

Candidate Forename		Candidate Surname	
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Centre Number						Candidate Number				
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**OXFORD CAMBRIDGE AND RSA EXAMINATIONS
GENERAL CERTIFICATE OF SECONDARY EDUCATION**

A324/01

**TWENTY FIRST CENTURY SCIENCE
ADDITIONAL APPLIED SCIENCE A**

Life Care (Foundation Tier)

WEDNESDAY 9 JUNE 2010: Afternoon

DURATION: 45 minutes

SUITABLE FOR VISUALLY IMPAIRED CANDIDATES

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)

READ INSTRUCTIONS OVERLEAF

INSTRUCTIONS TO CANDIDATES

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes on the first page.
- 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.
- 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.

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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.

“What are you doing Gran?”

“The health care specialist at the hospital told me to do this twenty times every morning after I had my plaster cast removed.”

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]

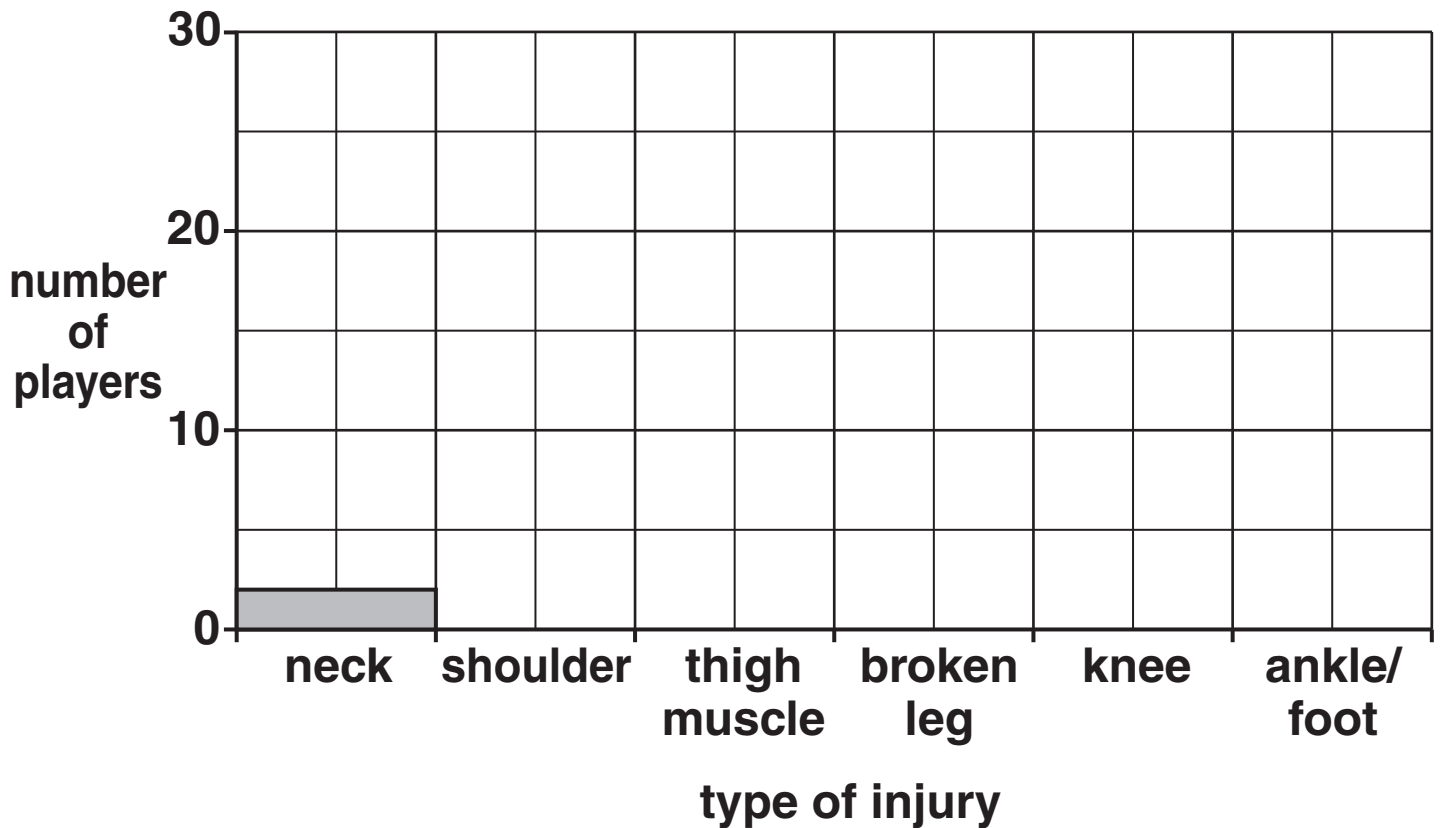
3 (a) Football can be a dangerous game.

