

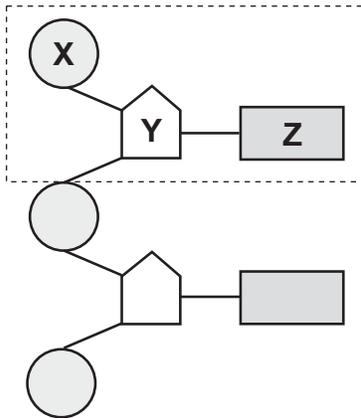
PART B: WRITTEN RESPONSE

Value: 50 marks

Suggested Time: 75 minutes

- INSTRUCTIONS:**
1. Use a **pen** for this part of the examination unless otherwise instructed.
 2. Write your answers in the space below the questions.
 3. Organization and planning space has been incorporated into the space allowed for answering each question.
 4. You may not need all of the space provided to answer each question.

Use the following diagram to answer question 1.



1. Identify the structure made up of parts **X**, **Y** and **Z** and state its function.
(2 marks: 1 mark for name; 1 mark for function)

Name: _____

Function: _____

2. What is produced as a result of each of the following during protein synthesis?

RNA bases and DNA bases join together by complementary base pairing. **(1 mark)**

Transfer RNA joins to messenger RNA at the ribosome. **(1 mark)**

3. An experiment was devised in which blood cells were placed in three beakers containing solutions of different concentrations. The results are given below.

BEAKER	% SOLUTE IN RED BLOOD CELLS	% SOLUTE IN THE SOLUTION
A	2	2
B	2	1
C	2	3

- a) Describe what happened to the cells in beaker **B** and explain the results. **(2 marks)**

- b) Describe what happened to the cells in beaker **C** and explain the results. **(2 marks)**

- c) Explain why the solution in beaker **A** is isotonic to the red blood cells. **(1 mark)**

4. A piece of living small intestine was placed in a solution containing maltose, egg white, and fats. In order to ensure that the piece of intestine functioned normally, oxygen was bubbled through the solution and the pH was maintained at 8.2. After one hour the solution was analyzed.

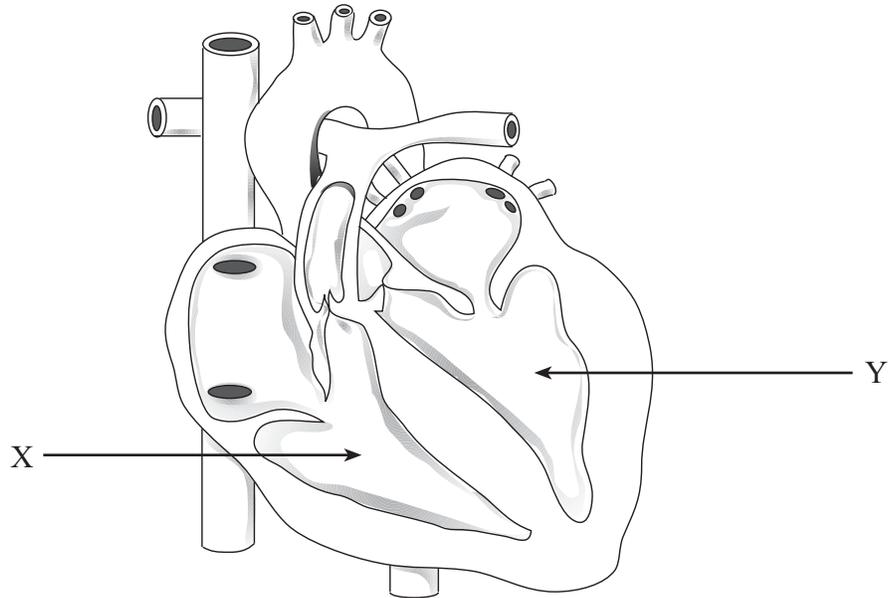
a) Explain why glucose was found in the solution. **(1 mark)**

b) Products from the breakdown of fat were **not** found. Explain why. **(1 mark)**

c) Why was the solution buffered to pH 8.2? **(1 mark)**

d) In a variation of this experiment, trypsin was also added to the solution. Describe the results of this new experiment after one hour. **(3 marks)**

Use the following diagram to answer question 5.



