

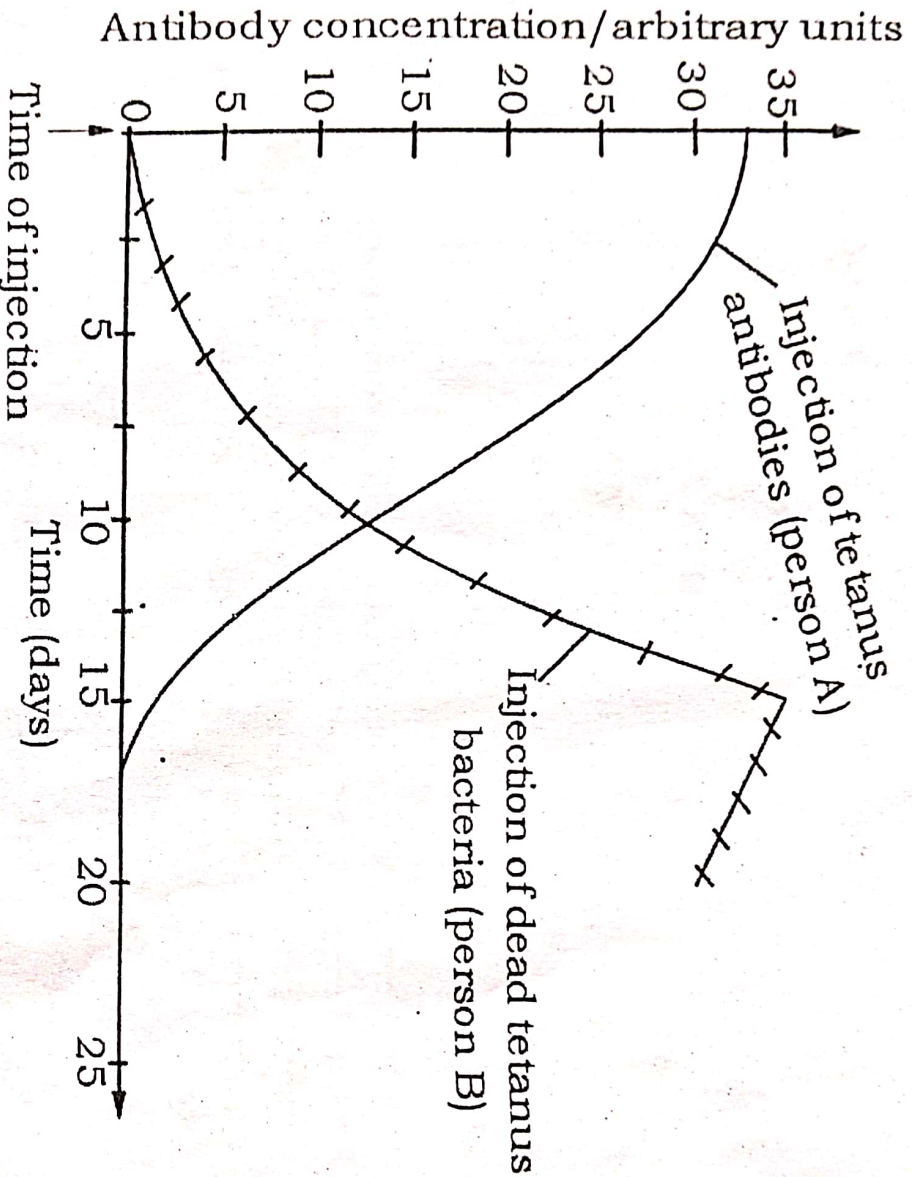
2 ½ HOURS

2HOURS 30 MINUTES

SECTION A (40 MARKS)

1. Vaccination programmes for children have considerably reduced deaths from infectious diseases.

The graph below shows the concentration of tetanus antibodies over time with active and passive immunity;



Describe the changes in antibody concentration with time for the two persons.

- i) Person A (6marks)
- ii) Person B (6marks)
- a) Explain the changes in the concentration of the antibodies with time for each person.
 - i) Person A (9marks)
 - ii) Person B (9marks)
- b) Identify the type of immunity received by each person. Give reasons for your answer in each case. (4mks)
- c) Explain why some diseases have been eradicated by immunization while others like measles have not. (6mks)

SECTION B (60 MARKS)

2. a) Describe the steps that lead to pyruvate formation in cells. (12 marks)
b) Explain how cells deal with the pyruvate in the absence of oxygen. (8marks)
3. a) Compare parasympathetic and sympathetic nervous systems. (12marks)
b) How is the unidirectionality transmission of an impulse maintained? (8marks)
4. a) Describe the factors that determine the distribution of organisms in nature. (16marks)
b) How can clear-cutting a forest damage water quality of a nearby lake? (4marks)
5. a) Describe the changes that occur in foetal circulation at birth. (14marks)
b) How is the placenta adapted for its functions? (6marks)
6. Viruses and bacteria are the simplest forms for biological systems. Discuss their success. (20marks)

END