Immunity Test

Human Biological Science Stage 3

Name _____

Score _____/56

MULTIPLE CHOICE SECTION

1. A key component of cell- mediated immunity is the body's production of

(a) antigens
(b) killer T cells
(c) antibodies
(d) memory B cells

2. A child receiving antibodies from its mother's breast milk develops

(a) naturally acquired passive immunity
(b) artificially acquired active immunity
(c) artificially acquired passive immunity
(d) naturally acquired active immunity

3. T cells and B cells are both

(a) phagocytes
(b) erythrocytes
(c) thymocytes
(d) lymphocytes

4. The antibiotic Vancomycin would be least effective at combating

(a) a foot infection caused by a large splinter
(b) a sore throat caused by the Staphylococcus bacterium
(c) the measles virus
(d) severe food poisoning

5. Pus is formed when special cells of the immune system enter the site of infection and ingest or engulf foreign matter. These cells are called

(a) T cells
(b) phagocytes
(c) lymphocytes
(d) antigens

6. Which statement about lymph nodes is correct?

(a) they have a role in the pumping of lymphatic fluid
(b) they contain cells that phagocytose bacteria
(c) they produce antigens, vital chemicals that combat infection.
(d) they contain B- lymphocytes that engulf foreign particles

7. Memory cells in the immune system

(a) are found in the frontal love of the brain
(b) circulate in the blood
(c) are found in the spinal cord
(d) stay in lymphoid tissue

8. Antigens are:

(a) the bodies main immune response
(b) proteins usually found in blood plasma and tissue fluid
(c) formed in response to stimulation by foreign substances
(d) foreign substances not usually found in the body

9. Pathogens can be:

(a) pollen grains, viruses and bacteria
(b) bacteria, viruses and spores
(c) bacteria, viruses and fungi
(d) viruses, fungi and pollen grains

10. Vaccinations:

(a) stimulate the immune system to produce antibodies before you are exposed to the pathogen
(b) cause you to have the infection
(c) increase production of antigens in the body
(d) reduce the level of antibodies in the body

SHORT ANSWER SECTION

Question 11 **[15 marks]**

Write down the word or phrase that best describes each of the following.

(i) A specialised protein that is produced in response to an antigen

_____

(ii) Where lymphocytes are produced

_____

(iii) Cells that provide cell mediated immunity

_____

(iv) cells that secrete antibodies

_____

(v) the process macrophages use to ingest particles

_____

(vi) the ability to resist infection

_____

(vii) material made from some microorganisms which is injected to stimulate immunity in the recipient

_____

(viii) The proper name for a 'swollen gland'

_____

(ix) Where T cells mature

_____

(x) Where B cells mature

_____

(xi) Drugs used against viruses

_____

(xii) The cells from which all types of blood cells originate

_____

(xiii) Disease causing organisms.

_____

(xiv) Global spread of disease.

_____

(xv) Proteins released by cells when they are infected by viruses.

_____

Question 12 **[6 marks]**

(a) Distinguish between 'self' and 'non self'. [2 marks]

_____

_____

_____

_____

(b) Explain how this can cause complications for transplant recipients. [2 marks]

_____

_____

_____

(c) What are some strategies that may be possible in the future to overcome this situation? [2 marks]

_____

_____

_____

_____

Question 13 **[10 marks]**

A person was injected on two occasions with an attenuated pathogen for rubella.

The **FIRST** injection was administrated on Day 0 and within 14 days symptoms of the disease occurred but subsided by the end of the third week. During these three weeks the persons blood was tested daily for specific antibody to rubella.

The **SECOND** injection of the same antigen was given at the end of the third week and for a further four weeks the concentration of specific antibody for rubella was measured in the persons blood.

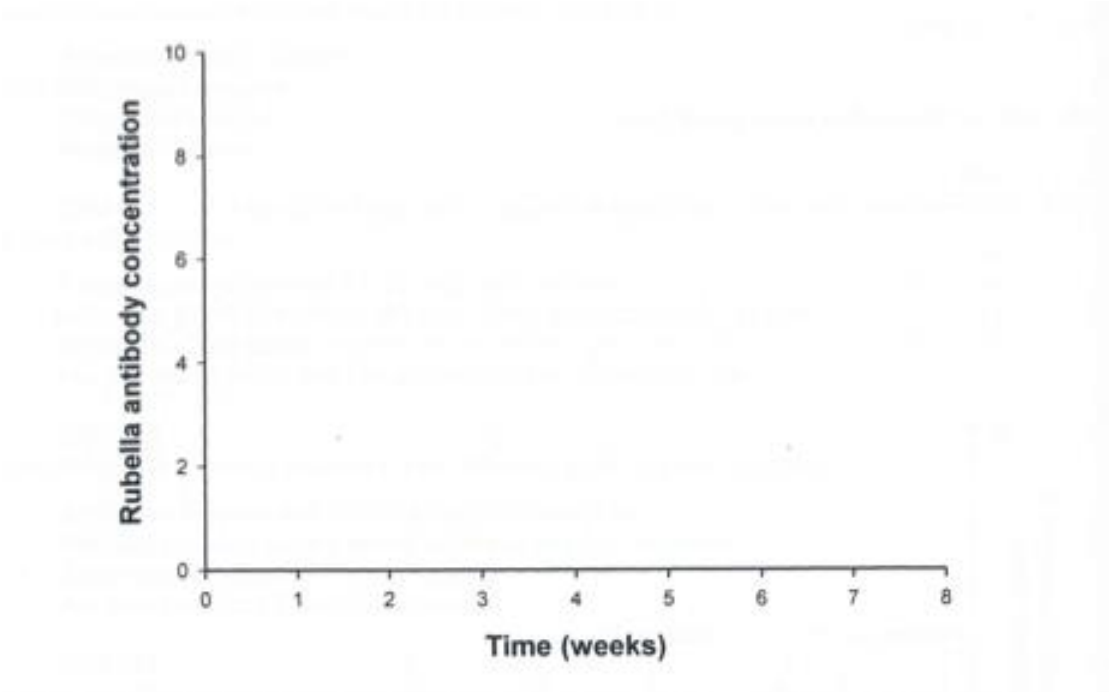
(a) Explain the meaning of the term 'attenuated pathogen'. [2 marks]

_____

_____

(b) Using the axes provided below, SKETCH a graph to show the relation ship between time and the concentration of rubella antibodies in the blood of the person injected. The time scale on the graph should be from Day 0 to the end of the seventh week. [3 marks]

Graph showing rubella antibody concentration over time



(c) What is the purpose of the first injection? [1 mark]

_____

(d) In the table below, briefly explain how each of the cell types listed contributes to the response of the immune system to the rubella vaccine.

[4 marks]

Cell Type	Contribution to immune response
Macrophage	
Helper T cell	
Memory B cell	
Plasma Cell	

Question 14 **[10 marks]**

(a) What is the difference between active and passive immunity? [4 marks]

_____

_____

_____

_____

_____

(b) Which is more effective in producing long term long term immunity, active or passive immunity? Explain why? [4 marks]

_____

_____

_____

_____

(c) Susan's right index finger is red, swollen and painful. After a few days, the redness and swelling seem to have spread along her finger. She visits her local doctor and is told that it is likely to be a bacterial infection. Her doctor prescribes an antibiotic.

(i) What is required for an antibiotic to be effective? [2 marks]

_____

_____

Question 15 **[5 marks]**

Draw and label a series of diagrams representing Cell-Mediated Immunity.
[5 marks]