CfE Higher Human Biology

Homework

Specific Immune System

1.

Which of the following is an immune response?

A T-lymphocytes secreting antigens

B T-lymphocytes carrying out phagocytosis

C B-lymphocytes combining with foreign antigens

D B-lymphocytes producing antibodies

2.

Which of the following is an example of active immunity?

A Antibody production following exposure to antigens

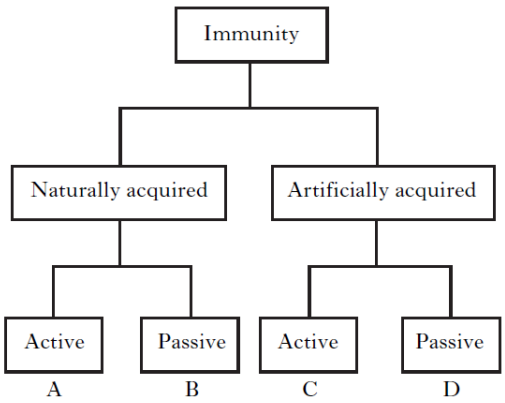
B Antibodies crossing the placenta from mother to fetus

C Antibodies passing from the mother's milk to a suckling baby

D Antibody extraction from one mammal to inject into another

3.

The diagram below summarises different types of immunity.



Which type of immunity would arise from breast feeding?

4. The pathogen for the disease tuberculosis (TB) evades the specific immune response by

A surviving within phagocytes
B attacking lymphocytes
C attacking phagocytes
D antigenic variation.

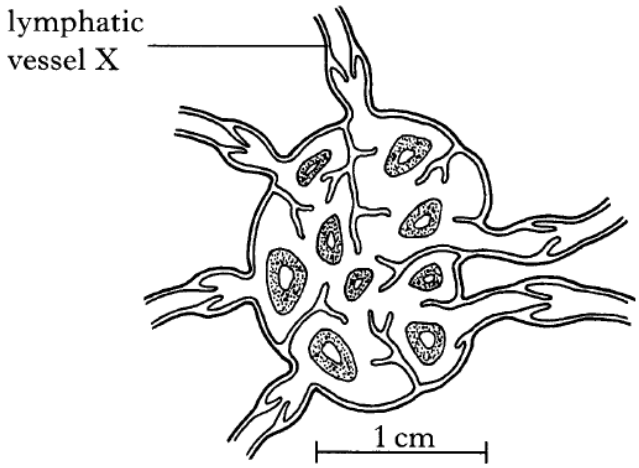
5. Failure in regulation of the immune system leading to an autoimmune disease is caused by a

A B lymphocyte immune response to self antigens.
B T lymphocyte immune response to self antigens.
C B lymphocyte immune response to foreign antigens.
D T lymphocyte immune response to foreign antigens.

Section B

1.

The diagram below shows a section through a lymph node.

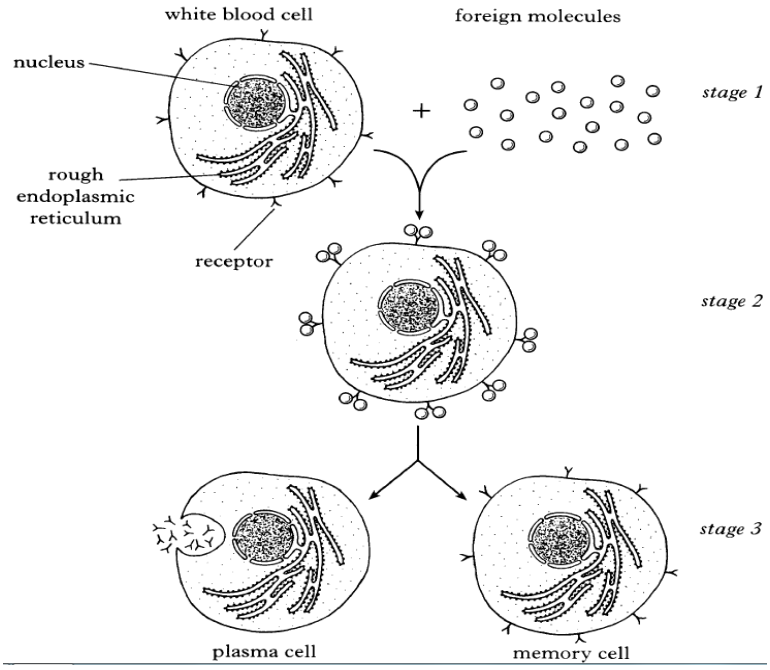


(*a*) Complete the table to name the cells found in the node, and to describe their functions.

