

Global challenges – 2022 GCSE Gateway Biology Combined Science A**1. May/2022/Paper_J250/08/No.5**

HIV is spreading rapidly in many countries.

Which method is used to screen for the HIV virus in a person with **no** symptoms?

- A Detection of the HIV antigen
- B Detection of white blood cells
- C DNA testing for tuberculosis
- D Visual identification

Your answer

[1]

2. May/2022/Paper_J250/08/No.7

What medicine can be used to treat tuberculosis?

- A Antibiotics
- B Antiseptics
- C Antitoxins
- D Antivirals

Your answer

[1]

3. May/2022/Paper_J250/02/No.2

Which **abiotic** factor affects the growth of plants?

- A Food
- B Nitrogen gas
- C Predators
- D Soil pH

Your answer

[1]

4. May/2022/Paper_J250/02/No.3

Plasmodium is a microbe that causes the disease malaria in humans. Humans act as a host for plasmodium.

Which term describes the relationship between plasmodium and humans?

- A** Consumer
- B** Mutualism
- C** Parasitism
- D** Predation

Your answer

[1]

5. May/2022/Paper_J250/02/No.8

The microorganism that causes Cowpea mosaic disease can pass through a filter that blocks anything larger than 100 nm.

Which type of microorganism causes Cowpea mosaic disease?

	Microorganisms	Smallest size of microorganism
A	bacteria	120 nm
B	fungi	2 μ m
C	protist	8 μ m
D	virus	15 nm

Your answer

[1]

6. May/2022/Paper_J250/02/No.12

- (a)** HIV and TB (tuberculosis) are infectious diseases.

HIV is spread between humans during sexual intercourse when body fluids come into contact.

TB is a disease caused by bacteria. It affects the lungs.

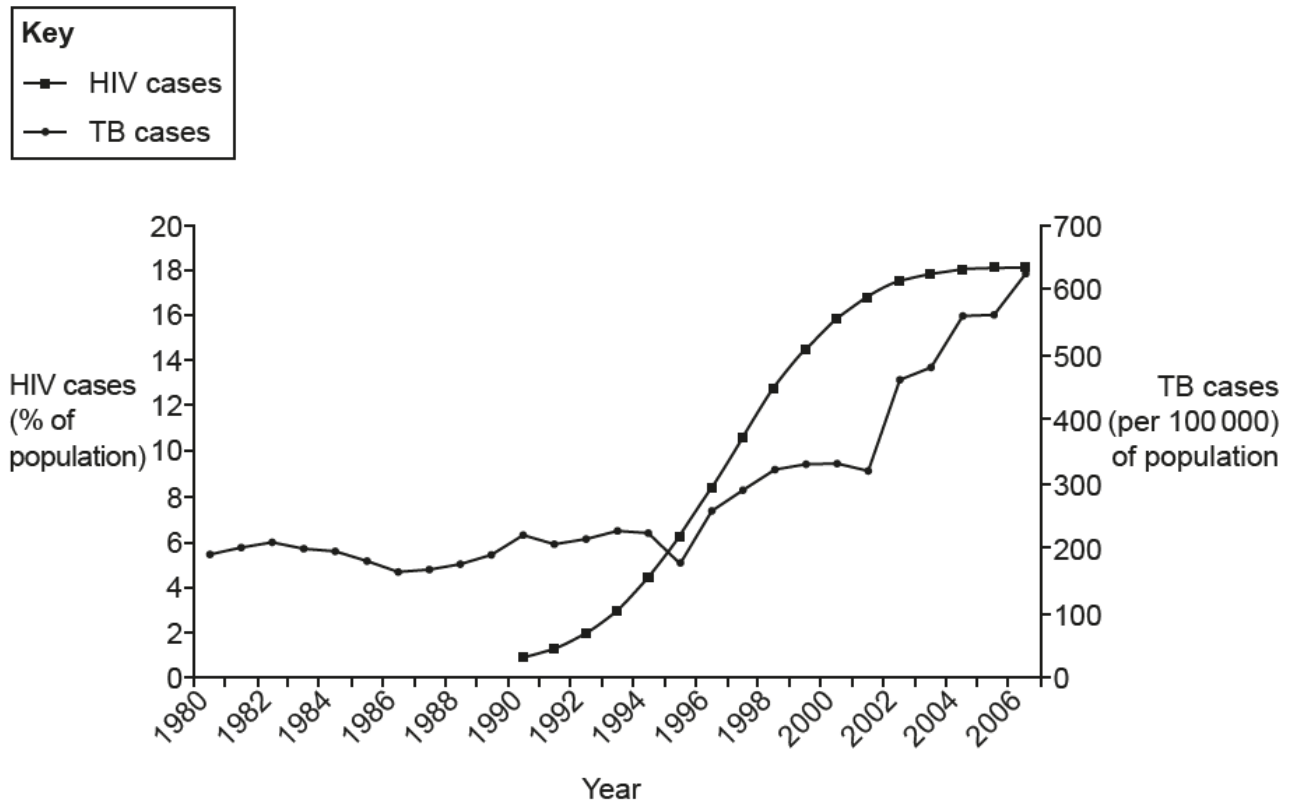
- (i)** Explain how TB is spread between humans.

