Diseases and immunity – 2021 IGCSE 0610

1. March/2021/Paper_12/No.21

Which defence prevents pathogens from entering the body?

A antibody production

B mucus

C phagocytosis

D vaccination

2. March/2021/Paper_22/No.28

How do some antibiotics kill bacteria?

A They damage the cell wall.

B They damage the endoplasmic reticulum.

C They damage the nucleus.

D They damage the protein coat.

3. March/2021/Paper_22/No.30

Which types of contact between humans can spread HIV?

1 blood transfusions

2 sexual intercourse

3 saliva

A 1 and 2 only **B** 1 and 3 only **C** 2 and 3 only **D** 1, 2 and 3

4. March/2021/Paper_42/No.5

(a) Measles is a transmissible disease.

The percentage of the population that were vaccinated against measles in a country was determined.

The number of confirmed cases of measles in the country was also recorded.

Fig. 5.1 shows the data that were collected between 1975 and 2010.

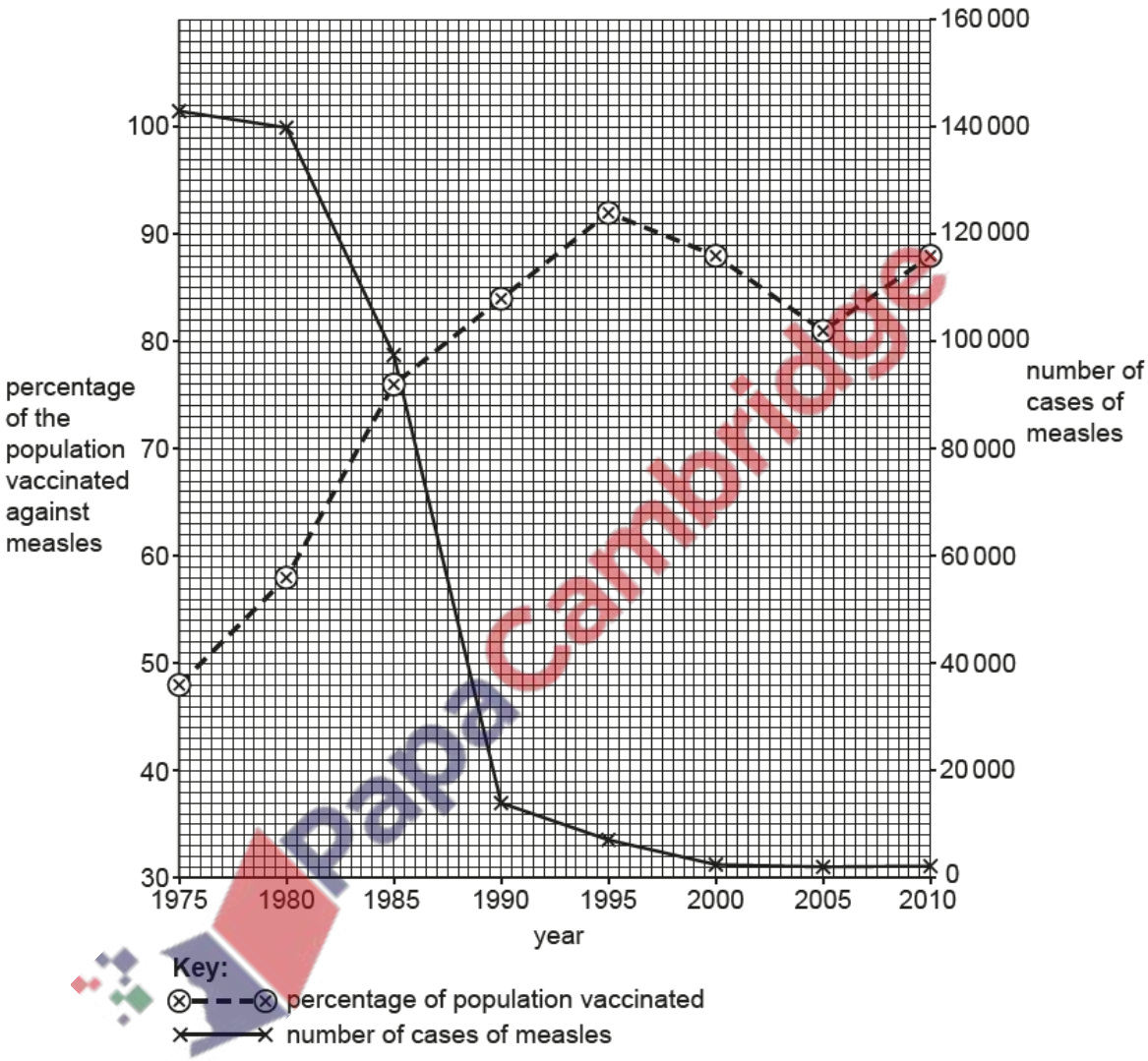

Fig 5.1

(i) Calculate the percentage change in the number of cases of measles between 1980 and 1990.

