



# **National 5 Biology**

## **Unit 1**

### **Cell Biology**

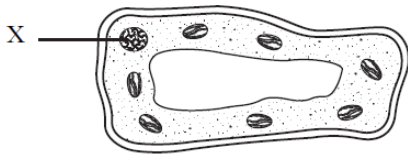
#### **Ink Exercise One**

## **Cell Structure and Function**

Name: \_\_\_\_\_

Class: \_\_\_\_\_

1. The diagram below shows a cell.

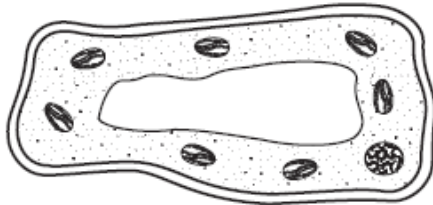


The function of structure X is to

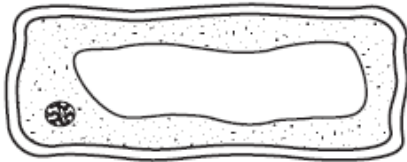
- A. control cell activities
- B. keep the cell turgid
- C. control entry and exit of material
- D. release energy from glucose

2. The diagrams below show four cells.  
Which cell is most likely a cell from a leaf?

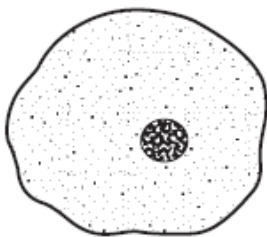
A



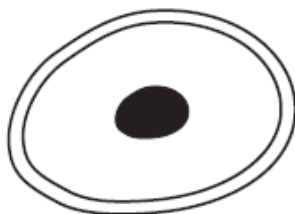
B



C



D



3. If the eyepiece lens magnifies 10 times, what objective lens will give X400 magnification?

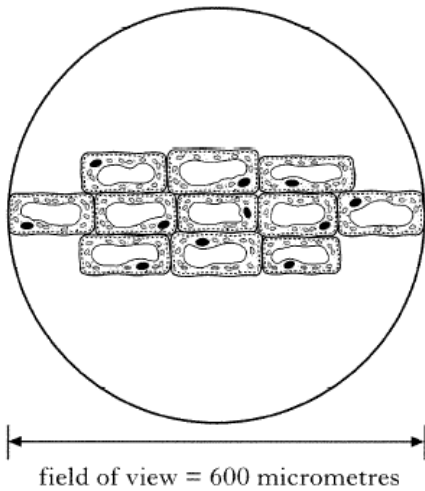
- A. x0.4
- B. x4
- C. x40

D. x400

4. Which part of a plant cell contains chlorophyll?

- A. nucleus
- B. cell membrane
- C. cytoplasm
- D. chloroplasts

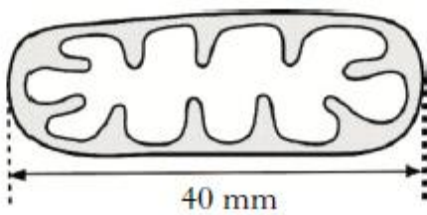
5. What is the average length of the cells in the diagram below?



- A. 12 micrometers
- B. 120 micrometers
- C. 55 micrometers
- D. 1.2 micrometers

6. The cell organelle shown below is magnified ten thousand times.

What is the actual size of the organelle?

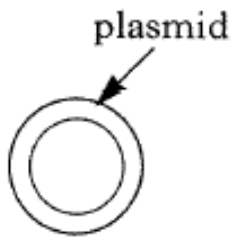


- A. 0.04  $\mu\text{m}$
- B. 0.4  $\mu\text{m}$
- C. 4  $\mu\text{m}$
- D. 40  $\mu\text{m}$

7. Which of the following cell types has a cell wall made from cellulose

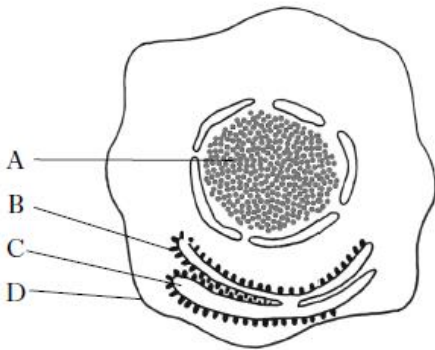
- A. Bacteria
- B. Yeast
- C. Animal
- D. Plant

