

Revision Sheet

IGCSE Biology · Unit 10 Diseases and immunity

8 vocabulary items · 28 marks of exam questions (12 questions)

Part 1 · Vocabulary review (8 items). The terms this unit is examined on most. Mark it yourself from the answer key.

Section A · Chinese to English

Write the English word.

1.

[1]
2.

[1]
3.

[1]
4.

[1]
5.

[1]
6.

[1]
7.

[1]
8.

[1]

Part 2 · Exam questions (28 marks, 12 questions) begins on the next page. They are ordered easy to difficult and none of them has been set before.

9 One of the symptoms of the disease cholera is diarrhoea. This is due to water loss by osmosis caused by the cholera toxin.

What is the effect of cholera toxins that results in diarrhoea?

- A secretion of chloride ions out of the small intestine lowering the water potential
- B secretion of chloride ions out of the small intestine raising the water potential
- C secretion of chloride ions into the small intestine lowering the water potential
- D secretion of chloride ions into the small intestine raising the water potential

10 Which statement about immunity is correct?

- A A part of the antibody molecule has the same shape as the antigen it acts on.
- B Babies develop passive immunity from the antibodies they receive in breast milk.
- C Phagocytes produce antibodies.
- D Vaccines contain weakened antibodies.

11 The cholera bacterium produces a toxin. The toxin causes the secretion of chloride ions into the lumen of the small intestine.

Why does this cause diarrhoea?

- A The water potential in the lumen of the small intestine decreases and water moves into the small intestine by osmosis.
- B The water potential in the lumen of the small intestine increases and water moves into the small intestine by osmosis.
- C The water potential in the lumen of the small intestine decreases and water moves out of the small intestine by osmosis.
- D The water potential in the lumen of the small intestine increases and water moves out of the small intestine by osmosis.

12 What is a feature of passive immunity?

- A Antibodies are acquired from another individual.
- B It can be gained through infection with a pathogen.
- C Long-term protection is gained.
- D Memory cells are produced.

13 The cholera bacterium toxin causes dehydration and loss of salts from the blood in humans.

☐ Which statement explains the reason for this?

- A** Chloride ions are secreted into the small intestine where they increase the water potential.
- B** Chloride ions are secreted into the small intestine which causes water to move into the intestine by osmosis.
- C** Chloride ions are secreted into the small intestine which causes water to move out of the intestine by osmosis.
- D** Chloride ions are secreted into the small intestine which causes the water potential of the blood to decrease.

14 When a person is given a vaccine, a harmless pathogen is injected. The pathogen has1..... which cause lymphocytes to produce2..... . This is an example of3..... immunity.

☐ Which words should be used to fill gaps 1, 2 and 3 to complete the sentences?

	1	2	3
A	antigens	antibodies	active
B	antigens	antibodies	passive
C	antibodies	antigens	active
D	antibodies	antigens	passive

15 The sequence of amino acids in antibodies enables them to complete which function?

- ☐ **A** bind to a specific antigen
- B** bind to all pathogens
- C** perform phagocytosis
- D** confer passive immunity for all diseases

16 The cholera bacterium produces toxins that cause chloride ions to be secreted into the small intestine.

☐

What is the immediate effect of this on the water potential of blood in the intestinal capillaries, and on the water potential of the contents of the small intestine?

	water potential	
	blood in capillaries	contents of small intestine
A	lowered	lowered
B	lowered	raised
C	raised	lowered
D	raised	raised

17 *Campylobacter* is a bacterium that can cause food poisoning.

☐ Which word describes *Campylobacter*?

- A** antibody
- B** disease
- C** pathogen
- D** symptom

18 Which statement describes passive immunity?

- ☐ **A** the process of antigen production in the body
- B** defence against pathogens by antibodies acquired from another individual
- C** the type of immunity that results from vaccination
- D** immunity that results in the production of memory cells

- 19 (a) Complete the description of the immune system, using the words from the list.
- Each word may be used once, more than once or not at all.
- antibodies

chemical

antigens

engulf

biological

hairs

block

mechanical

nails

vaccines
- The body has defences to protect against infectious diseases.
- Skin and in the nose are barriers.
- Some types of blood cell are involved in defending the body against infectious diseases.
- Some blood cells can produce which can kill the pathogen.
- Other cells can the pathogen in a process called phagocytosis. [4]
- (b) Describe actions that can be taken by individuals in their homes to reduce the spread of disease.
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-
-
-
-
-
-
-
- [3]
- [Total: 7]

- 20 (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.

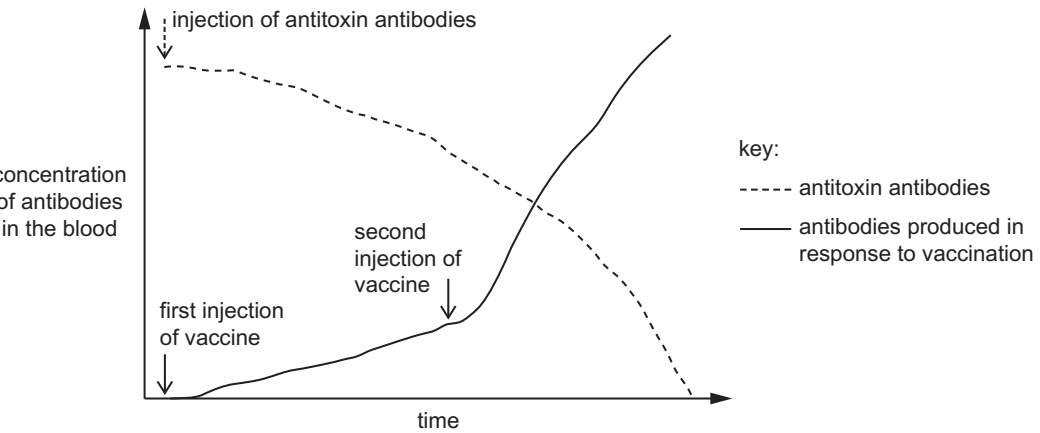


Fig. 6.1

- (i) Explain the advantage of giving the person an injection of antitoxin antibodies.
-
-
-
-
- [2]

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

[3]

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

[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]