

## Pearson BTEC Level 3 Nationals

Write your name here

Surname	Forename
---------	----------

Learner Registration Number	Centre Number	Level
<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> 3

# Sport and Exercise Science

## Unit 2: Functional Anatomy

Extended Certificate/Foundation Diploma/Diploma/Extended Diploma

Sample Assessment Materials for first teaching September 2016

**Time: 1 hour 30 minutes**

Total  
marks

**You do not need any other materials.**

### Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and learner registration number.
- Answer **all** questions.
- Answer the questions in the spaces provided  
– *there may be more space than you need.*

### Information

- The total mark for this paper is 60.
- The marks for **each** question are shown in grey boxes  
– *use this as a guide as to how much time to spend on each question.*

### Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

**Paper reference**

31824

S51973A

©2016 Pearson Education Ltd.

1/1/1/1/1/1/1/1



Turn over ►

**PEARSON**

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

1 State **two** functions of the skeletal system.

1 .....

.....

2 .....

.....

Total for Question 1 = 2 marks

2 Give the meaning of the following anatomical terms:

(a) lateral

1 mark

.....

.....

(b) supine.

1 mark

.....

.....

Total for Question 2 = 2 marks

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



3 (a) Describe the role of the bicuspid valve in the cardiac cycle.

2 marks

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

(b) Describe the role of the sinoatrial node in the cardiac cycle.

2 marks

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Total for Question 3 = 4 marks



4 (a) Describe **two** roles of the nasal cavity during inspiration.

2 marks

.....

.....

.....

.....

(b) Describe the mechanism of inspiration at rest.

4 marks

.....

.....

.....

.....

Total for Question 4 = 6 marks

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



A ligament connects bone to bone.

5 State **one other** role of ligaments.

.....

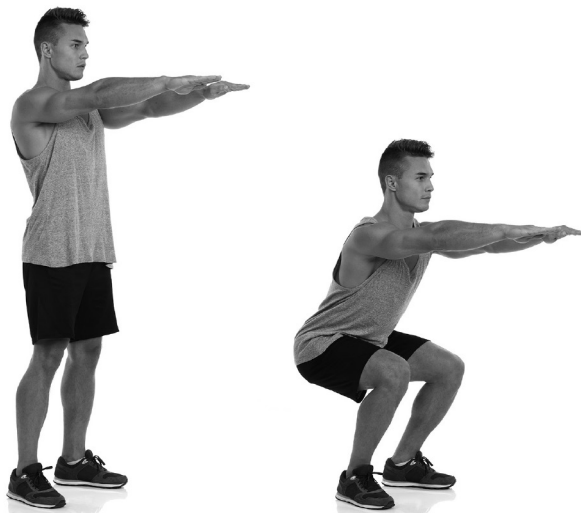
.....

.....

.....

Total for Question 5 = 1 mark

**Figure 1** shows Michael performing the downward phase of a squat.



**Position A**

**Position B**

**Figure 1**



6 Explain the type of muscle contraction occurring at the quadriceps during the downward phase of a squat from **position A** to **position B**.

Handwriting practice area with ten horizontal dotted lines for the answer.

Total for Question 6 = 3 marks

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



Zerena completes a 20-minute warm-up before her badminton game, which increases her breathing rate.

One way her breathing rate is controlled is by neural control.

7 Explain **one other** mechanism used to control Zerena's breathing rate.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Total for Question 7 = 4 marks



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

The cardiovascular system has many functions in the body including fighting infection, blood clotting and the delivery of oxygen and nutrients.

8 Explain **one other** function of the cardiovascular system.

Handwriting practice area with 12 horizontal dotted lines.

Total for Question 8 = 4 marks

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA





9 Analyse how the circulatory system and lymphatic system work together to help the body fight infection.

Handwriting practice area with 10 horizontal dotted lines.

Total for Question 9 = 4 marks

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



10 Analyse the process of bone growth and remodelling.

Handwriting practice area with 20 horizontal dotted lines.

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Total for Question 10 = 8 marks



Figure 2 shows a sprinter mid action.

