph on the function of protection was seen regularly amongst all learners within the series.

In this response the learner has shown isolated knowledge of one function: protection, and links this to supporting the lungs from puncture in a rugby tackle. An example of a named flat bone and named organ were both required as per the indicative content. The learner does identify storage of minerals, but it remained as a level 1 response as there was no further analysis of this function. Structure is not creditworthy as supporting framework has already been identified in the question.



(8) Q10

Protection is another function of the skeletal system as it protects vital organs and from damage by absorbing their impact from external influences to limit the damage to the organs. In football for example, players cranium will protect their skull from damage when heading the ball. However as numerous head collisions can eventually damage the brain but most of the collisions frequently occur or at high impact.


Mineral storage is another function of the skeletal system. It stores minerals like calcium which increase bone strength. This is needed for ossification as calcium is absorbed to form new bone layers. This leads to stronger bone which are need in exercise especially weight bearing as they will need to be strong enough to hold / lift heavy weights without breaking.

This response gained 6 marks
This is an example of a fairly typical level 2 response seen in this series. The learner has analysed two other functions: protection and mineral storage,
They have referenced accurate material from the indicative content to demonstrates
understanding of each function and sound application to sport and exercise.
There is no third function in order to access level 3.

Q11

This is another extended answer question using a levels-based mark scheme. Learners achieved a good spread of marks for this question. The most accessible marks here were for knowledge of the types of joint involved and the articulating bones at these joints.

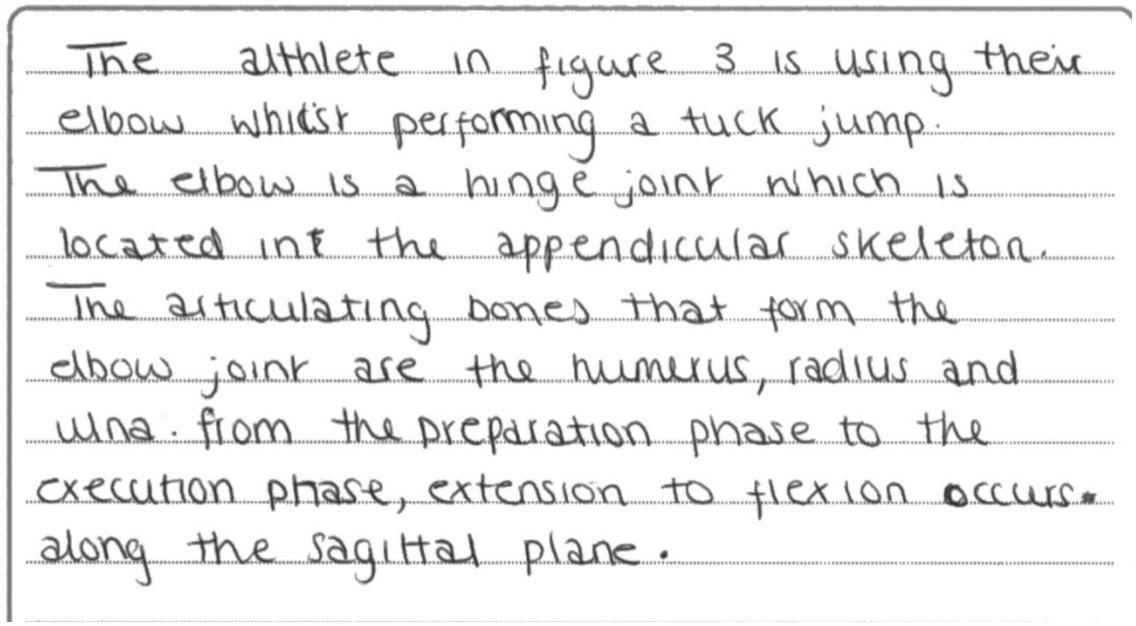
Almost all learners achieved at least marks in the Level 2 grade descriptor for this question. A good proportion of learners demonstrated a sufficient breadth and depth of accurate knowledge and understanding to achieve marks from the Level 3 grade descriptor. It was promising to see a so many of these learners providing a full analysis that demonstrated sustained knowledge of interrelationships and linked these to the context of the tuck jump movement.