Space for working.

.....%
[2]

(ii) Describe the data shown in Fig. 5.1.

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..... [4]

(iii) Explain how vaccination protects people against a transmissible disease such as measles.

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..... [5]

(b) The human body has several defences against pathogens.

(i) State **two** of the body's chemical barriers to pathogens.

1 .....

2 .....

[2]

(ii) Describe the process of blood clotting.

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..... [3]

[Total: 16]

5. June/2021/Paper_11/No.23

The list shows some processes that take place in a human body.

1 production of new red blood cells

2 transmission of nerve impulses from the eyes to the brain

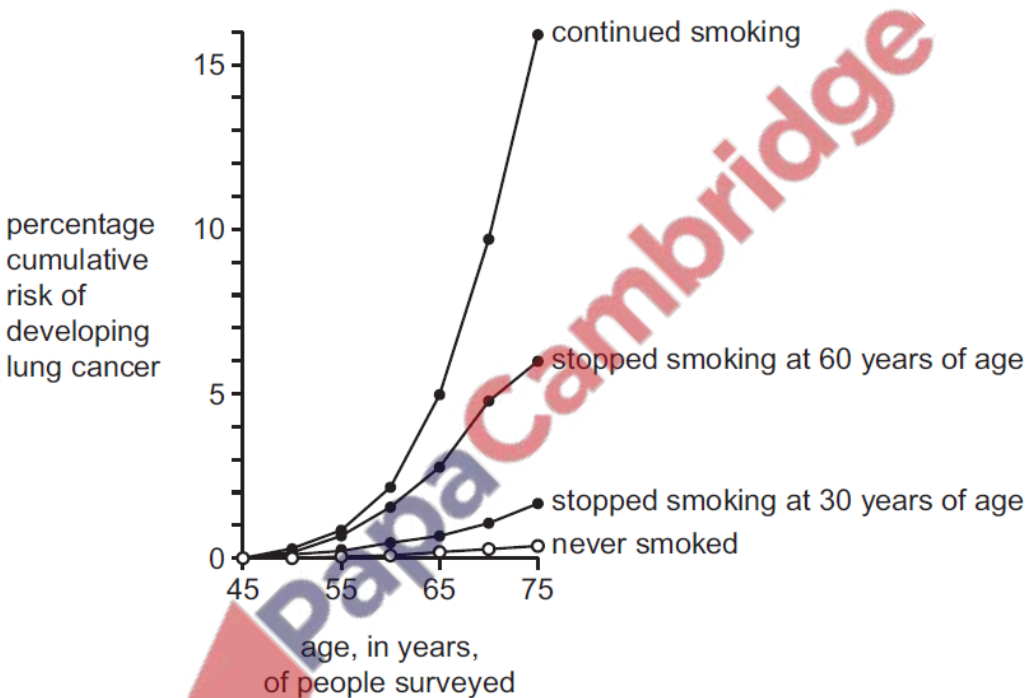
3 diffusion of gases into and out of the lungs

Which processes use energy released by respiration?

A 1 and 2 only **B** 1 and 3 only **C** 2 and 3 only **D** 1, 2 and 3

6. June/2021/Paper_11/No.29

Scientists carried out a survey on the effect of giving up smoking on the risk of developing lung cancer. The results are shown in the graph.



The scientists made three conclusions:

1 Stopping smoking reduces the risk of developing lung cancer.

2 Age increases the risk of lung cancer for smokers and non-smokers.

3 The earlier people stop smoking, the lower the risk.

Which conclusions are correct?

A 1, 2 and 3 **B** 1 and 2 only **C** 1 and 3 only **D** 2 and 3 only

7. June/2021/Paper_12/No.32

How can HIV be transmitted?

A contact with saliva

B drinking water containing untreated sewage

C recessive alleles

D unprotected sexual intercourse with an infected person

8. June/2021/Paper_12/No.33

The diagram shows a specialised cell.

What is the function of this specialised cell?

A asexual reproduction

B conduction of impulses

C movement of mucus in the trachea

D sexual reproduction

9. June/2021/Paper_13/No.3

Scientists discover a new species of animal.