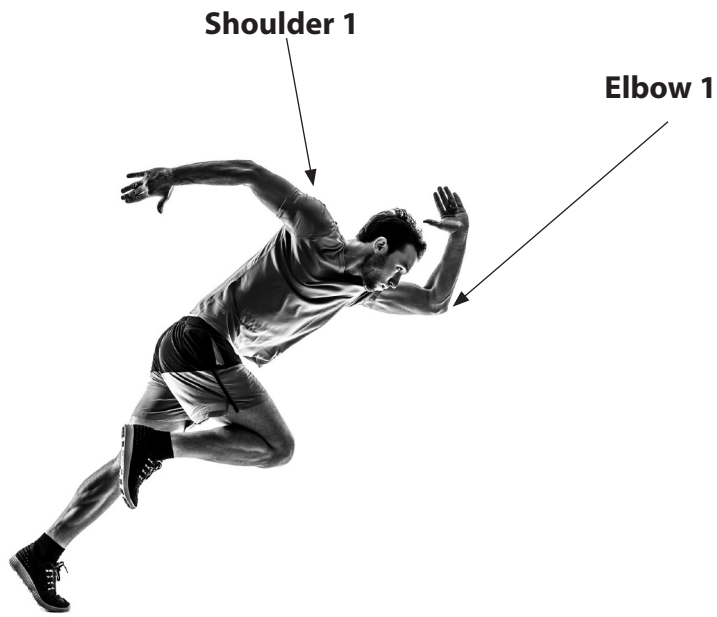


Figure 2

11 Analyse how the appendicular skeleton allows the movement at **shoulder 1** and **elbow 1** for the sprinter to adopt the position shown compared to the anatomical standing position.

Handwriting practice area with ten horizontal dotted lines for writing.



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Blank writing area with horizontal dotted lines.

Total for Question 11 = 8 marks

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

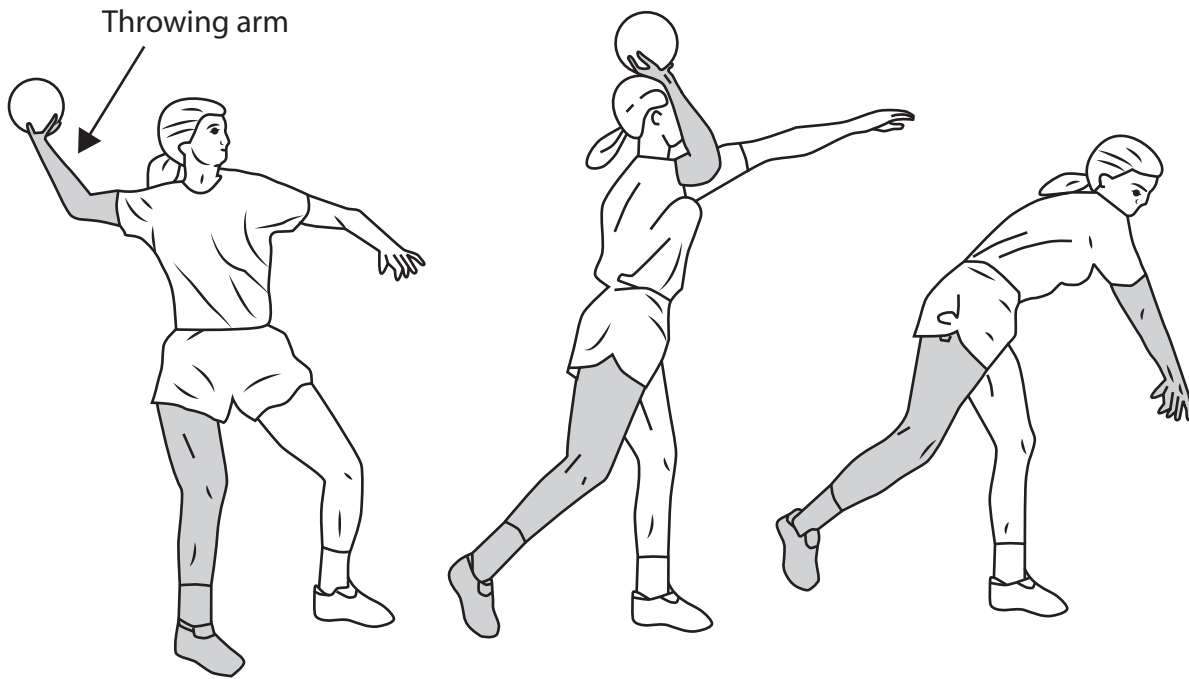
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



**Figure 3** shows the stages of an overhead throw from preparation to follow-through stage.



**Figure 3**

**12** Analyse the required movement at the right ankle, elbow and wrist to achieve the position shown from preparation to follow-through stage.

Area for student response with horizontal dotted lines for writing.





A large rectangular area with a solid border and rounded corners, containing 25 horizontal dotted lines for writing.

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Blank writing area with horizontal lines.



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Large rectangular area with horizontal dotted lines for writing.

Total for Question 12 = 14 marks

**END OF EXAM**

**TOTAL FOR PAPER = 60 MARKS**

