

**GENERAL CERTIFICATE OF SECONDARY EDUCATION  
TWENTY FIRST CENTURY SCIENCE  
ADDITIONAL APPLIED SCIENCE A**

**A324/01**

Unit 1: Life Care (Foundation Tier)

**Wednesday 9 June 2010  
Afternoon**

**Duration: 45 minutes**

Candidates answer on the Question Paper  
A calculator may be used for this paper

**OCR Supplied Materials:**  
None

**Other Materials Required:**

- Pencil
- Ruler (cm/mm)



Candidate Forename		Candidate Surname	
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Centre Number						Candidate Number				
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**MODIFIED LANGUAGE**

**INSTRUCTIONS TO CANDIDATES**

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Answer **all** the questions.
- Do **not** write in the bar codes.
- Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your Candidate Number, Centre Number and question number(s).

**INFORMATION FOR CANDIDATES**

- The number of marks is given in brackets [ ] at the end of each question or part question.
- The total number of marks for this paper is **36**.
- This document consists of **12** pages. Any blank pages are indicated.

Answer **all** the questions.

1 Nina's grandmother fell in the street.

She was taken to hospital with a suspected broken wrist.

She waited a long time to be treated.

(a) Explain why some other patients were treated as soon as they arrived at the hospital.

..... [1]

(b) Finish the sentences.

Choose the **best** word from this list.

Each word may be used once, more than once or not at all.

**chemist**

**cleaner**

**General Practitioner (GP)**

**nurse**

**radiologist**

At the hospital a ..... measured her vital signs.

She was taken to the radiology department where a .....  
X-rayed her wrist.

The broken wrist was put in a plaster cast. [2]

(c) Weeks later, Nina visits her grandmother.

She is surprised to find her lifting a tin of soup.



Write down the name of the **type** of health care specialist who gave her the exercises to do.

..... [1]

[Total: 4]

2 Botox is now called the ‘lunch-hour’ face lift, but is it safe?

The table gives reasons for and against.

for	against
Botox was licensed for cosmetic use in 2002.	Botox is a diluted poison which can cause paralysis.
Large numbers of people continue to use botox and many have repeat treatments.	Botox injections can affect how a person blinks and eats.
Botox can remove wrinkles for 3 – 4 months.	Side effects can include droopy eyebrows, partly closed eyelids and headaches.

People must give their informed consent **before** they receive treatment.

Use the information in the table to explain why.

Put ticks (✓) in the boxes next to the **three** best reasons.

so that the practitioner can be paid

because treatments often have side effects

because all treatments carry some risk

because they may be smokers

because it is only a temporary fix

because it is a legal requirement

[2]

[Total: 2]

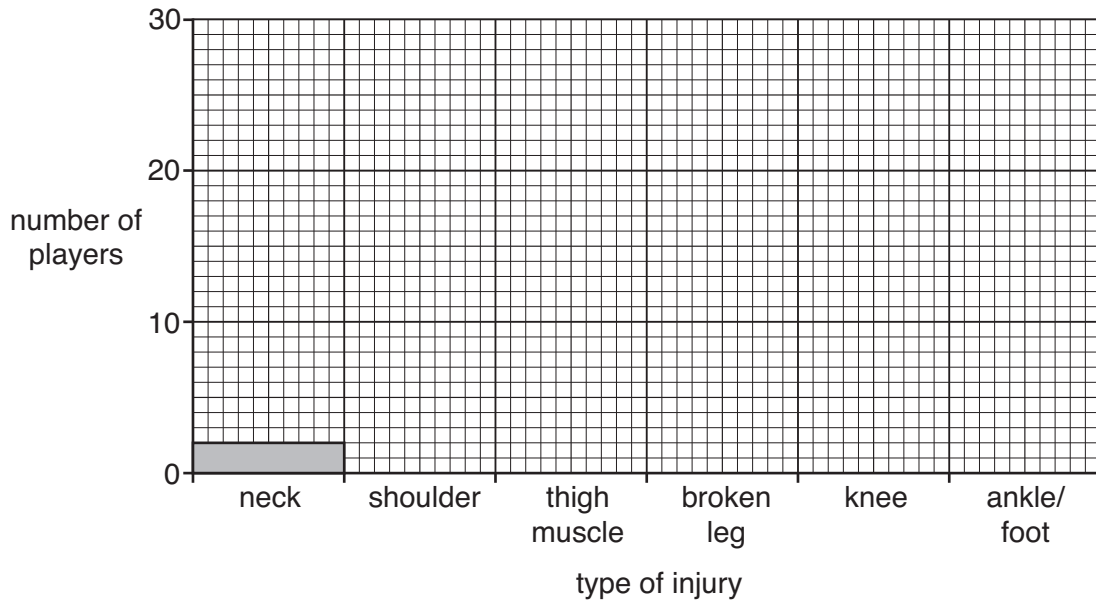
## 3 (a) Football can be a dangerous game.