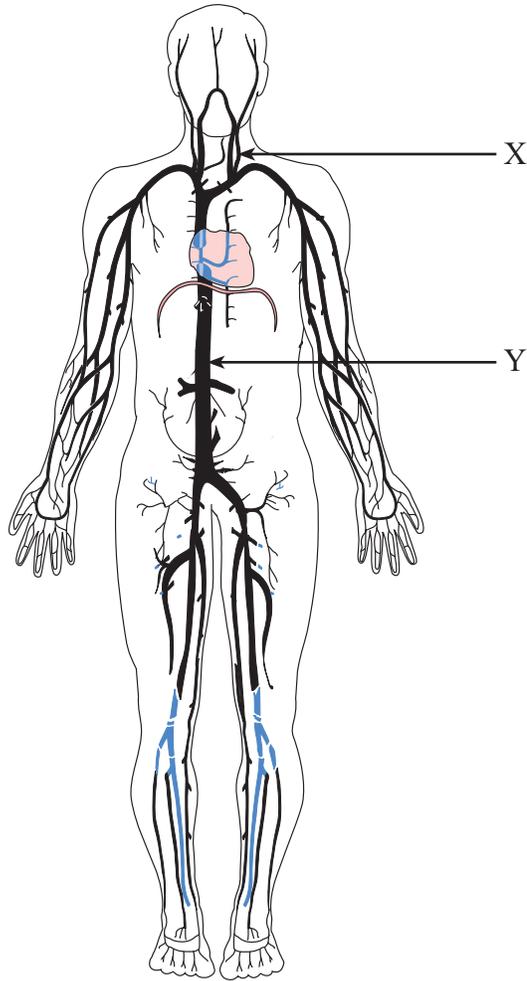
5. a) Compare the composition of the blood in structures **X** and **Y**. (2 marks)

Structure **X**: _____

Structure **Y**: _____

b) Relate the difference in the structure of **X** and **Y** to their functions. (2 marks)

Use the following diagram to answer question 6.



6. a) Identify each of the labelled veins and give **one** function of each.

(4 marks: 1 mark each for name; 1 mark each for function)

Vein X:

Name: _____

Function: _____

Vein Y:

Name: _____

Function: _____

- b) i) Give the location of the oval opening (foramen ovale) in the circulatory system of the fetus and state its function.
(2 marks: 1 mark for location; 1 mark for function)

Location: _____

Function: _____

- ii) Describe what would occur if the oval opening (foramen ovale) failed to close at birth. **(1 mark)**

7. Describe **three** ways in which the structure of the alveoli facilitates their function. **(3 marks)**

i) _____

ii) _____

iii) _____

8. Describe how each of the following is important to the passage of a nerve impulse.

sodium/potassium pump:

(2 marks)

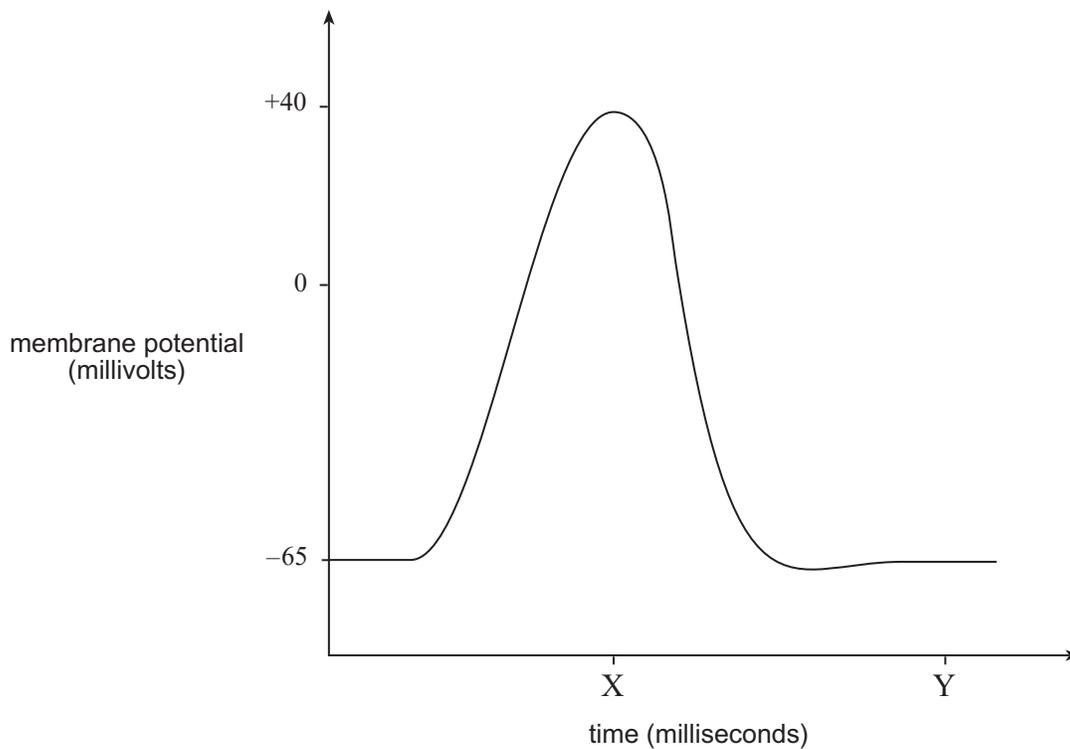
synaptic vesicles:

(2 marks)

myelinated axon:

(2 marks)

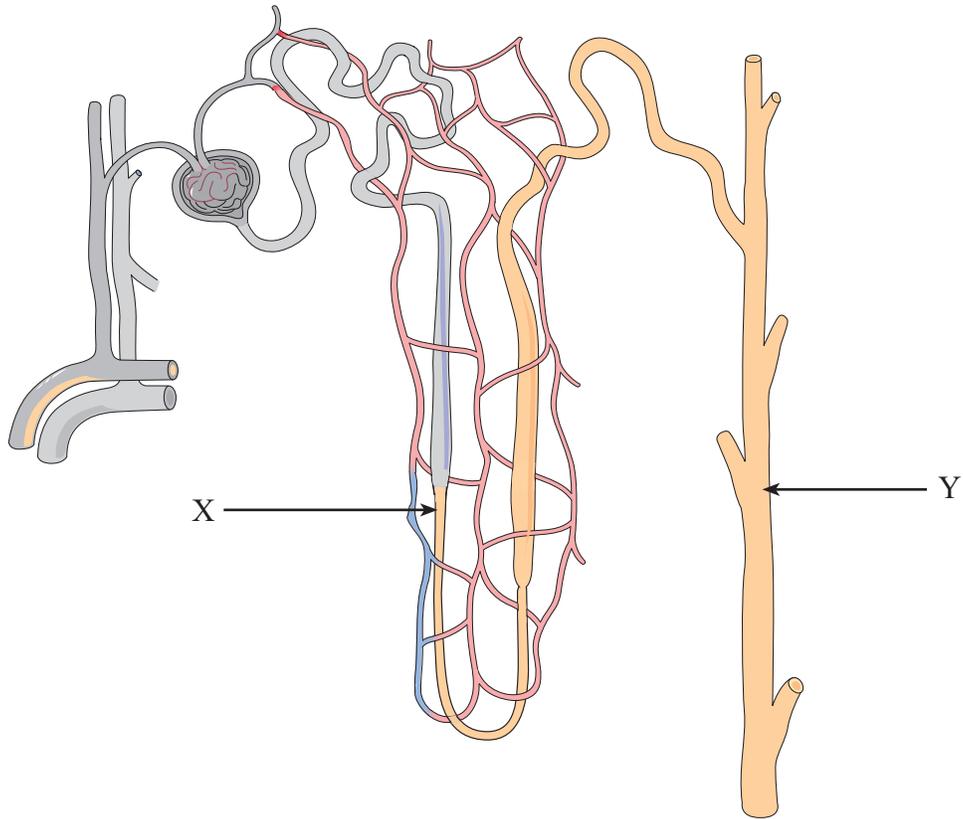
Use the following graph to answer question 9.



9. a) Describe what is occurring at the neuron between time X and time Y. **(4 marks)**

b) What would occur if the membrane of the axon became impermeable to potassium ions (K^+) at time X? **(2 marks)**

Use the following diagram to answer question 10.



10. a) Explain why it would be abnormal to find glucose in structure Y. (1 mark)

b) Explain why structure X is longer in an animal that lives in the desert. (1 mark)

11. Explain what happens in the kidneys in response to each of the following conditions.

a decrease in blood pressure:

(2 marks)

a decrease in blood pH:

(2 marks)
