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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)

MONDAY 17 JANUARY 2011: Morning

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, centre number and candidate number in the boxes on the first page. Please write clearly and in capital letters.**
- **Use black ink. Pencil may be used for graphs and diagrams only.**
- **Read each question carefully. Make sure you know what you have to do before starting your answer.**
- **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).**
- **Answer ALL the questions.**

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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QUESTION 1 STARTS ON PAGE 4

Answer ALL the questions.

- 1 Poppy is hoping to be an Olympic athlete. She performs well in the fitness tests, but she must also have a health check. Complete the sentences opposite about these tests by choosing the BEST words from this list.**

alcohol

blood

a clinical thermometer

an ECG

faeces

a pulse monitor

pus

a sphygmomanometer

urine

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

The doctor carries out a series of tests on Poppy.

She measures her body temperature using

_____ .

She records her heart rate using

_____ .

She records her blood pressure using

_____ .

To check that her heart is healthy, Poppy has

_____ .

Samples of _____ and

_____ **are also collected**

to be tested for signs of diabetes or drugs. [5]

[Total: 5]

- 2 (a) Ben has broken two bones in his arm.
The picture shows the broken bones in Ben's arm.
Label the picture. Choose words from this list.

clavicle

elbow

femur

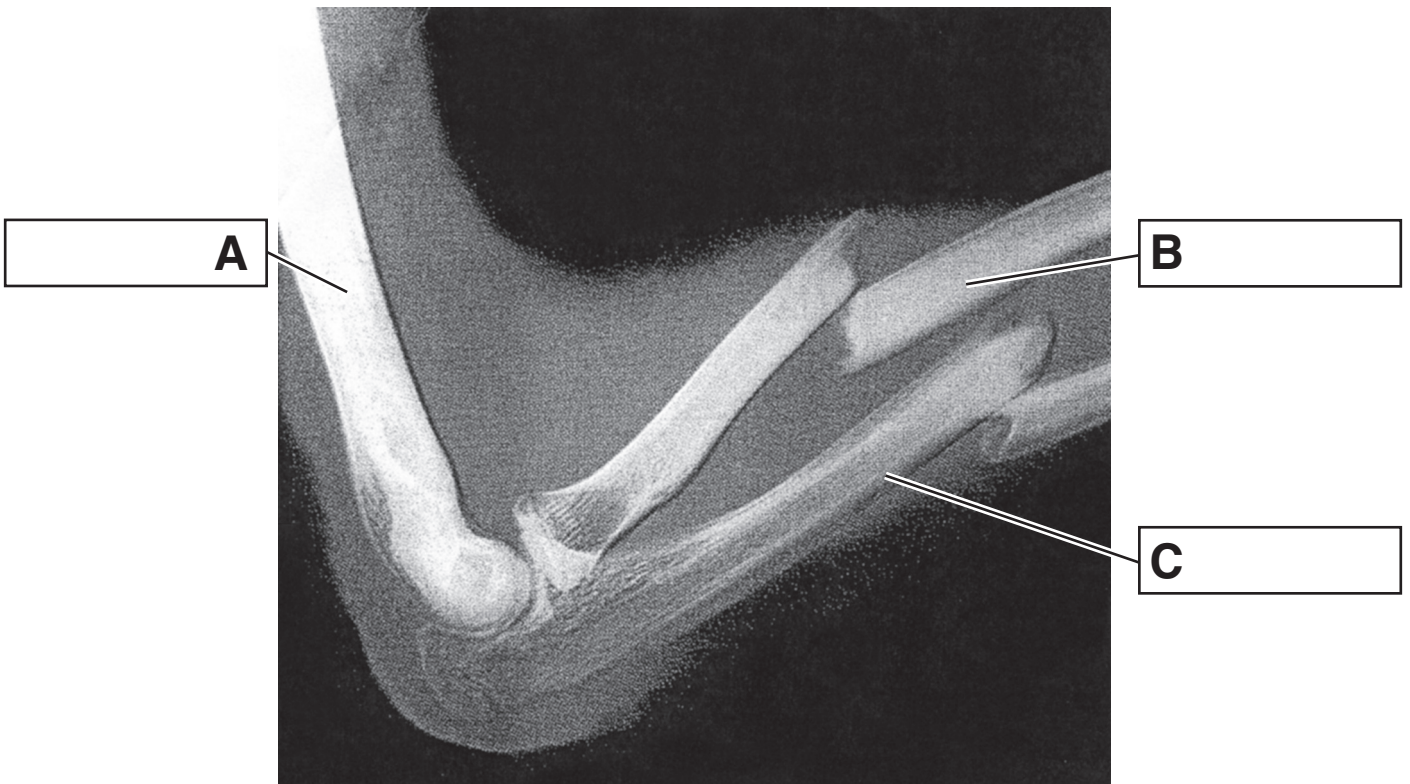
fibula

humerus

radius

tibia

ulna



[3]

(b) Give the name of the medical imaging technique used to produce the picture of the bones in Ben's arm.