A very small number of learners still made reference to the muscular system detailing antagonistic muscle pairs and the types of contraction taking place in each. It was positive to see that centres and learners are however not doing this and responding to lead examiner report. The question only asks about the axial and appendicular skeletal system so no credit could be awarded for parts of the learner responses related to the muscular system. The space provided to answer this question should be a guide of the amount of detail the learners are expected to include.

The knee joint is a hinge joint which is part of the appendicular skeleton. The femur, tibia and fibula form this joint.

From preparation to execution, extension to flexion occurs along the sagittal plane. It is important for the athlete to flex their knees as that is what forms the tuck jump.

The hip joint is a ball and socket joint which is found in the appendicular skeleton. The pelvis and the femur are the articulating bones which form this joint. From the preparation phase to execution phase, the ~~athl~~ athlete performs extension to flexion as the joint angle at the hip decreases. This range of movement occurs in the sagittal plane along the frontal axis.


The athlete in figure 3 is using their elbow whilst performing a tuck jump.
The elbow is a hinge joint which is located int the appendicular skeleton.
The articulating bones that form the elbow joint are the humerus, radius and ulna. from the preparation phase to the execution phase, extension to flexion occurs. along the sagittal plane.

This response gained 8 marks

Learner has provided a full analysis for all 3 joints. The type of joint, articulating bones, joint and plane of movement are all evident and contextualised for the tuck jump. The learner has shown good linkage and integrated the correct plane for all three joints. The identification of flexion of the hip credited accordingly as this was the more challenging aspect of the analysis.

This response also demonstrates how full analysis can be achieved in three concise paragraphs which focus on the execution phase only. This was very much in line with well-planned out and executed responses for the question in this series. Learners should be congratulated on their hard work and regular practice of analyse joints within sporting movements.

Q12

This question is intended to be one of the most demanding on the paper. The question requires learners to analyse the movement of the shoulder, trunk and ankle to achieve the position shown from preparation phase to execution phase when completing a set shot in basketball.

Again, learners seem to have been prepared to answer movement analysis questions and have plans and systems in place to help them do so.

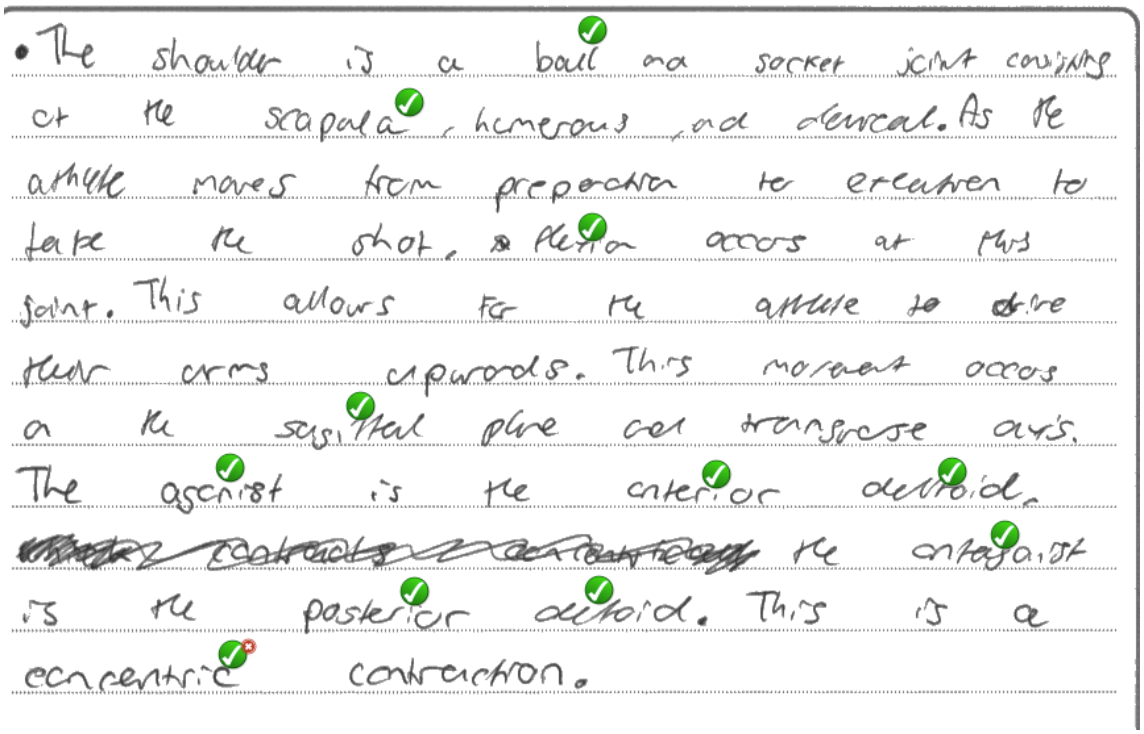
A high proportion of learners have delivered a structured response based on a pre-planned strategy, often shown by tables that were drawn at the start of the learners' response or the diagram being annotated.