.....

.....

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

- (ii)** The graph shows how the number of cases for HIV and TB have changed between 1980 and 2006 for one country.



Describe how the graph shows a link between HIV and TB.

.....

.....

..... [2]

(iii) Describe how the **lungs** defend the body against infection from TB bacteria.

.....

.....

..... [2]

(b) The lungs can also be affected by cancer.

Complete these sentences to describe what cancer is.

Use the words in the list.

differentiated	meiosis	mitosis	multiple	undifferentiated
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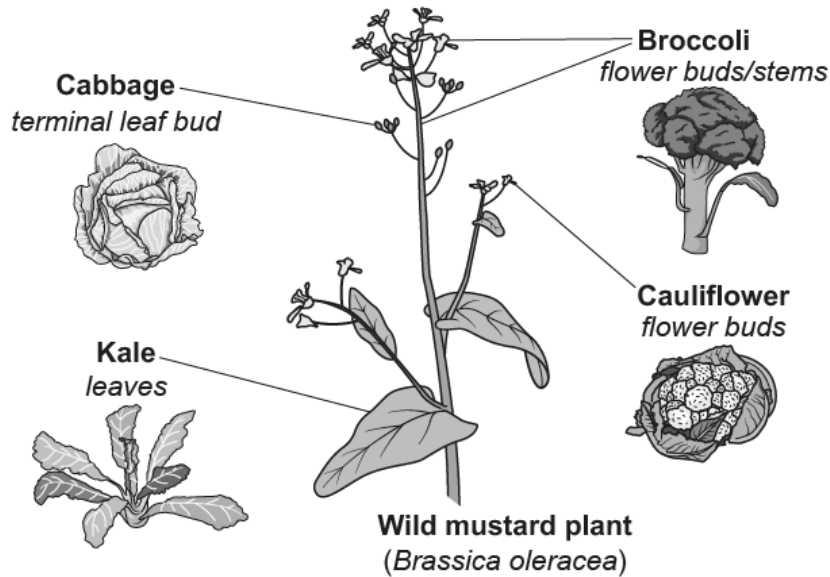
Cancer is the result of uncontrolled growth when cells divide by

This may lead to millions of cells that are unable to become specialised.

[2]

7. May/2022/Paper_J250/02/No.14

The diagram shows some crops that have been developed from a wild mustard plant.



- (a) The cauliflower crops grown today have taken many years to develop.

Name the process used by humans to develop cauliflower plants from wild mustard plants.

Put a tick (✓) next to the correct answer.

Artificial engineering	
Evolution	
Natural selection	
Selective breeding	

[1]

- (b) Some bacteria have genes which mean that they can produce a natural insecticide. Scientists have produced cauliflowers that contain these genes. This means the cauliflowers can now make their own natural insecticide.

- (i) What is modified inside the cauliflower so that it has the genes?

..... [1]

- (ii) Suggest **one** reason for and **one** reason against producing cauliflowers with these genes.

For:

.....

Against:

.....

[2]

- (c) Scientists can now treat blood disorders using gene therapy. To do this they need to obtain blood stem cells.

- (i) Scientists can obtain blood stem cells from different sources.

Name the different types of stem cell that could be obtained from these two sources:

Bone marrow

Fertilised egg after 3 to 5 days [2]

- (ii) The blood stem cells are then modified before being placed into the patient.

Complete these sentences to explain the benefits of using modified stem cells.

The stem cells can be modified to stop the blood cells of the immune system detecting the stem cells.

This will reduce the chance of

[2]