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 opposite. Choose words
from this list.**

ANKLE

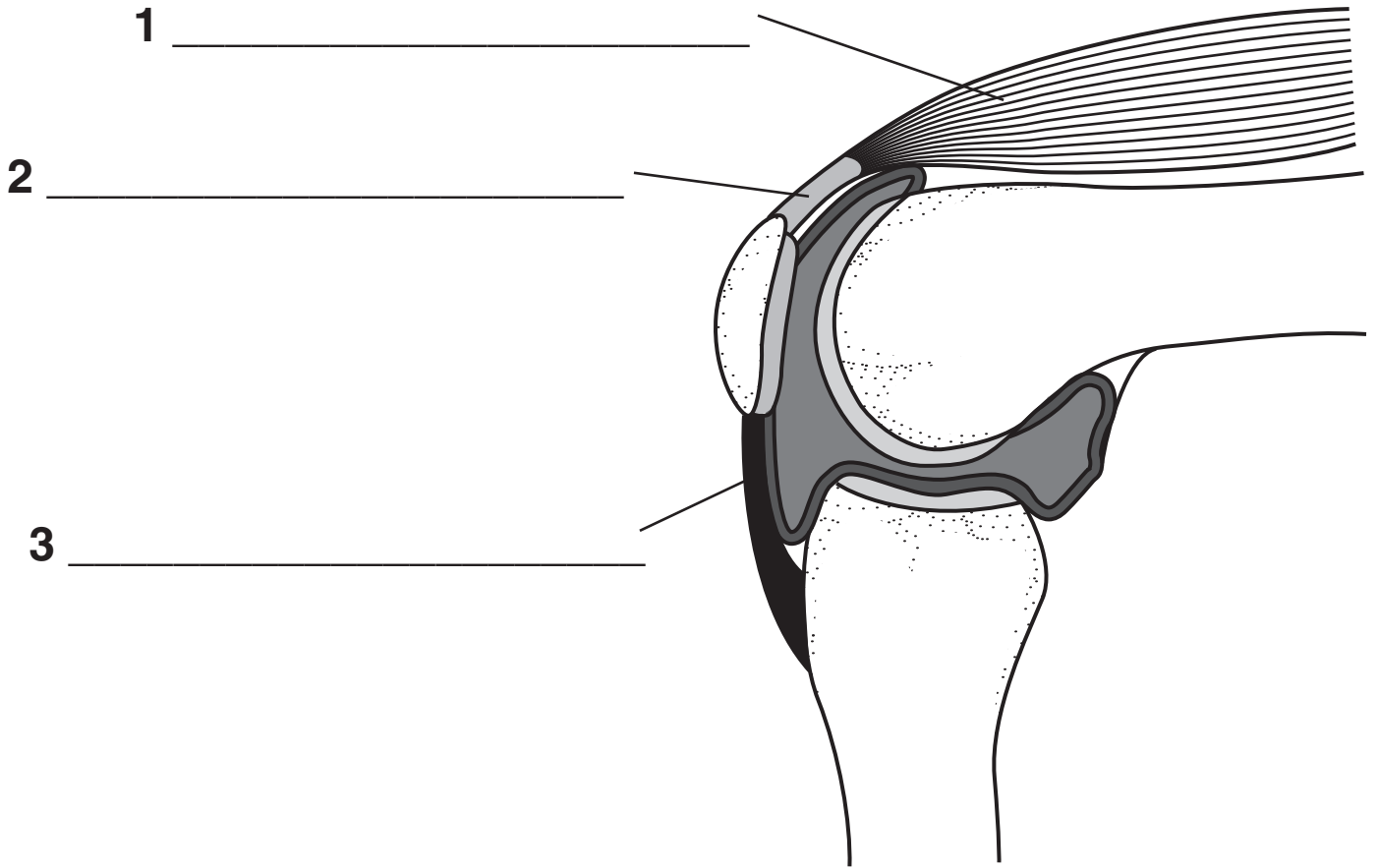
BONE

KNEE CAP

LIGAMENT

MUSCLE

TENDON

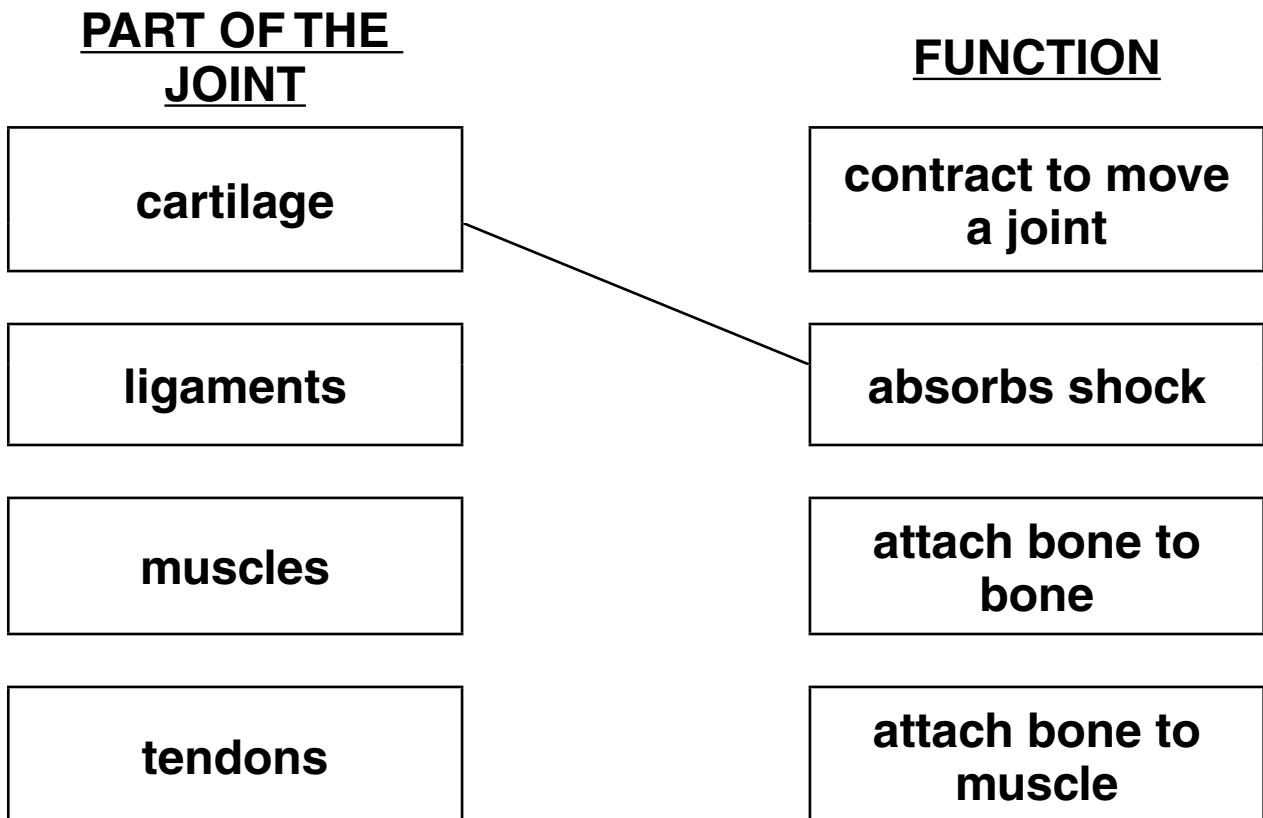


[3]

(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]

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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.

REASON

**QUESTION
NUMBER**

**avoids risk of collecting blood
contaminated with malaria**

**avoids risk of collecting blood
contaminated with HIV**

avoids taking blood from the wrong person

**avoids taking blood from someone who
is fighting an infection**

[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 consider

- **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 found out about a new drug, on the internet, 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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