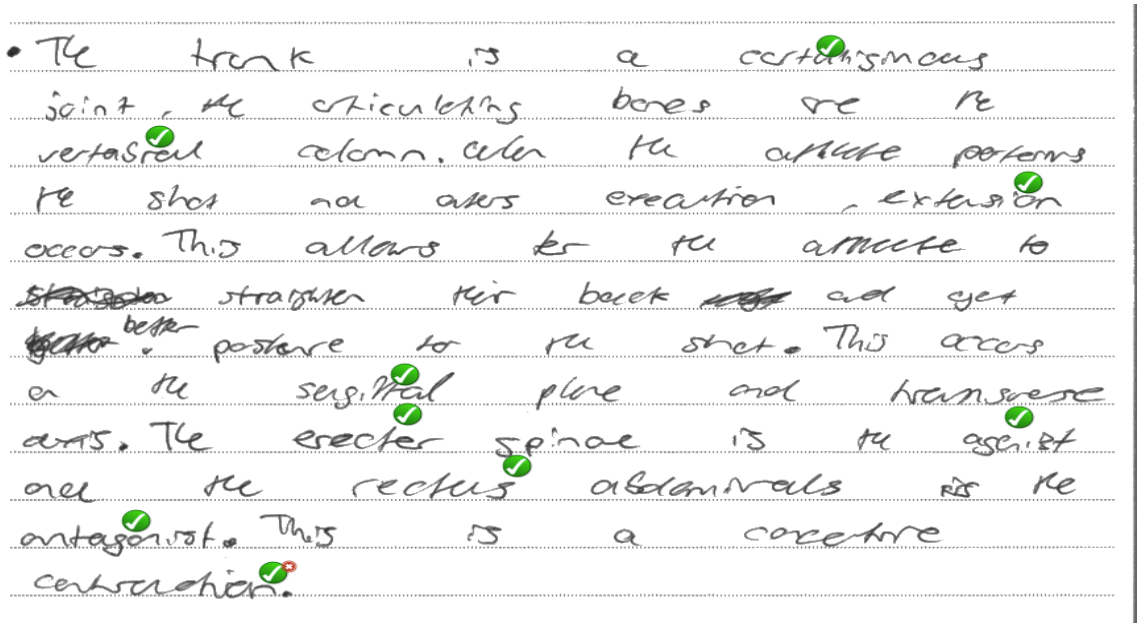
A number of factors make this question accessible with suitable stretch and challenge to learners. All joints have been assessed before and generally learners accurately analysed the type of joint, the articulating bones, plane of movement for all three joints. A number also included the correct antagonistic muscle pairs and types of contraction, particularly for plantar flexion of the ankle. Learners should be congratulated on the use of a succinct analysis with only focus on the execution phases as requested by the question.