The table shows the injuries sustained in the English Premier League in 2008.

type of injury	number of players with the injury
neck	2
shoulder	3
thigh muscle	4
broken leg	2
knee	20
ankle / foot	9

Plot this data on the bar chart.

The first one has been drawn for you.



[2]

- (b) The percentage (%) of injured players with a particular injury can be calculated using the following formula.

$$\text{percentage} = \frac{\text{number of players with that injury}}{\text{total number of injured players}} \times 100$$

Use the equation to find the percentage of injured players with **knee** injuries.

Show your working.

..... % [2]

(c) There are two main types of knee injury.

One involves damage to the knee ligaments.

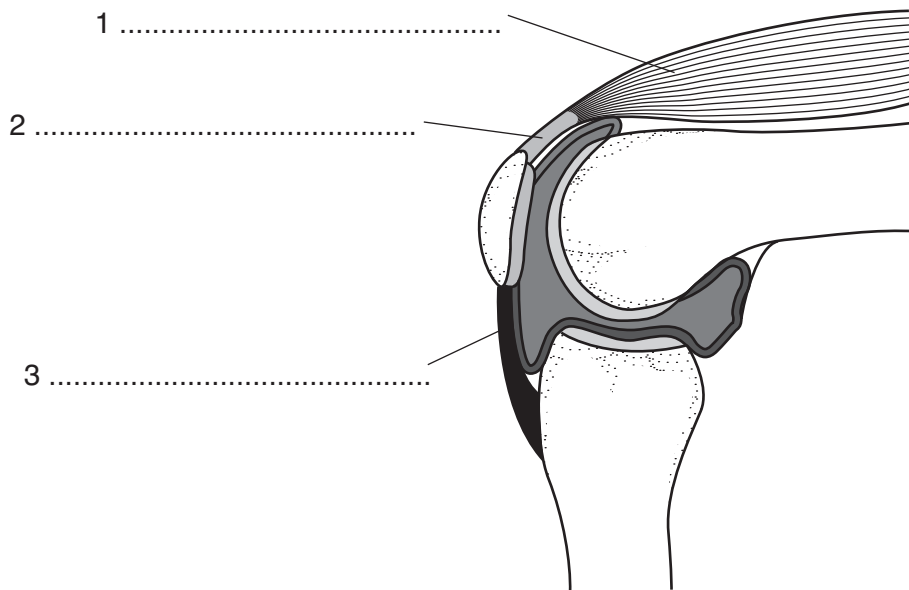
The other involves damage to the knee tendons.

(i) Name **one** non-invasive technique that could be used to show the damage to a footballer's knee.

..... [1]

(ii) Label the diagram. Choose words from this list.

- ankle
- bone
- knee cap
- ligament
- muscle
- tendon

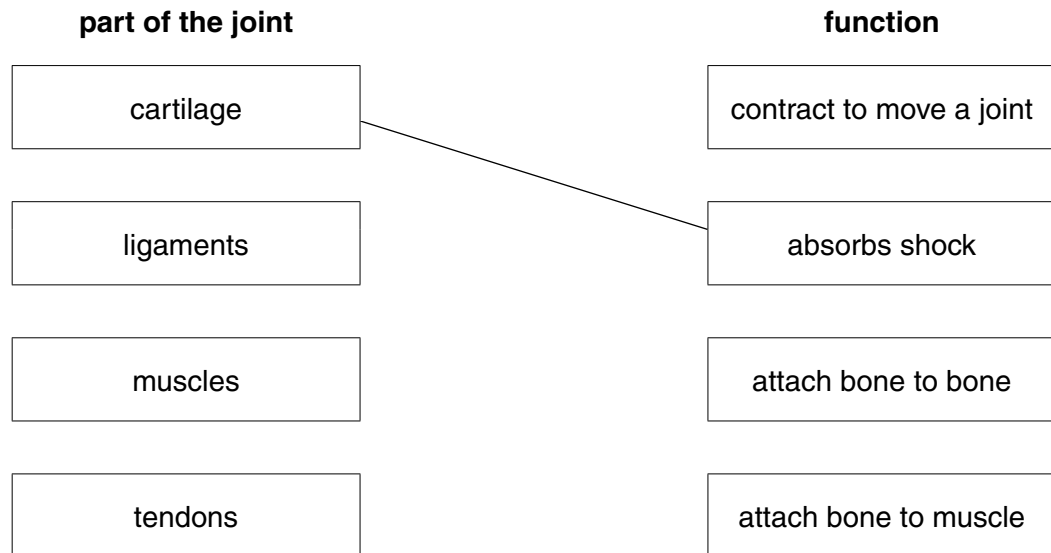


[3]

(iii) Each part of the knee joint has a specific function.