It has a segmented body with two pairs of legs on each segment.

To which group of animals does this new species belong?

A arachnids

B crustaceans

C insects

D myriapods

10. June/2021/Paper_21/No.15

Statements 1 to 4 describe stages in the development of cholera.

1 Chloride ions are secreted into the gut.

2 Osmosis causes water to move into the gut.

3 The infected person becomes dehydrated.

4 Toxins are produced by the pathogenic bacteria.

What is the correct sequence of the four stages?

A 1 → 2 → 3 → 4

B 1 → 4 → 3 → 2

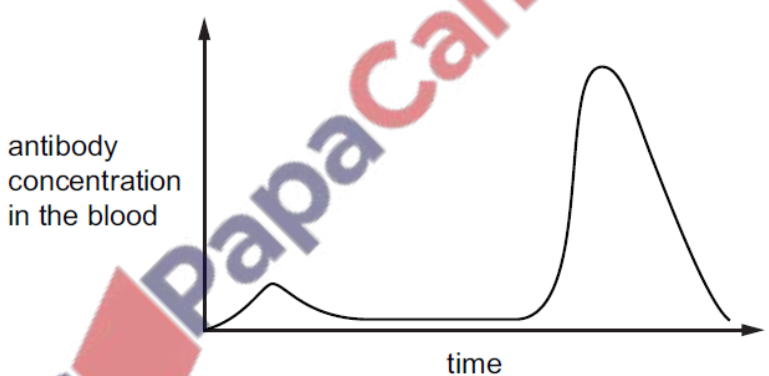
C 4 → 1 → 2 → 3

D 4 → 1 → 3 → 2

11. June/2021/Paper_21/No.21

A child is vaccinated against measles. After a period of time the child is infected with the measles virus.

The graph shows the concentration of measles antibodies in the child's bloodstream during this time.



Which statement is consistent with the information in the graph?

A After the vaccination, the child produced memory cells.

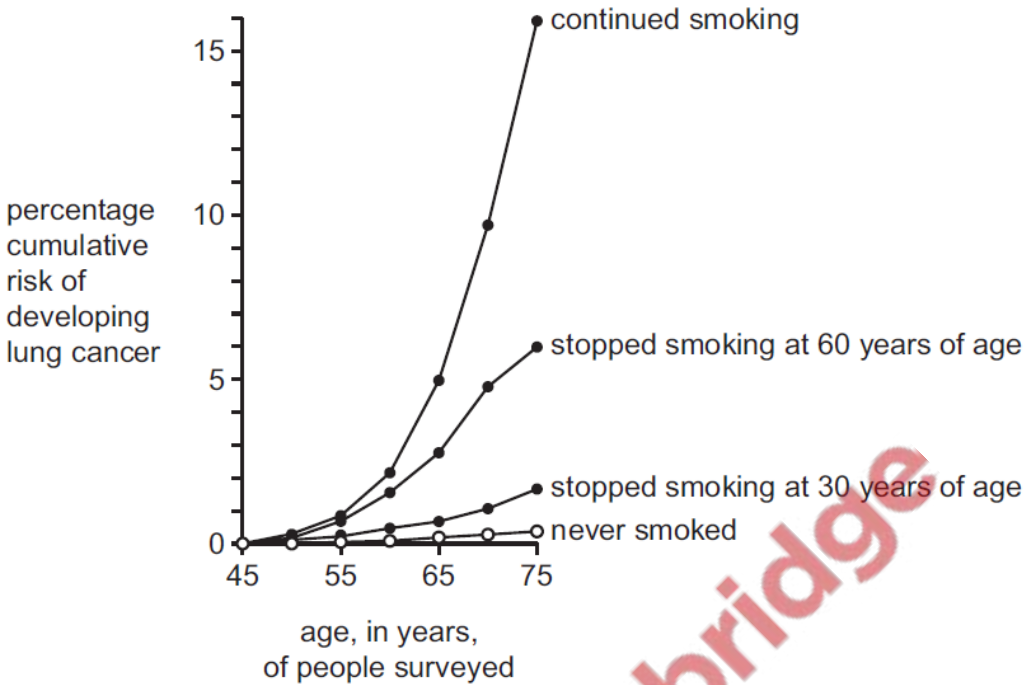
B The child had passive immunity against measles.

C The measles virus contains antibodies.

D The vaccination failed to protect the child against measles.