The antagonistic muscle pairs at the shoulder and trunk were stated, although occasionally the agonistic pairing was analysed the wrong way. The muscles and movement involved at the shoulder seemed to prove slightly more challenge to learners. Similar to Q11, where these were identified they were credited accordingly.

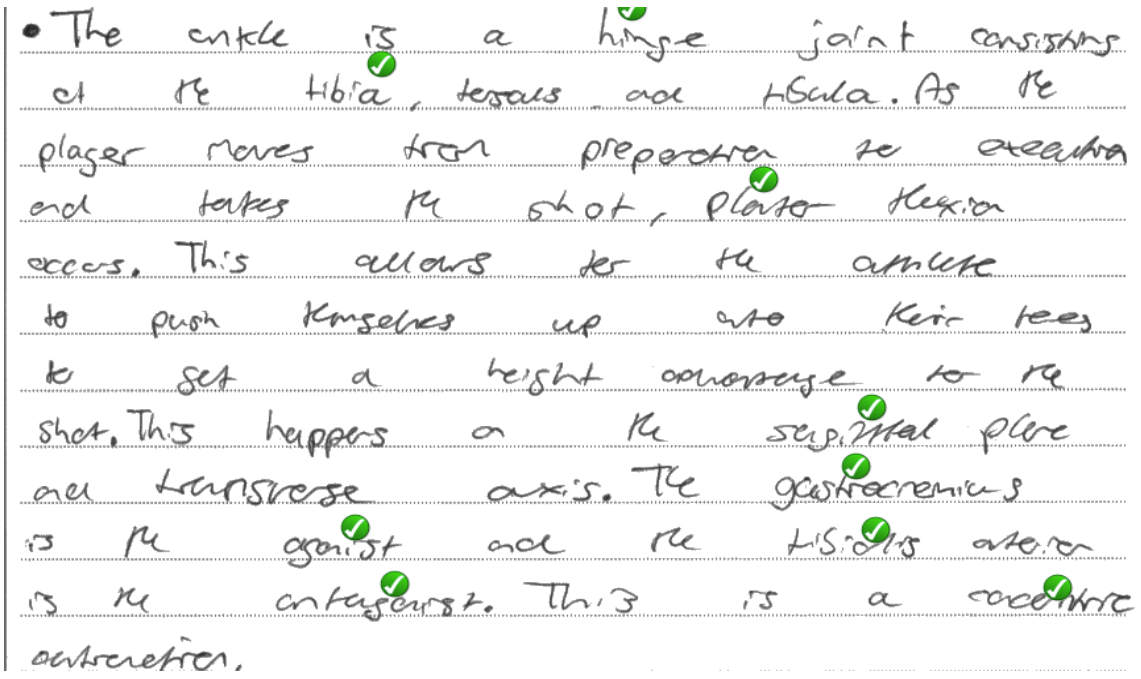
A few learners <u>still</u> delivered a response that tackled an analysis of the position at preparation followed by another full analysis of the position at execution, rather than addressing the movement between the two phases.

A pleasing number of learners were able to accurately analyse with the sufficient detail as per the mark scheme most of the component parts that are working together to allow the set shot from preparation to execution and achieved marks in the level 3 grade descriptor.


• The shoulder is a ball and socket joint consisting of the scapula, humerous, and clavical. As the athlete moves from preparation to execution to take the shot, a flexion occurs at this joint. This allows for the athlete to drive their arms upwards. This movement occurs on the sagittal plane and transverse axis. The agonist is the anterior deltoid. ~~Contracts~~ the antagonist is the posterior deltoid. This is an eccentric contraction.



