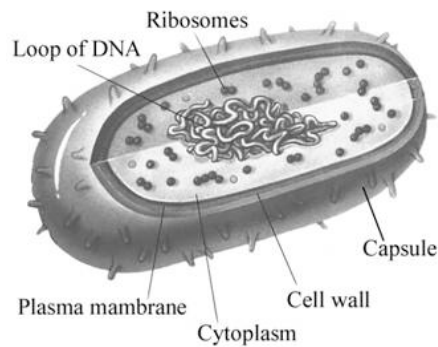


Cell Organelles, Mitosis, & Osmosis

Short Answer Questions:

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

1. Examine the diagram of a cell below:

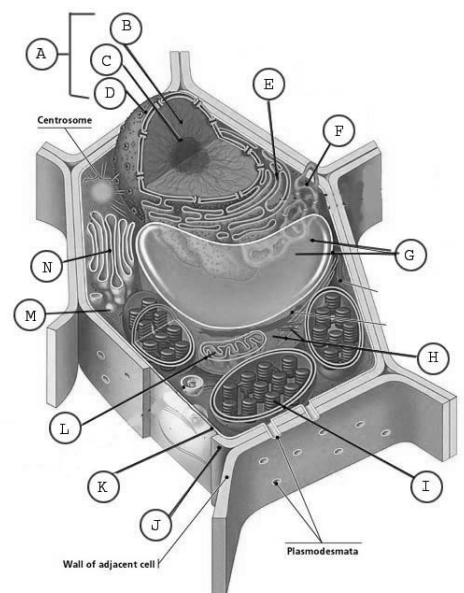


- a) Is this a prokaryotic or eukaryotic cell? **Justify** your answer. (2 marks)

- b) **State three** key differences between eukaryotic and prokaryotic cells (must not be mentioned in the diagram above). (3 marks)

2. Examine the diagram of a plant cell below:

- a) What structure is labeled (L)? _____ (1)
- b) What structure is (J) pointing to, and what is its function? _____ (2)
- c) Name and give a brief description of what structure (G) is used for. _____ (2)



3. Highly folded membranes are a key feature of cellular organelles involved in metabolism in our cells. Below is an image an organelle where an important chemical reaction takes place.



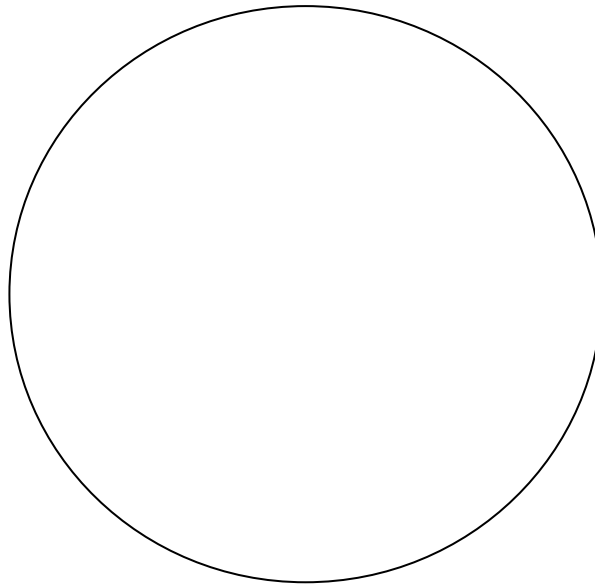
- a) State the **name** and **function** of this organelle.
(2 marks)

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

- c) Write the balanced chemical equation for the chemical reaction that takes place here:
(3 marks)

- d) Define the term 'autotrophic':
(1 marks)

4. a) Using the circle outline below, draw a diagram of the cell cycle. Include all parts/labels of the cell cycle AND include an arrow that indicates direction. (4 marks)

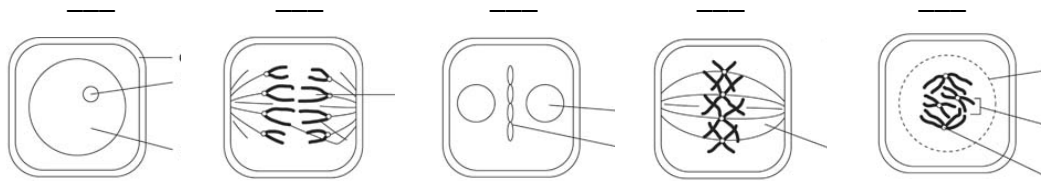


- b) **State** the stage where DNA is replicated. (1 marks)

- c) After a cell has completed cytokinesis, it will be about $\frac{1}{2}$ the original size of the parent cell. Will it be more or less efficient at diffusion and osmosis compared to the parent? Fully **justify** your answer.

(3 marks)

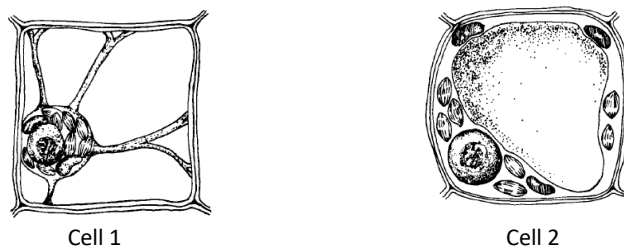
5. Examine the graph below – *ignore the label lines sticking out to the right*. It shows the amount of DNA in a cell as it changes over stages A to D of a typical cell cycle.



- a) **Number** the steps 1-5 in the correct sequence (indicate above).
(5 marks)
- b) **Explain** what the dotted line represents in the last diagram above – why is it ‘dotted’??
(2 marks)

- c) **State** the most precise name for the dark structures is the second diagram above.
(1mark)

6. Examine the diagram below of two different cells that have been soaked in two separate solutions.



- a) **State** which cell has the highest turgor pressure and **justify** your answer.
(2 marks)

b) **State** which cell has been placed in a hypertonic solution.
(1 marks)

c) **Explain** has been happening in Cell 1 and what has caused it (be as descriptive as possible, with correct vocabulary).
(3 marks)

7. BONUS – Brain Dump all you can (terms, labels, diagrams, etc.) about passive and active transport types.

PASSIVE

ACTIVE