8. Which of the following cell types contains the structure below



- A. Bacteria
- B. Yeast
- C. Animal
- D. Plant

9. The diagram below shows parts of an animal cell.



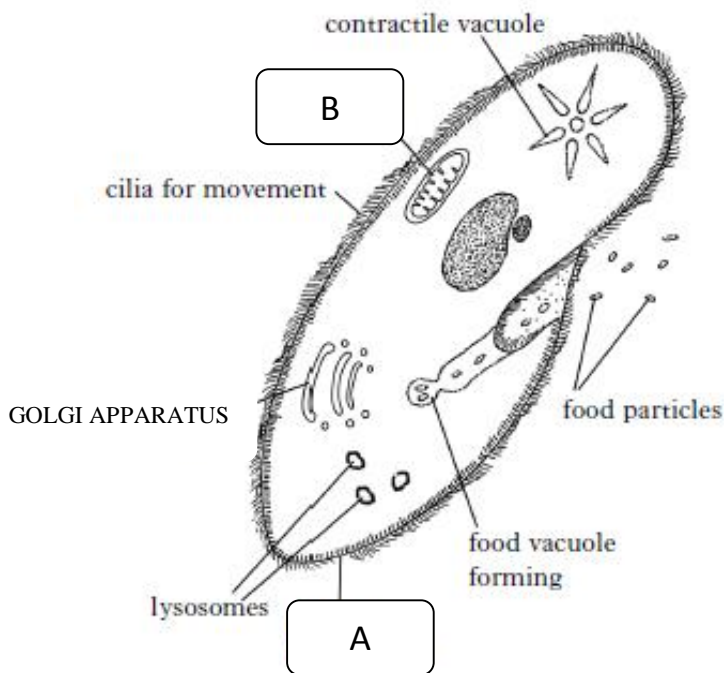
Which letter identifies the ribosomes?

10. Which of the following cell types has no nucleus?

- A. Bacteria
- B. Yeast
- C. Animal
- D. Plant

1	
2	
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9	
10	

11. The diagram below shows *Paramecium*, a unicellular organism found in fresh water



a) Identify organelles A and B

A \_\_\_\_\_

B \_\_\_\_\_

2

b) Is *Paramecium* a plant or animal cell? Give a reason for your answer

\_\_\_\_\_

\_\_\_\_\_

1

12. A pupil prepared a microscope slide of onion cells using water.

Diagram **A** shows how the cells looked when first seen with the microscope.  
Diagram **B** shows their appearance after the addition of another liquid.

Diagram A

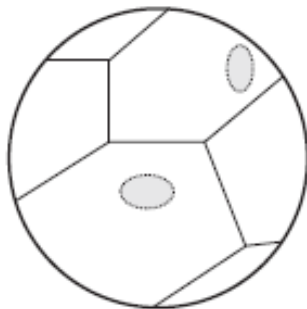
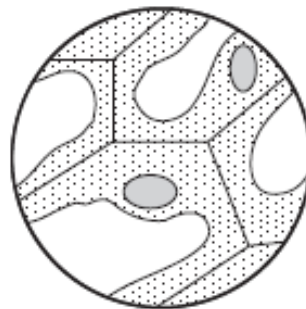


Diagram B



a) What name is given to a liquid used to make cell structures easier to see?