Type of cell	*Secretion of antibodies (yes/no)*	*Type of response*
B-lymphocyte		
	no	cell-mediated response
		non-specific response

3

2. The following diagram shows three stages in the specific immune system



(*a*) (i) What type of white blood cell carries out the specific immune response?

_____ **1**

(ii) What name is given to foreign molecules which stimulate the immune response?

_____ **1**

(*b*) Describe **two** responses made by the white blood cell as a result of the attachment of the foreign molecules.

1 _____

2 _____ **1**

(*c*) Mature plasma cells contain a large quantity of rough endoplasmic reticulum. Explain this feature of these cells.

_____

_____

_____ **2**

(*d*) Suggest the role of memory cells in the immune response.

_____

_____ **1**

(*e*) What term describes the secretion of substances, such as antibodies, out of a cell?

_____ **1**

(*f*) Describe how the body might obtain antibodies in a natural, passive way.

_____

_____ **1**

3.

The immune system recognises antigens on the cell membrane as self or non-self.

What term describes

(i) an immune reaction to self antigens?

_____ **1**

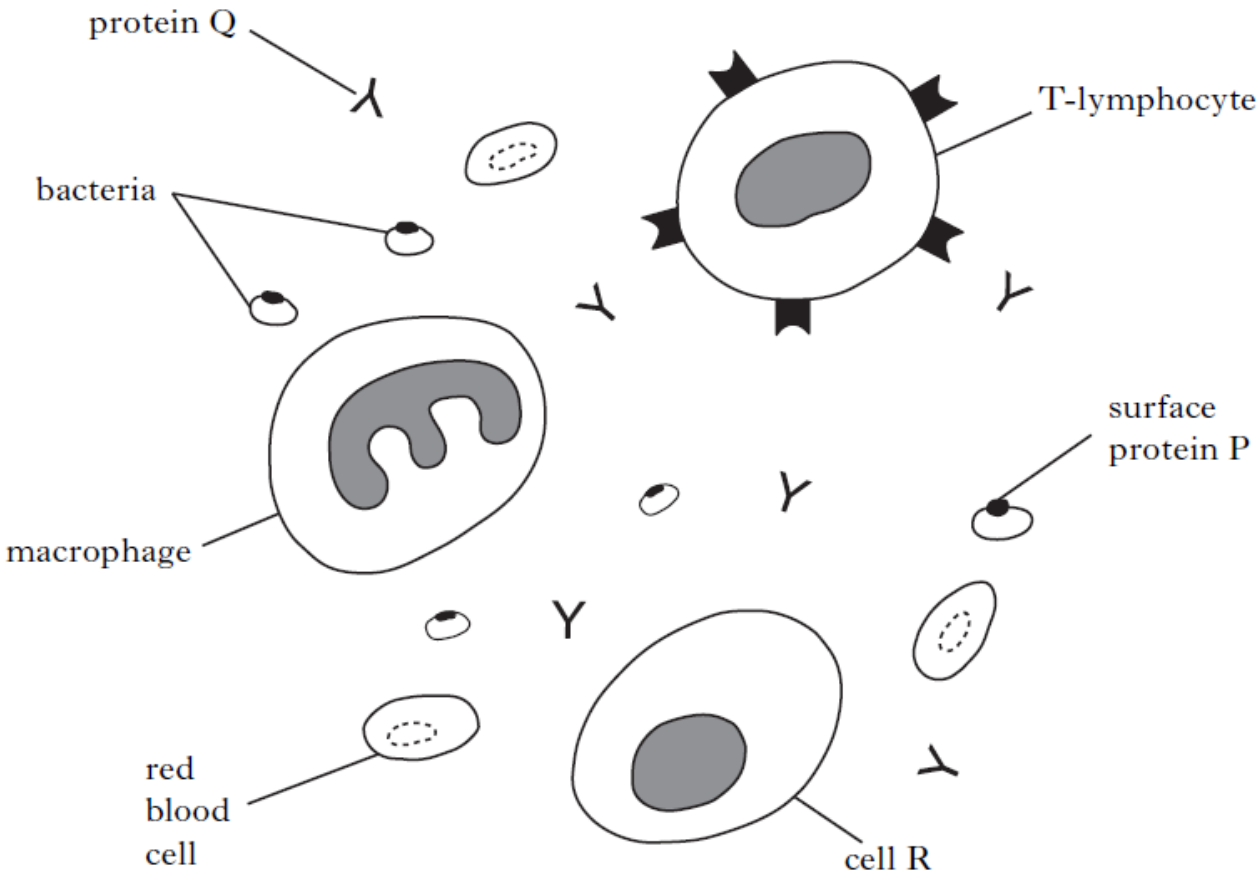
(ii) an over-reaction to a normally harmless non-self antigen?

