

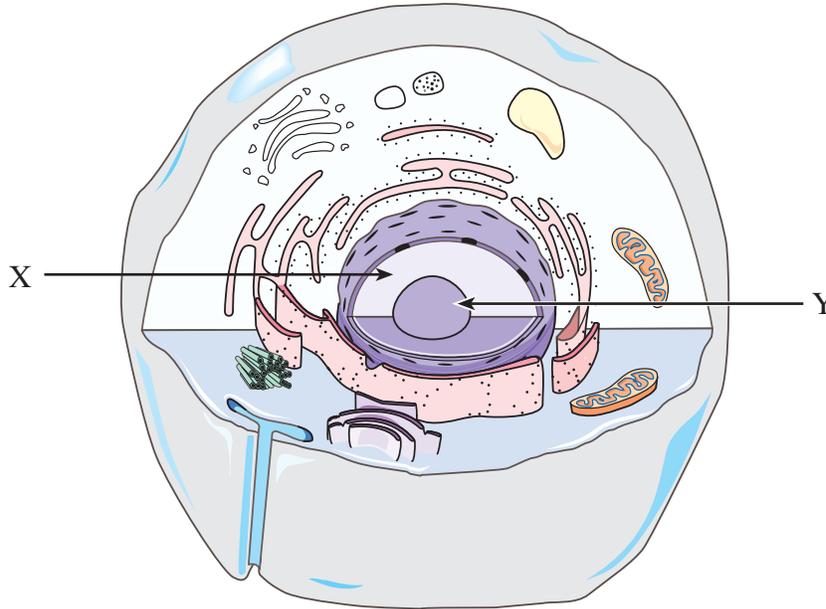
PART B: WRITTEN RESPONSE

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. You may not need all of the space provided to answer each question.

Use the following diagram to answer question 1.



1. Name structures **X** and **Y** and explain how each functions in protein synthesis.
(4 marks: 1 mark each for structure; 1 mark each for function)

structure **X**:

name: _____

function: _____

structure **Y**:

name: _____

function: _____

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2. Draw a diagram showing the bonding between water molecules and explain how the structure of the water molecules allows these bonds to form. (You may use a pencil for your diagram.)
(3 marks: 1 mark for diagram; 2 marks for explanation)

explanation: _____

3. Describe how each of the following contributes to the production of a protein. **(4 marks)**

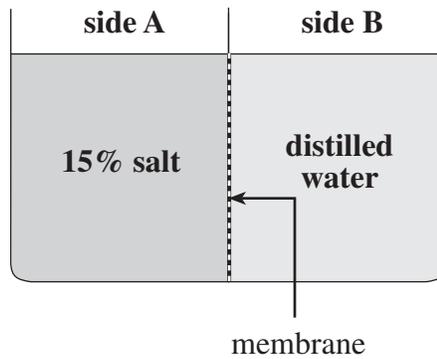
DNA:

codon:

tRNA:

ribosome:

Use the following diagram to answer question 4.



4. An experiment was carried out to study the movement of molecules through a membrane. Two solutions were placed into a container on either side of a membrane which is permeable to salt and water. The temperature was maintained at 40°C.

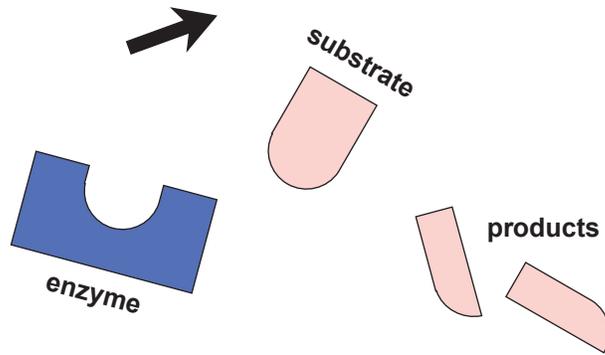
a) Describe what happens to the volume of the solution on both side **A** and side **B** after five hours. Explain your answer. **(2 marks)**

b) Describe what happens to the solute concentration on side **B**. Explain your answer. **(3 marks)**

- c) If the temperature at the beginning of the experiment was at 5°C , describe how the results obtained at 5°C would be different from the results obtained at 40°C . Explain your answer.

(2 marks)

Use the following symbols to answer question 5.



5. Using **all** of the symbols above as often as necessary, produce a diagram to illustrate how enzymes function. Explain your diagram. (You may use a pencil for your diagram.)
(4 marks: 2 marks for diagram; 2 marks for explanation)

explanation: _____

8. Complete the following table.

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

Structure	Location in the heart	Function
Sinoatrial (SA) node		
Purkinje fibres		

9. a) Compare the pH and temperature of the blood in the lung capillaries with the blood in the capillaries of other body tissues. **(2 marks)**

- b) How does the pH and temperature of the blood in the body tissues affect the ability of oxygen to bind to hemoglobin? **(1 mark)**

- c) How would the conditions of the blood in the body tissues change during strenuous exercise? **(2 marks)**

10. a) Identify the division of the autonomic nervous system that is involved in the “fight or flight” response. **(1 mark)**

b) Identify the hormone involved in the “fight or flight” response, name its source gland, and give **three** effects that the hormone has on the body.
(5 marks: 1 mark for hormone; 1 mark for source gland; 3 marks for effects)

hormone: _____

source gland: _____

effects:

i) _____

ii) _____

iii) _____

11. Describe how the secretion of each of the following will affect the composition of blood.
(4 marks: 2 marks each)

aldosterone:

antidiuretic hormone:

12. Explain what happens to the uterine lining during the first five days of the uterine cycle and explain why this occurs. **(2 marks)**

END OF EXAMINATION