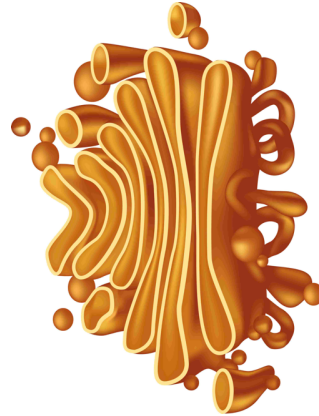
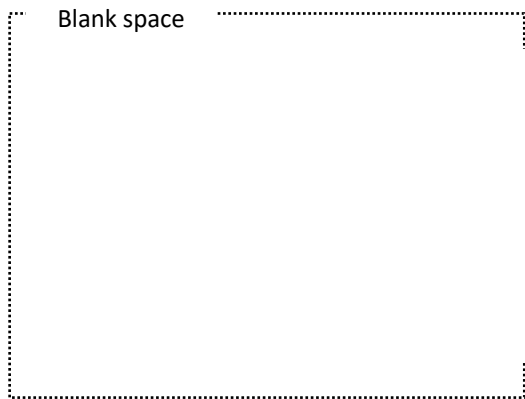


Cell Organelles, Energy, & Mitosis

Short Answer Questions:

1 mark = 1 well stated point that is relevant to the question.

1. Examine the diagram of a cell organelle below:



- a) Is this organelle from a prokaryotic or eukaryotic cell, or both? **Justify** your answer. (2 marks)

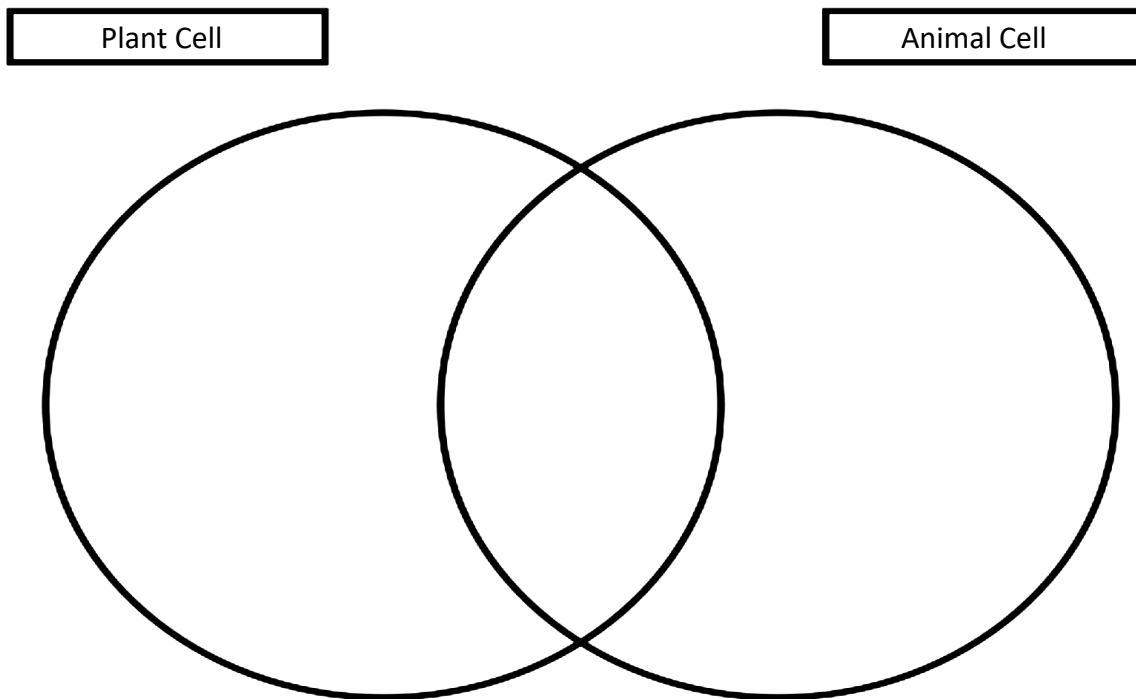
- b) **State** the name and **describe** the function of this cell organelle. (2 marks)

- d) In the blank space to the left of the organelle above, **draw** and **label** the following:

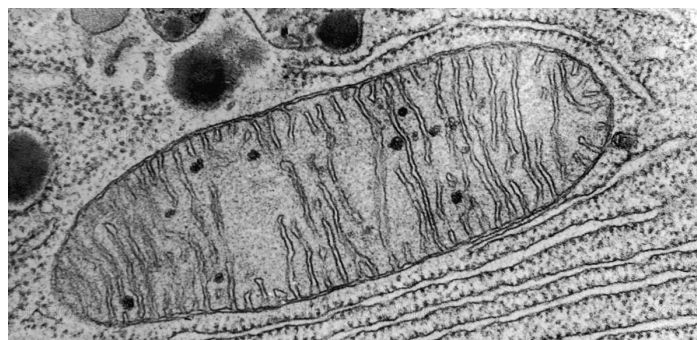
- i. A rough endoplasmic reticulum
- ii. Clearly indicate how these two organelles often work together (using drawing, labels, and or explanation).

