Name _____ **Class** _____ **Date** _____

1 Health is a state of physical, mental and social well-being.

    a Which statement is an example of something that is part of physical well-being?

    Tick **one** box.

    ☐ **A** feeling good about yourself

    ☐ **B** getting on well with the people at work

    ☐ **C** getting regular exercise

    ☐ **D** taking painkillers for a headache

    (1)

The bar chart in **Figure 1** shows the percentage of people in 2011 aged 18 and over with a mental illness in the UK.
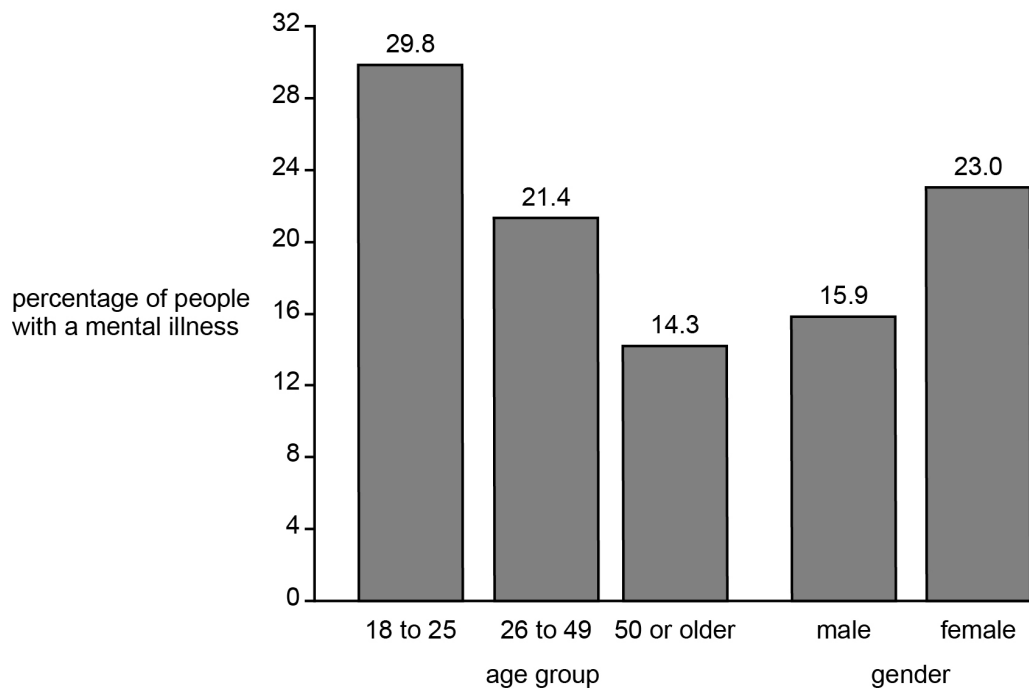

Figure 1

    b There were 32 million women in the UK in 2011.

    Calculate the number of UK women you would expect to have had a mental illness in 2011, based on the results in **Figure 1**.

number of women = _____

(2)

c Identify **two** conclusions that can be made from the information given in the bar chart (in **Figure 1**).

_____

_____

_____

_____

(2)

(Total for Question 1 = 5 marks)

2 Communicable diseases can be passed on from one organism to another.

   a **i** Cholera is a communicable disease.

        Which of these is a symptom of cholera?

        Tick **one** box.

        ☐ **A** diarrhoea

        ☐ **B** hair loss

        ☐ **C** sneezing

        ☐ **D** spotty rash

(1)

   ii Chalara ash dieback is also a communicable disease.

        What type of pathogen causes chalara ash dieback?

        Tick **one** box.

        ☐ **A** bacterium

        ☐ **B** fungus

        ☐ **C** protist

        ☐ **D** virus

(1)

b Communicable diseases are spread from one person to another in different ways.

   i Draw **one** straight line from each communicable disease to the box showing how the disease is spread.

communicable disease   **how disease is spread**

	through the air
tuberculosis	through water
malaria	through body fluids
	by an animal vector
	in food

(2)

   ii Chlamydia is a communicable disease.

   Name **one** way to prevent the spread of Chlamydia from one person to another.

   _____

   _____

(1)

(Total for Question 2 = 5 marks)

3 The human body has physical barriers and chemical defences that provide protection from pathogens.

   a Complete **Figure 2** to show if each defence system is a physical barrier or a chemical defence.

   One has already been done for you.