12. June/2021/Paper_21/No.29

Scientists carried out a survey on the effect of giving up smoking on the risk of developing lung cancer. The results are shown in the graph.



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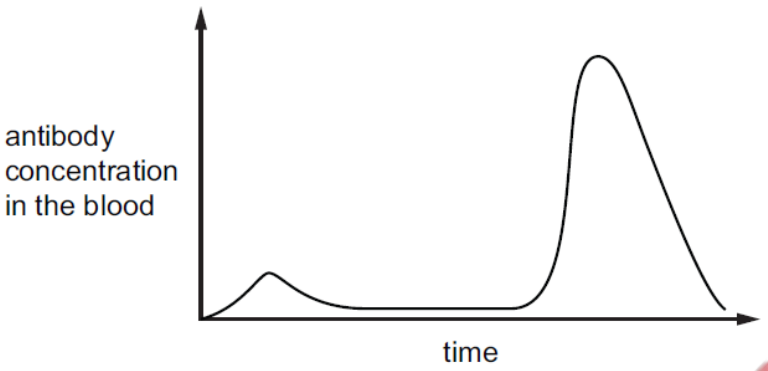

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14. June/2021/Paper_22/No.22

Which sequence of changes takes place when we breathe in?

A diaphragm contracts → volume of thorax increases → pressure in lungs decreases

B diaphragm contracts → volume of thorax increases → pressure in lungs increases

C diaphragm relaxes → volume of thorax increases → pressure in lungs decreases

D diaphragm relaxes → volume of thorax increases → pressure in lungs increases

15. June/2021/Paper_23/No.15

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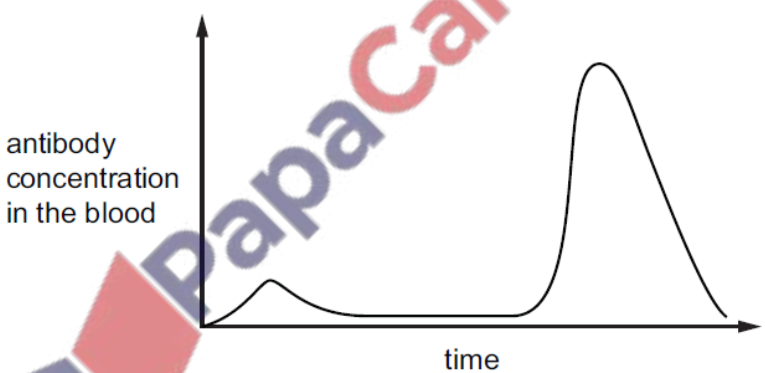

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17. June/2021/Paper_32/No.7

Measles is an example of a transmissible disease that is caused by a virus.

(a) Complete the definition of transmissible disease.

A transmissible disease is a disease in which the ..... can be passed from one ..... to another.

[2]

(b) Fig. 7.1 is a pie chart showing the number of people infected with four different transmissible diseases in one country in 2018.

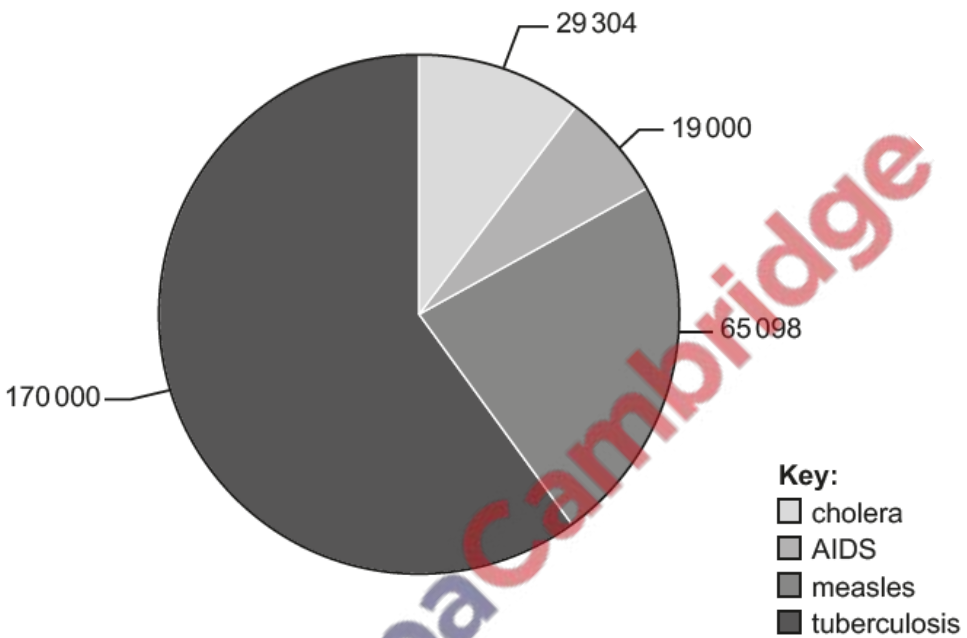

Fig. 7.1

(i) State the name of the disease with the smallest number of infections in Fig. 7.1.