- The trunk is a ~~cartilaginous~~ synovial joint, the articulating bones are the vertebral column. When the athlete performs the shot and does creation, extension occurs. This allows for the athlete to ~~straighten~~ straighten their back ~~and~~ and get better posture to the shot. This occurs on the sagittal plane and transverse axis. The erector spinae is the agonist and the rectus abdominals is the antagonist. This is a concentric contraction.



- The ankle is a hinge joint consisting of the tibia, tendons and fibula. As the player moves from preparation to execution and takes the shot, plantar flexion occurs. This allows for the athlete to push themselves up onto their toes to get a height advantage to the shot. This happens on the sagittal plane and transverse axis. The gastrocnemius is the agonist and the tibialis anterior is the antagonist. This is a concentric contraction.

This response gained 14 marks

This is an example of a learner who has opted to analyse just the execution phase. The learner demonstrates full analysis of each joint breaking down each component into equal parts and linking to the context of a set shot in basketball. Therefore, it receives a mark which represents a level 3 grade descriptor. Please note this is a marked as a level-based response, the green ticks are shown to draw out to learners what is expected for full analysis of each joint as per the indicative content.

12.

The shoulder joint is an example of a ball and socket joint. This means that it is freely moveable in all directions, and is an example of a synovial joint. The articulationg bones at this joint include the clavical, scapula, and the humerous, which means that it is part of the appendicular part of the skeletal system. From the preparation to the execution phase, the anatomical movement extention is occuring, which is in the sagital plane of movement. The pectoralis major is the agonist muscle performing concentricly, and the antagonist muscle is the trapezius performing eccentricly.

The trunk is an example of a gliding joint. This means that it is moveable in all directions, and is an example of a sinovial joint. The articulationg bones at this joint include the vertebrae collumn consisting multiple vertebrae discs, which means that it is part of the axial part of the skeletal system. From the preparation to the execution phase, the anatomical movement extention is occuring, which is in the sagital plane. The erector spinae is the agonist muscle performing concentricly, and the antagonist muscle is the rectus abdominus performing eccentricly.

Lastly, the ankle joint is an example of a hinge joint. This means that it is moveable in plantarflexion and dorsiflexion anatomical movements, and is an example of a synovial joint. The articulationg bones at this joint include the tarsals, tibula, and fibula, which means that it is part of the appendicular part of the skeletal system. From the preparation to the execution phase, the anatomical movement plantarflexion is occuring, which is in the sagital plane. The gastricnemous is the agonist muscle performing concentricly, and the antagonist muscle is the tibialis anterior performing eccentricly.

This response gained 10 marks

This response demonstrates some accurate knowledge as per the level 2 descriptor.
Trunk: the learner has completed a full analysis.
Ankle: likewise, the learner has completed full analysis.
Shoulder: limited analysis and only stating the correct type of joint and articulating bones.

This response shows the complexity of the shoulder analysis to differentiate amongst learners but also how full analysis can be achieved on two other joints.

Summary

Based on their performance on this paper learners are offered the following advice:

- Recognise that all areas of the unit content can be assessed, and it is worth noting any gaps of topics not yet examined.
- Read all questions carefully to ensure full understanding of what is being asked.
- Identify keywords in a question - possibly underline or highlight these to draw attention to them.
- Understand the different command verbs (e.g. describe, explain, analyse) in order to establish the requirements of each question.
- Understand terminology used in the specification as these words will be repeated in the exam paper.
- Use appropriate technical language throughout responses as this will support the demonstration of accurate anatomical knowledge.
- Use the number of marks as a guide to the depth of response required.
- Refer to the previous exam papers in order to become familiar with the structure of the exam and expected responses, particularly for question 11 and question 12.
- In question 11 and 12, continue to focus on the movement from the preparatory phase to execution phase of the movement for analysis and use this report to appreciate what is required for full analysis for each joint asked in the question.
- In question 12 ensure analysis includes the correct agonist and antagonist muscle, in the correct order to create the movement required at the joint.