Defence system	Physical barrier	Chemical defence
saliva in the mouth		✓
lysozyme in tears		
skin		

Figure 2

(2)

b   Describe how mucus and cilia in the trachea help to defend the body against the entry of pathogens.

_____

_____

_____

_____

(2)

c   Plants also have defence systems.

Explain why some plants, such as laurel, have leaves with thick, glossy cuticles.

_____

_____

(1)

(Total for Question 3 = 5 marks)

4   Cardiovascular disease can be treated using a stent.

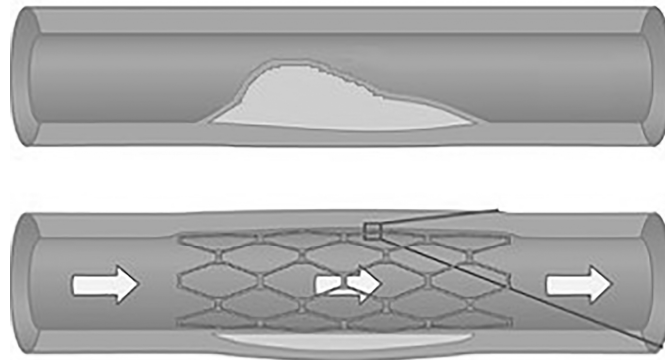**Figure 3** shows a blocked blood vessel and the blood vessel with a stent inserted.

Figure 3

a   Describe how a stent helps to treat cardiovascular disease.

_____

_____

_____

_____

(2)

b Surgery is needed to insert a stent into a blocked blood vessel.

Evaluate the use of surgery as a treatment for cardiovascular disease.

_____

_____

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_____

(3)

(Total for Question 4 = 5 marks)

5 The daily diet of an adult male should provide around 2500 kcal of energy in order to stay healthy.

It is recommended that the energy consumed in food is made up of:

4 parts carbohydrate : 3 parts protein : 3 parts fat

a Calculate the number of calories in the daily diet of an adult male that should come from protein.

number of calories from protein = _____ kcal

(2)

b **Figure 4** shows the lifestyle choices of two adult males, X and Y.

	Typical daily diet				Typical daily exercise (hours)
	Energy (kcal)	Carbohydrate (g)	Protein (g)	Fat (g)	
Male X	2600	540	37	140	0.25
Male Y	2650	310	60	90	2.5

Figure 4

State and explain which male has made lifestyle choices that are more likely to increase his risk of heart disease.

_____

_____

_____

_____

_____

_____

(3)

(Total for Question 5 = 5 marks)

6 Immunisation is a method used to prevent disease.

a Explain how vaccination can reduce your risk of catching a disease, even if you have not been vaccinated against the disease.

_____

_____

_____

_____

_____

(3)

b Antibiotics are drugs used to treat bacterial disease.

State **two** reasons for carrying out preclinical testing during the development of new antibiotics.

1 _____

_____

2 _____

_____

(2)

c **Figure 5** shows the results of an investigation into the effectiveness of three antibiotics at preventing the growth of bacteria.
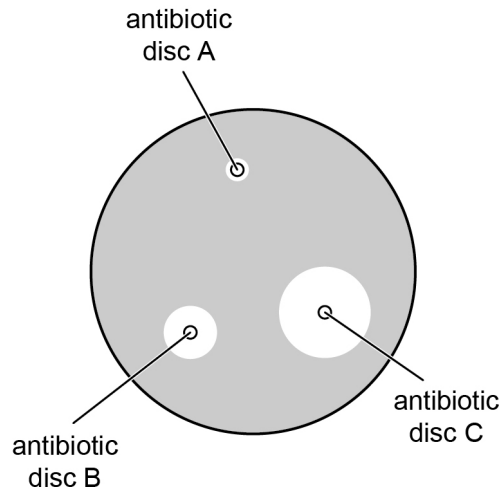

Figure 5 (not to scale)

i Explain which antibiotic is most effective at preventing bacterial growth.

_____

_____

_____

(2)

ii The area of a circle is found using πr^2, where r is the radius.

The clear zone around antibiotic disc C in **Figure 5** is 11 mm wide.

Calculate the area of the clear zone around disc C.

area = _____ mm^2

(2)

d   Describe the method used to set up the experiment in **Figure 5**.

Include details of aseptic techniques in your answer.

_____

_____

_____

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_____

_____

_____

_____

(6)

(Total for Question 6 = 15 marks)

TOTAL FOR PAPER = 40 MARKS