(6 marks)

2. Complete the Venn Diagram below to the best of your ability:
(9 marks total – 1 point for each correct piece of information)



3. Highly folded membranes are a key feature of cellular organelles involved in metabolism in our cells. Below is an image of one of the key organelles involved metabolism:



- a) State the **name** and **function** of this organelle.
(2 marks)

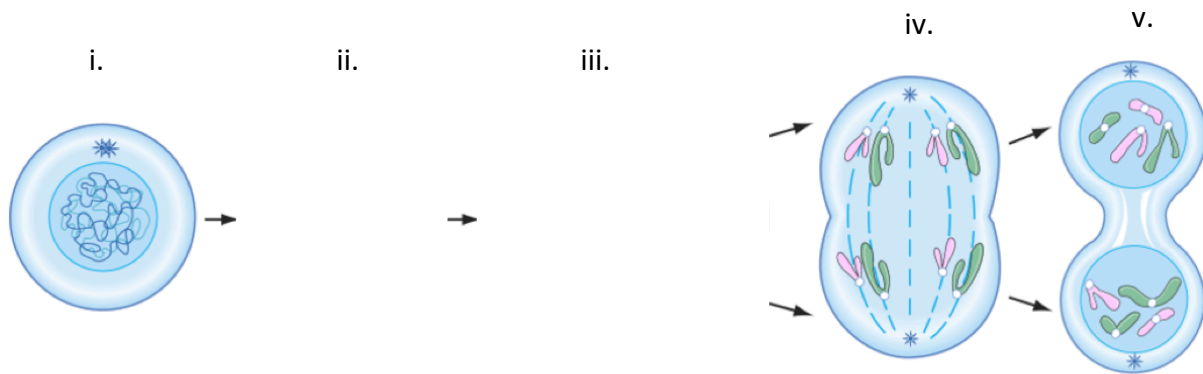
- b) Explain the advantage of this organelle having such a highly folded membrane structure on the inside.
(2 marks)

- c) *Amanaxylite* is a chemical that is toxic to plants and animals. It works by blocking phosphate groups from crossing the membrane of any organelles, including the one pictured above.

Explain why *amanaxylite* will eventually kill an organism that ingests its, due to it blocking phosphate groups from entering the organelle pictured above.
(3 marks)

4. Animal cells only do respiration, whereas plant cells carry out photosynthesis **and** respiration. Explain why this is the case.
(3 marks)

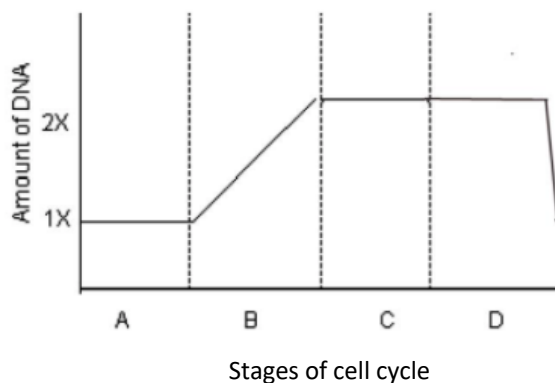
5. Examine the diagram of **mitosis** below. Two separate steps are missing.



a) Clearly draw in the missing steps (ii and iii). Include all relevant aspects of the diagram.
(3 marks)

b) Explain the **difference** in the appearance of DNA between step (i.) and step (ii.).
(2 marks)

6. Examine the graph below. It shows the amount of DNA in a cell as it changes over stages A to D of a typical cell cycle.



a) **Explain** what is happening at stage 'B' on the graph, and why this is the case.
(3 marks)

b) **Explain** why the graph drops so sharply at the very end of stage 'D'?
(2 marks)

c) All stages in the above graph require the cell to use energy in the form of ATP.

i.) Which stage do you think would require the most ATP? **Justify** your thinking.
(3 marks)

ii.) ATP can be re-used in the cell. **Explain** how this the process works. You can use a diagram to assist your explanation.
(4 marks)