_____ [1]

Ben does some research about the human skeleton.

(c) Write down THREE functions of the human skeleton.

1 _____

2 _____

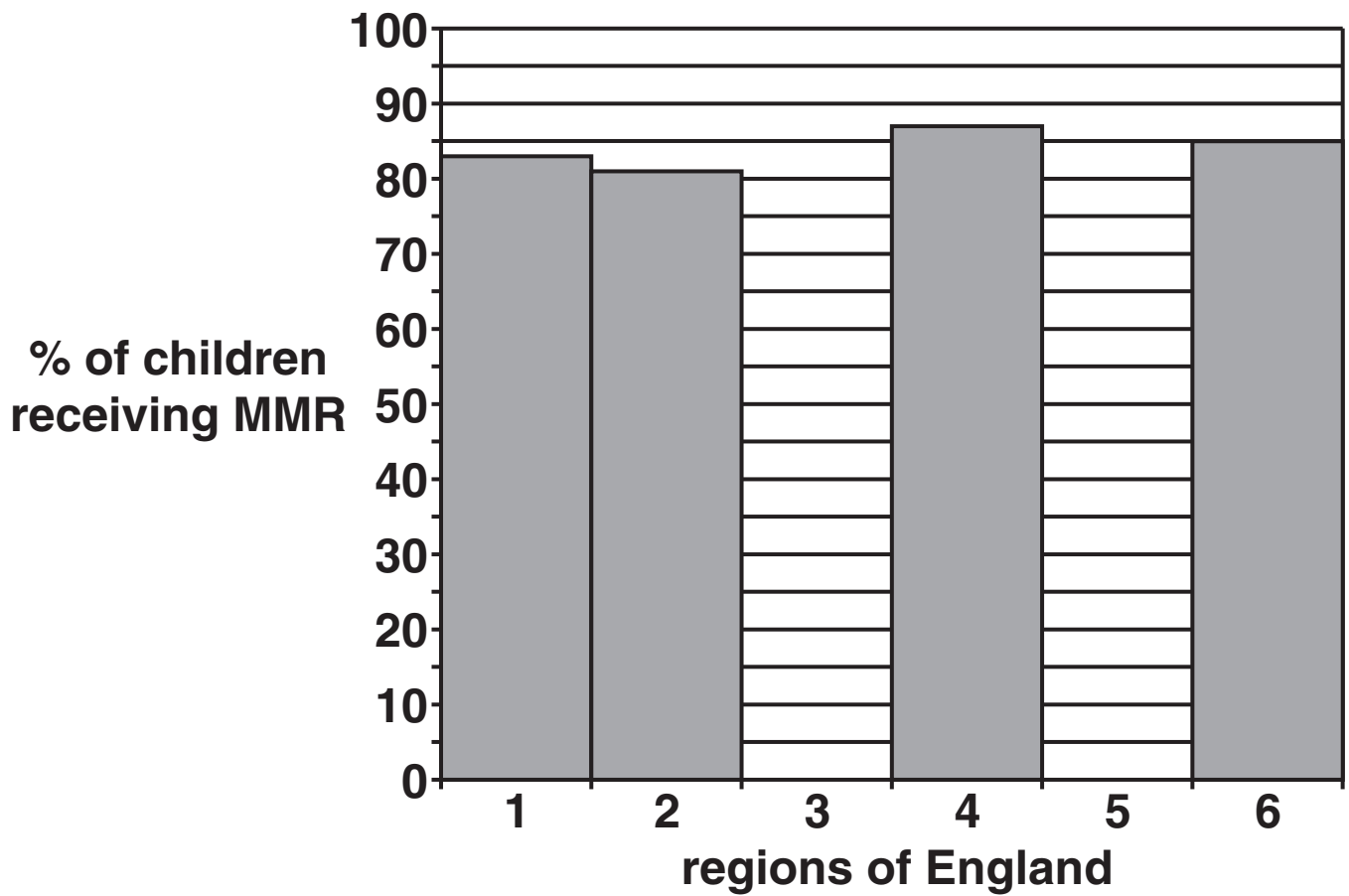
3 _____ [3]

