**Q1.**When an organism grows, new cells are produced by cell division.

(a)     What type of cell division happens to produce new body cells?

Tick **one** box.

|  |  |  |
| --- | --- | --- |
|  | Differentiation |  |
|  | Meiosis |  |
|  | Mitosis |  |

**(1)**

(b)     Why can cancers grow very large?

Tick **one** box.

|  |  |  |
| --- | --- | --- |
|  | Cancer cells are specialised |  |
|  | Cell division is slow |  |
|  | Cell division is uncontrolled |  |

**(1)**

(c)     Give **one** factor which increases the risk of getting cancer.

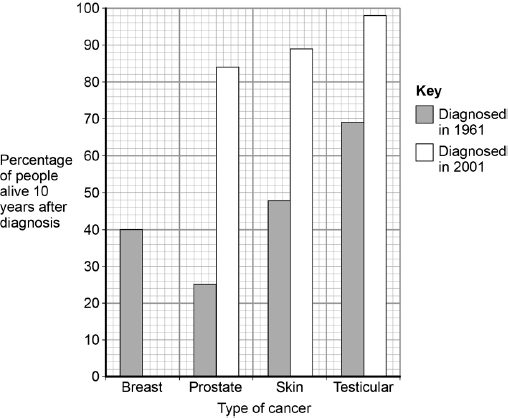
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**(1)**

(d)     Survival rates for people with cancer have improved a lot.

People who are alive 10 years after diagnosis are usually considered to be cured.

The figure below shows data for people diagnosed with cancer in 1961 and 2001.



78% of people diagnosed with breast cancer in 2001 were alive 10 years later.

Complete the figure above to show this information.

**(1)**

(e)     Which type of cancer diagnosed in 1961 had the highest survival rate?

Tick **one** box.

|  |  |  |
| --- | --- | --- |
|  | Breast |  |
|  | Prostate |  |
|  | Skin |  |
|  | Testicular |  |

**(1)**

(f)     Which type of cancer shows the biggest improvement in the percentage of people alive after 10 years?

Tick **one** box.

|  |  |  |
| --- | --- | --- |
|  | Breast |  |
|  | Prostate |  |
|  | Skin |  |
|  | Testicular |  |

**(1)**

(g)     Suggest **two** reasons why the survival rates for all cancers have increased.

1 .....................................................................................................................

........................................................................................................................

2 .....................................................................................................................

........................................................................................................................

**(2)**

**(Total 8 marks)**

**Q2.**The number of people in the UK with tumours is increasing.

(a)     (i)      Describe how tumours form.

...............................................................................................................

...............................................................................................................

**(1)**

(ii)     Tumours can be malignant or benign.

What is the difference between a malignant tumour and a benign tumour?

...............................................................................................................

...............................................................................................................

**(1)**

(b)     Describe how some tumours may spread to other parts of the body.

........................................................................................................................

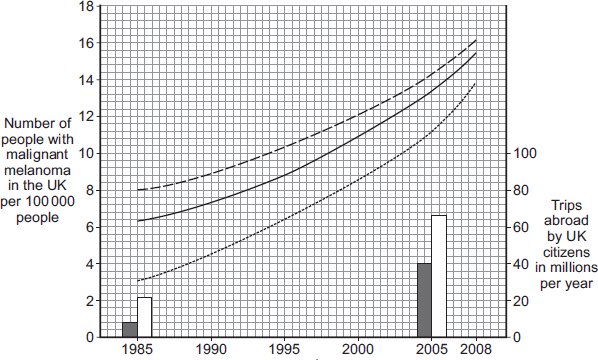
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**(1)**

(c)     People from Northern Europe have fair skin and many people have malignant melanoma skin cancer.

The graph shows how the number of people in the UK with malignant melanoma changed between 1985 and 2008.

The bars on the graph show the number of people in the UK who travelled abroad and the number who took cheap holidays in the sun in 1985 and 2005.

  
Years

|  |  |  |
| --- | --- | --- |
|  | **Key** | |
|  | Mean for all areas Mean for people from rich areas Mean for people from poor areas | Total number of trips abroad Number of cheap holidays in        the sun |

(i)      Describe the trends in the number of people with malignant melanoma skin cancer between 1985 and 2008.

...............................................................................................................

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**(3)**

(ii)     Use the data about the number of trips abroad to suggest an explanation for the trends you have described in part **(c)(i)**.

...............................................................................................................

...............................................................................................................

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**(2)**

**(Total 8 marks)**

**Q3.**Malignant tumours are called cancers.

(a)     Describe how a tumour can spread to different parts of the body.

........................................................................................................................

........................................................................................................................

........................................................................................................................

