

Pearson BTEC Level 3 Nationals Diploma

Please check the examination details below before entering your candidate information

Candidate surname

Other names

Centre Number

Learner Registration Number

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Time 1 hour 30 minutes

**Paper
reference**

31814H

Sport and Exercise Science

UNIT 2: Functional Anatomy

You do not need any other materials.

Total Marks

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 brackets
– *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.

Turn over ►

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P 6 3 4 9 3 R A 0 1 1 6


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

Table 1 shows a list of skeletal muscles.
The location of one of these muscles has been given.

1 Complete Table 1 by giving the locations of the other skeletal muscles.

Skeletal muscle	Location
Soleus	Back of the lower leg
Rectus femoris	
Obliques	
Trapezius	
Sternocleidomastoid	

Table 1

(Total for Question 1 = 4 marks)

2 State one function of the following blood vessels.

(a) Pulmonary artery (1)

.....

.....

(b) Vena cava (1)

.....

.....

(Total for Question 2 = 2 marks)



Muscles can act as agonists, antagonists, synergists or fixators.

3 Describe the role of a fixator muscle.

.....

.....

.....

.....

(Total for Question 3 = 2 marks)

Supination is a type of movement.

4 Describe supination at the wrist.

.....

.....

.....

.....

(Total for Question 4 = 2 marks)

Systole and diastole are two phases of the cardiac cycle.

5 Describe the diastole phase of the cardiac cycle.

.....

.....

.....

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.....

.....

(Total for Question 5 = 3 marks)



P 6 3 4 9 3 R A 0 3 1 6

Figure 1 shows the structure of the vertebral column.

6 (a) Identify the regions labelled A, B and C.

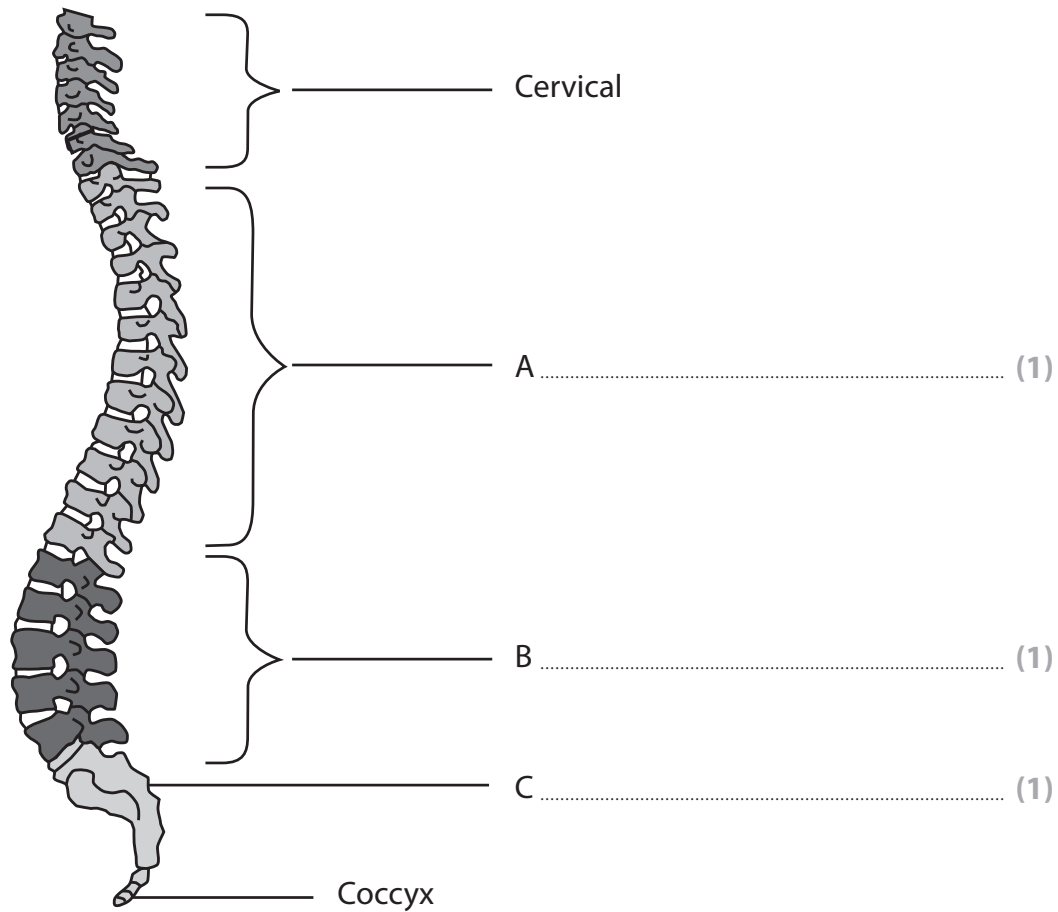


Figure 1

(b) Describe the function of the cartilage located between each vertebrae.

(2)

.....

.....

.....

.....

(Total for Question 6 = 5 marks)



Figure 2 shows a 400m race. The 400m race involves moderate to high intensity work.



(Source: © JUNG YEON-JE/Staff/Getty Images)

Figure 2

- 7** (a) Identify the **main** muscle fibre type that would be recruited during the 400m race. (1)

- (b) Explain why a **different** muscle fibre type will be recruited during a 60m sprint race. (3)

(Total for Question 7 = 4 marks)



The sliding filament theory is used to explain the process of muscle contraction.

8 Describe the function of **actin** and **myosin** filaments during a muscle contraction.

(Total for Question 8 = 4 marks)

9 Describe the process of **ossification**.

(Total for Question 9 = 4 marks)

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Blood is made up of different components.

10 Analyse how **three** components of blood support participation in sport and exercise.

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(Total for Question 10 = 8 marks)



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(Total for Question 11 = 8 marks)



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- right elbow
- right shoulder
- right ankle

(14)

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(Total for Question 12 = 14 marks)

TOTAL FOR PAPER = 60 MARKS





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