[Total: 7]

- 3 In the last 50 years there has been a reduction in the number of cases of infectious diseases. This reduction is a result of childhood vaccination programmes. One programme was the Measles, Mumps and Rubella (MMR) vaccine. A recent survey shows that the percentage of children receiving the MMR vaccine varies in different parts of England. The table shows the results of the survey.**

REGIONS OF ENGLAND	PERCENTAGE (%) OF CHILDREN RECEIVING THE MMR VACCINE
1. South West	83
2. South East	81
3. London	72
4. Midlands	87
5. North West	84
6. North East	85

(a) Complete the graph by drawing and labelling the missing two bars.



[2]

(b) Melanie lives in London.

She takes her young child to the health centre to talk to a nurse about MMR vaccinations.



Suggest TWO reasons why the nurse advises Melanie to have Josh vaccinated.

1 _____

2 _____ [2]

(c) The nurse has certain personal qualities which suit her to her job.

Here are 5 statements about the nurse.

A She is able to ask sensible questions.

B She is able to make a good cup of tea.

C She is a good listener.

D She is able to explain clearly.

E She is healthy.

Write down the letters of ALL the statements which show she has effective communication skills.

_____ [2]

**(d) The nurse works with a lot of different health practitioners.
Give the title and role of TWO other health practitioners who deliver direct health care.**

TITLE	ROLE
<hr/> <hr/> <hr/> <hr/> <hr/>	<hr/> <hr/> <hr/> <hr/> <hr/>
<hr/> <hr/> <hr/> <hr/> <hr/>	<hr/> <hr/> <hr/> <hr/> <hr/>

[4]

[Total: 10]

4 Read this newspaper story.

Contagious Cruiser Cast-off!

An outbreak of swine flu has been confirmed on board the cruise liner *Osear*. The port authorities have refused the liner permission to dock, insisting that the crew and passengers remain on board, in quarantine. Swine flu is an infectious disease caused by a virus. It is detected by collecting samples from the nose (nasal swabs), which are tested in a laboratory.

- (a) The passengers suffering from the swine flu virus are given medicines to treat their symptoms. Explain why this does not cure them.**

[1]

(b) Medical laboratories process many samples, including blood and urine.

(i) Write down TWO examples of diagnoses that can be obtained from examination of urine samples.

1 _____

2 _____ **[2]**

(ii) Urine is tested using test sticks. Give ONE advantage and ONE disadvantage of using test sticks.

advantage _____

disadvantage _____

_____ **[2]**

[Total: 5]

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QUESTION 5 STARTS ON PAGE 16

- 5 Jennie and Nisha join their local health club. They fill in a lifestyle questionnaire. They both want to lose weight and become fitter. The fitness trainer measures their height and body mass. He calculates their BMI (body mass index).**

**Jennie is 72 kg and 1.6 m tall.
Her BMI is 28.1.**

- (a) Nisha is 45 kg and 1.5 m tall.
Calculate Nisha's BMI.
Use the formula**

$$\text{BMI} = \frac{\text{mass in kg}}{(\text{height in m})^2}$$

Show your working.

BMI is _____ [2]

The table gives information about interpreting BMI.

BMI	CONDITION	ADVICE GIVEN
under 20	underweight	may need to gain weight
20.0–24.9	advisable range	
25.0–29.9	overweight	some weight loss may be beneficial to health
30.0–34.9	obese	need to lose weight
35 & over	severely obese	urgent need to lose weight; consult a doctor

(b) Use the information in the table to help you answer the following questions.

(i) What is the condition of JENNIE?

_____ [1]

(ii) The girls have two friends, Ronan and John. Ronan has a BMI of 27.2. John has a BMI of 19.5.

The fitness trainer advises Ronan and John to follow different fitness programmes. Suggest and explain why.

_____ [2]

(c) Briefly describe ONE way the fitness trainer could monitor progress during fitness training.

[2]

(d) Write down TWO possible reasons for modifying a fitness programme before it has been completed.

1

2

[2]

[Total: 9]

END OF QUESTION PAPER

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