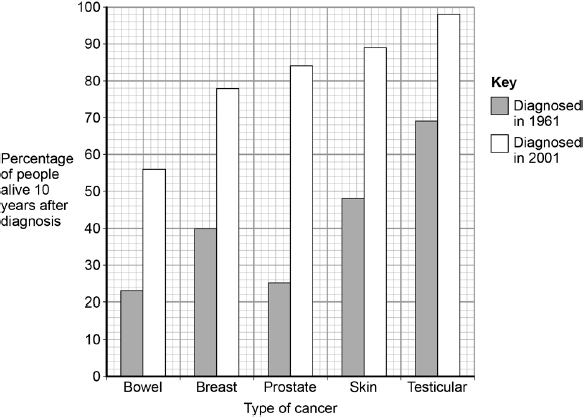
........................................................................................................................

**(2)**

(b)     Survival rates for people with cancer have improved a lot.

Some people who are alive 10 years after diagnosis are considered to be cured.

The figure below shows data for people diagnosed with cancer in 1961 and 2001.



Look at the data in the figure above for skin cancer.

Calculate the percentage increase in the survival rate of people diagnosed with skin cancer in 1961 compared to 2001.

Give your answer to **three** significant figures.

........................................................................................................................

........................................................................................................................

                   Survival rate increase = ............................. %

**(2)**

(c)     Look at the data in the figure above for bowel and prostate cancer.

Compare the survival rates for bowel and prostate cancer.

Suggest reasons for the comparisons you have made.

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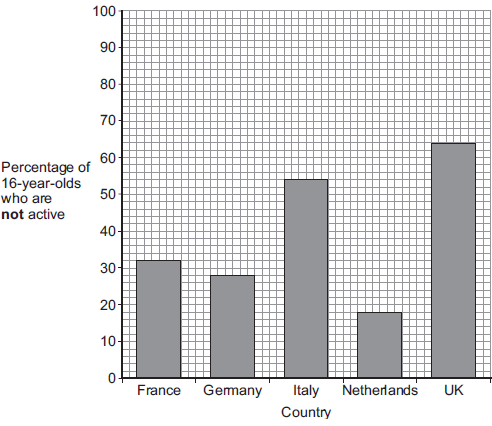
**(4)**

**(Total 8 marks)**

**Q4.**Scientists investigated the effect of different factors on health.

(a)     People who are **not** active may have health problems.

The graph shows the percentage of 16-year-olds in some countries who are **not** active.



(i)      What percentage of 16-year-olds in the UK are **not** active?

.......................... % (1**)**

(ii)     What percentage of 16-year-olds in the UK are **active**?

.......................... %

**(1)**

(iii)    A newspaper headline states:



Information in **Figure 1** does **not** support the newspaper headline.

Suggest **one** reason why the newspaper headline may be wrong.

...............................................................................................................

...............................................................................................................

**(1)**

(b)     Doctors gave a percentage rating to the health of 16-year-olds.  
100% is perfect health.

The table shows the amount of exercise 16-year-olds do and their health rating.

|  |  |  |
| --- | --- | --- |
|  | **Amount of exercise done in minutes every week** | **Health rating as %** |
|  | Less than 30 | 72 |
|  | 90 | 76 |
|  | 180 | 82 |
|  | 300 | 92 |

What conclusion can be made about the effect of exercise on health?

Use information from the table.

........................................................................................................................

........................................................................................................................

**(1)**

(c)     Inherited factors can also affect health.

Give **one** health problem that may be affected by the genes someone inherits.

Draw a ring around the correct answer.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **being malnourished** | **having a high cholesterol level** | **having a deficiency disease** |

**(1)**

(d)     White blood cells are part of the immune system.

Use the correct answer from the box to complete each sentence.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **antibiotics** | **antibodies** | **pathogens** | **vaccines** |

(i)      When we are ill, white blood cells produce .............................................. to kill microorganisms.

**(1)**

(ii)     Many strains of bacteria, including MRSA, have developed resistance to drugs called

...............................................................................................................

**(1)**

**(Total 7 marks)**

5) Diet and exercise affect health.

(a)     Many people are obese (very overweight).

Obesity can lead to heart disease. Other than heart disease, name **two** conditions which are linked to obesity.

1\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(2)**

(b)     The graph shows the number of deaths from heart disease each year in the UK.

The pattern for deaths from heart disease in men is different from the pattern in women.

1. Give **two** differences between the patterns for men and women.

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
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**(2)**

1. Suggest **two** reasons for the difference in the number of deaths from heart disease in men and women between the ages of 40 and 60.

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(2)**

Body mass index (BMI) is a person’s body weight divided by the square of his or her height.

6)      **Graph 1** shows the relationship between BMI and the percentage probability of developing Type 2 diabetes.

**Graph 1**

                  Percentage probability of developing Type 2 diabetes

Suggest an explanation for the relationship between BMI and the risk of developing Type 2 diabetes. **(2)**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7)     **Graph 2** shows changes in the number of new cases of Type 2 diabetes in the UK.

**Graph 2**

                  Year

Suggest explanations for the trend shown by the data in **Graph 2**.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(3)**