_____ **1**

4.

The diagram below shows blood from a person who has been infected by bacteria. These bacteria have triggered an immune response involving proteins P and Q.

The diagram is not drawn to scale.



(*a*) (i) Identify proteins P and Q.

P _____ Q _____ **1**

(ii) Cell R produced protein Q.

Name this type of cell.

_____ **1**

(iii) Describe the role of the following cells in combating infection.

(A) T-lymphocyte _____

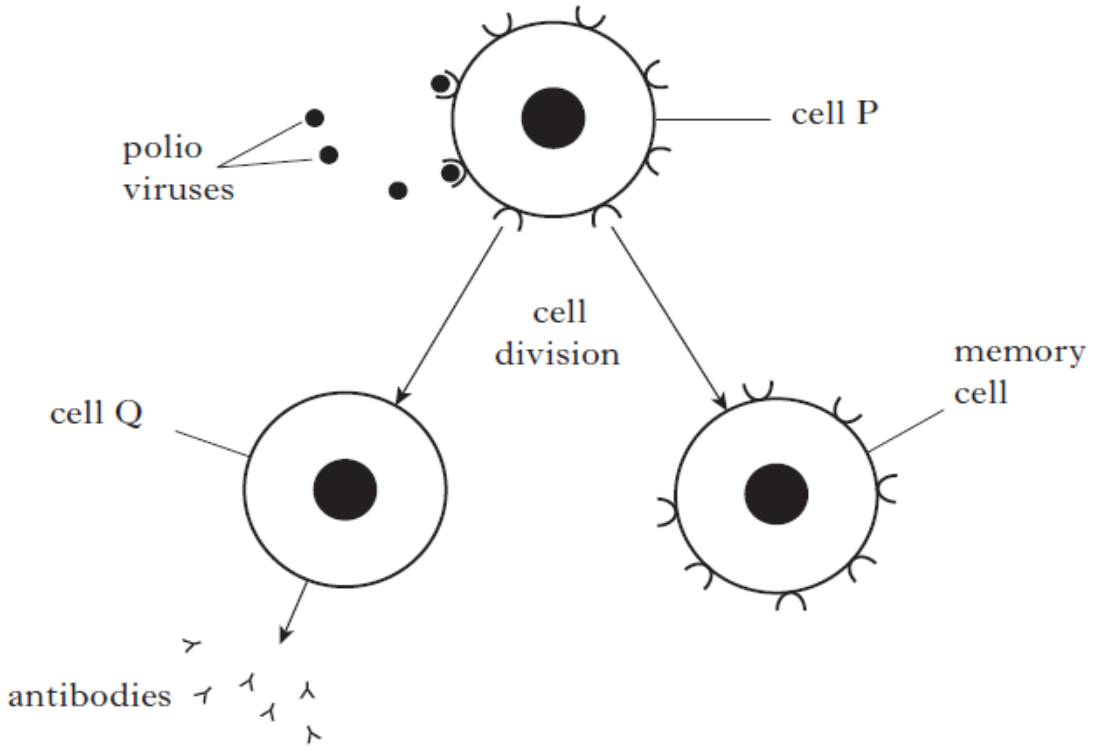
_____ **1**

(B) Macrophage _____

_____ **1**

5.

The diagram below shows how the immune system responds to the flu virus



(*a*) What type of immunological response involves the production of antibodies?

_____ **1**

(*b*) (i) Name cell Q.

_____ **1**

(ii) Describe **two** functions of cell P that are shown in the diagram.

1 _____

2 _____ **1**

(*c*) Describe the role of memory cells in the immune system.

_____

_____ **1**

(*d*) Explain why vaccination against polio would not provide immunity against the measles virus.

Explain why an infected person could catch the flu again the following year

_____

_____ **1**

(*e*) In an emergency, ready-made antibodies can be injected into an individual.

(i) Name the type of immunity that this gives.

_____ **1**

(ii) State **one** advantage and **one** disadvantage of this type of immunity.

Advantage _____

_____

Disadvantage _____

_____ **2**