PART ONE: MULTIPLE CHOICE QUESTIONS – Circle the correct answer

1	2	3	4	5	6	7	8	9	10
A	B	B	C	D	D	D	C	C	B
11	12	13	14	15	16	17	18	19	20
B	B	A	C	B	C	B	B	B	B
21	22	23	24	25	26	27	28	29	30
D	B	A	C	D	B	A	B	B	D
31	32	33	34	35	36	37	38	39	40
A	A	C	A	B	A	B	D	C	C
41	42	43	44	45	46	47	48	49	50
B	A	B	D	C	C	C	A	D	D

PART TWO: STRUCTURED QUESTIONS

Question 1 -

A. B lymphocyte. Because of the antibody production

B. Complete the table below by naming and stating the functions of cell Y and Cell Z?

		Name of cell	**Function**
A	Cell Y	Plasma cell	Releases antibodies against selected antigen
B	Cell Z	Memory cell	Responds to next invasions if any

C. The immune response of Cell Z

1- Involves a greater antibody production **2-** Is faster response

D. **Inflammation** is a protective immune response of the body to harmful stimuli, such as pathogens, damaged cells, foreign cells and irritant substances. Examples of inflammation symptoms include:

- Fever
- Swelling
- Muscle stiffness
- Runny nose

NB: Other answers can be acceptable

E. This is aimed at making children body immune and just for preventing future diphtheria infections

F. **Antibodies** are protein molecules produced by the body to help fight against foreign substances called **antigens**.

Antigens are substances that stimulate the immune system to produce **antibodies**. Antigens can be pathogenic cells that cause infection.

G. Many immune cell types involve in tissue rejection (Mainly the lymphocytes). The T **cells** are specifically central and increase in the **rejection** of **grafts**. They respond to the foreign proteins of the transplanted tissue. The initiate the response of both cell-mediated and antibody-mediated immunity against cells of the **graft**.

H. TWO advantages of Passive immunity

1- Immediate or fast immunity **2-** Important for maintaining child health

Question 2 -

A. Name the types of immunity shown by figures **A** and **B**.

A . Passive immunity

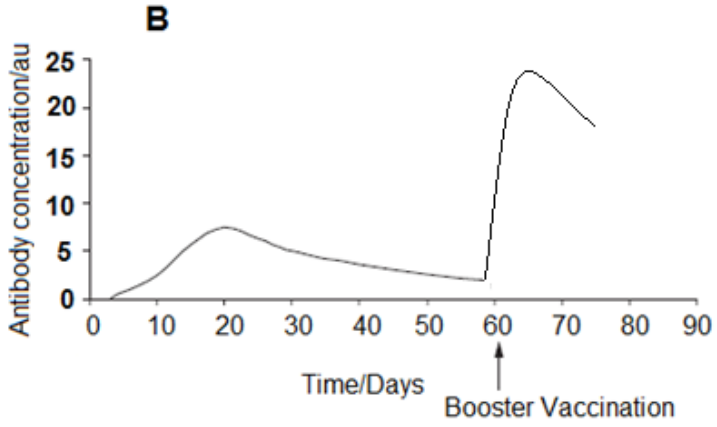
B . Active immunity

B. Explain why the antibody concentration in person **A**,

(i) Because the injected antibodies are used by the body and they lasted

(ii) Because memory cells are undeveloped and antibodies are not released

C. **Sketch on** Fig. **B**, what you would expect to happen to the antibody concentration if person **B** received a booster vaccination at **day 60**.



D. Because the antibodies are different and each type of disease has specific antibodies.

Question 3 -

- ✓ antibodies
- ✓ natural
- ✓ artificial
- ✓ nonspecific
- ✓ specific antigen

Question 4 -

a) Children under 5 years old, pregnant women, older people etc
b) Because the antigens of influenza viruses are constantly changing and the body's immune cells can no longer recognize the new antigens.
c) Memory cells respond to and defend the body against the same re-infected antigen (it prevents future influenza infection of the same type).

Question 5 -

a) Antibody (immunoglobulin, Ig) is a Y-shaped glycoprotein molecule which binds to a complementary antigen.
b) Volunteer A = 3.2 Volunteer B = 6.8
c) Because since he had passive immunity which is short term, the antibodies injected decreased and longer defend the body after day 35
d) i) Active immunity is the immunity gained when an antigen enters the body.
ii) – he had no antibodies before giving vaccine.
– antibodies increased and show no decrease as memory cells develop.

Question 6 -

a) – V = variable region
– C = constant region
b) X = antigen binding site Y = short or light chain Z = long or heavy chain.
c) Antigen
d) To bind to antigen. For each antibody it has a unique shape making it specific.

END