..... [1]

(ii) Use the information in Fig. 7.1 to calculate the total number of people infected with these four diseases.

..... people infected

[1]

(iii) State the type of organism that causes cholera.

..... [1]

(c) **(i)** The list shows some examples of ways that disease-causing organisms can be transmitted.

air **animals** **blood**

contaminated surfaces **food**

Complete Table 7.1 to show which are examples of direct contact and which are examples of indirect contact.

Each example can be used once, more than once or not at all.

Table 7.1

direct contact	indirect contact

[2]

(ii) Table 7.2 shows **three** ways the body can defend itself and some examples of the three methods.

Place ticks (✓) in the boxes to show the correct type of defence mechanism for each example.

Table 7.2

example of defence mechanism	cells	chemical	mechanical
antibody production			
hairs in the nose			
mucus			
phagocytosis			
skin			
stomach acid			

[3]

[Total: 10]

18. June/2021/Paper_41/No.6

(a) Antibodies are proteins that are produced by lymphocytes. Antitoxins are antibodies which neutralise the toxins released by some bacteria.

The transmissible disease diphtheria is caused by a bacterium that releases a toxin that can cause serious damage to the body.

A person is suspected of having caught diphtheria.

At a clinic, the person is given an injection of antitoxin antibodies that provide protection against the diphtheria toxin. She is also given an injection of the vaccine for diphtheria.

A few weeks later she is given a second injection of the diphtheria vaccine.

Fig. 6.1 shows the changes in concentration of the antitoxin antibodies and the antibodies produced in response to the vaccine.

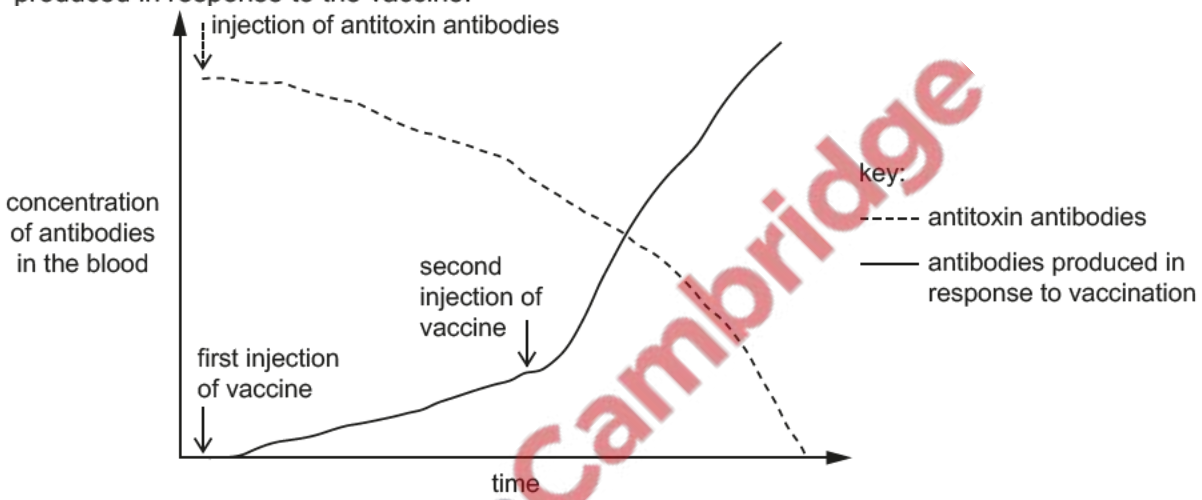

Fig. 6.1

(i) Explain the advantage of giving the person an injection of antitoxin antibodies.

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..... [2]

(ii) Explain how the two injections of the vaccine result in better protection against diphtheria than the injection of antitoxin antibodies.

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..... [3]

(b) Explain how antibodies protect the body against pathogens.

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..... [4]

(c) Antibodies can travel through the body in the lymphatic system.

State **two** functions of the lymphatic system **other than** defence against disease.

1 .....

2 .....

[2]

[Total: 11]