Draw a straight line from each **part of the joint** to its correct **function**.

The first one has been done for you.



[2]

[Total: 10]

4 Monisha works in the microbiology department of a hospital.

She tests samples from the body for the presence of microbes.

(a) Name **two** samples from the body she might test.

1 .....

2 .....

[2]

(b) The hospital has an outbreak of *C. difficile* which causes severe diarrhoea.

*C. difficile* is not killed by hand gels, only by soap and water.

It spreads from person to person very quickly and may cause death.

Monisha analyses the samples for *C. difficile* but it takes a long time.

She hears about a new, quicker, method using a machine.

The machine chemically 'sniffs' the diarrhoea (faeces).

If *C. difficile* is present, the smell is identified in minutes.

(i) Explain the advantages of having a **quicker** method of identifying *C. difficile*.

.....  
.....  
..... [2]



(ii) New signs are put up around the hospital wards.

Complete the sign.

Choose the **best** phrases from this list.

Each phrase may be used once, more than once or not at all.

- antiseptic hand gel**
- general practitioners**
- medical staff and visitors**
- nurses**
- saline drips**
- soap and water**

**HEALTH WARNING**

**DUE TO THE OUTBREAK OF THE MICROBE *C. difficile***

**On arrival and departure of all wards it is essential that all**

.....

**wash their hands thoroughly using .....**

**Please be vigilant and report any new cases of diarrhoea immediately.**

**All spillages must be cleaned up.**

[1]

[Total: 5]

5 Bronwyn is a blood donor.

(a) Name three components of blood.

1 .....

2 .....

3 .....

[3]

(b) (i) Bronwyn gives blood three times a year. Each time the nurse asks her the same questions.

These are some of the questions.

- 1 What is your full name and date of birth?
- 2 Have you had any body piercing or tattoos since your last blood donation?
- 3 Have you been abroad in the last 6 months?
- 4 Are you feeling well at the moment?
- 5 Have you had any vaccinations since your last blood donation?

There are important reasons why the nurse asks these questions.

Match each **reason** to the correct **question number**.

One has been done for you.

<b>reason</b>	<b>question number</b>
avoids risk of collecting blood contaminated with malaria	<input type="checkbox"/>
avoids risk of collecting blood contaminated with HIV	<input type="checkbox"/>
avoids taking blood from the wrong person	<input type="checkbox"/>
avoids taking blood from someone who is fighting an infection	<input type="checkbox" value="4"/>

[2]

(ii) This information must be recorded and stored carefully.

Explain why.

.....

.....

..... [1]

[Total: 6]

6 (a) Colin is training as a swimmer for the Olympic team.

His coach monitors his progress very carefully.

Sometimes the coach has to change the training programme.

The list shows some possible reasons for doing this.

Which reasons would cause the coach to change Colin's programme?

Put ticks (✓) in the boxes next to the **three** best reasons.

- Colin has pulled a muscle in his back.
- The water temperature is only 25°C.
- Colin had too much alcohol at a party last night.
- Colin is not winning any competitions he enters.
- Colin has had a tattoo on his shoulder.
- Colin has just returned from a two week holiday.

[2]

(b) Colin's coach needs to time his performance.

He needs to think about

- **accuracy** of the timing method
- **reliability** of the data obtained.

Explain what is meant by

**accuracy**

.....  
.....

**reliability**

.....  
.....

[2]

[Total: 4]

7 (a) Adanna has breast cancer.

The specialist explains the treatments available to her.

She should consider surgery, radiotherapy, chemotherapy or hormone treatment.

What factors should Adanna consider before deciding which of these treatments to have?

.....  
..... [2]

(b) Adanna has looked on the internet and has found out about a new drug to treat breast cancer.

The specialist will not give it to her because her PCT (Primary Care Trust) does not allow its use for early stage breast cancer.

Adanna talks to her GP about the new drug.  
Her GP is employed by the NHS.  
State three features of the NHS.

1 .....  
2 .....  
3 .....

[3]

[Total: 5]

**END OF QUESTION PAPER**



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