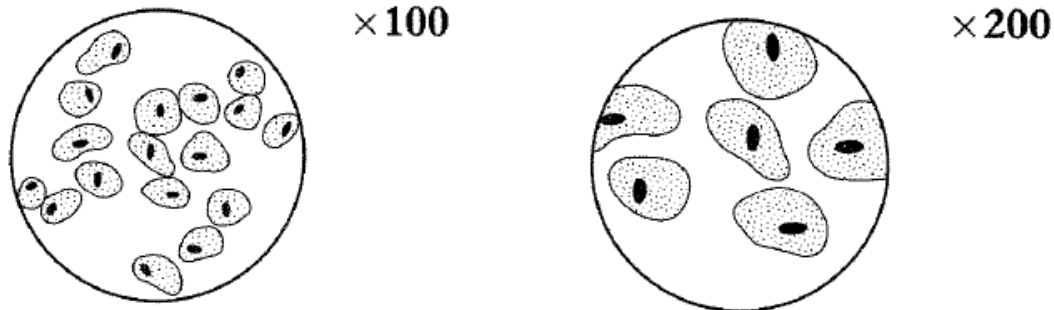
\_\_\_\_\_

1

b) State the difference between the cell wall of a plant and a bacterial cell

1

13. The diagrams below show some human cheek cells as they appeared under a microscope at two different magnifications



a) Describe the effect that increasing the magnification had on  
i. The apparent size of the cells

\_\_\_\_\_

ii. The area of the slide seen

\_\_\_\_\_

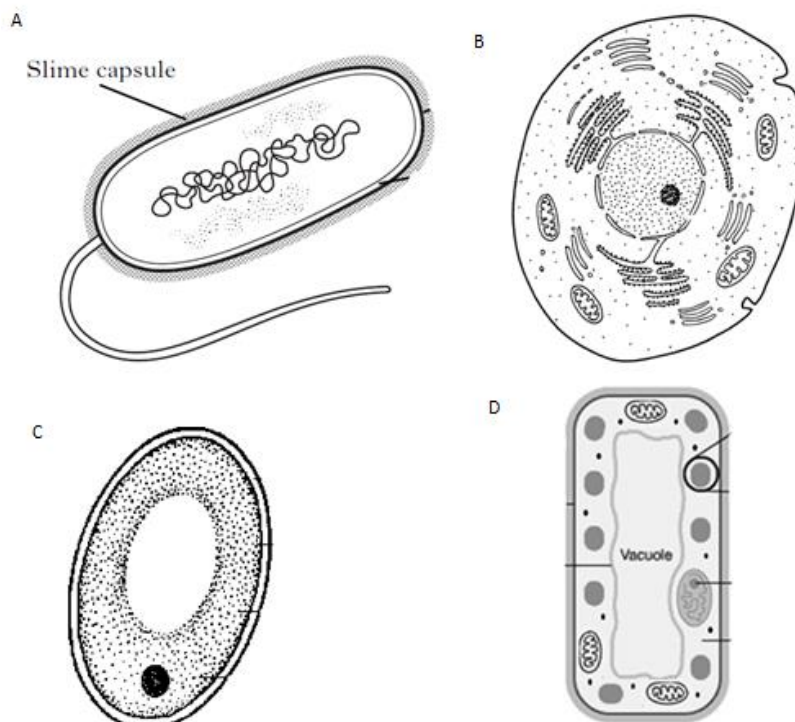
2

b) Name an organelle you would find in an animal cell but not in a bacterial cell

\_\_\_\_\_

1

14. Below are four different types of cells



a) Identify the four cells shown

A \_\_\_\_\_

B \_\_\_\_\_

C \_\_\_\_\_

D \_\_\_\_\_

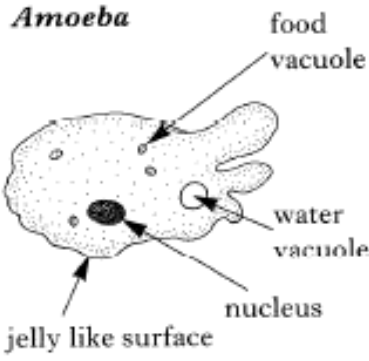
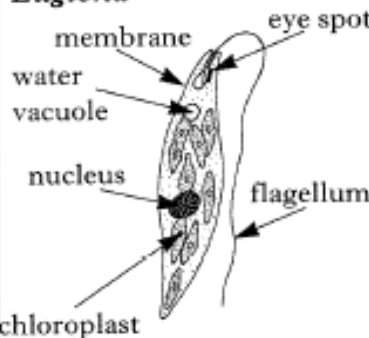
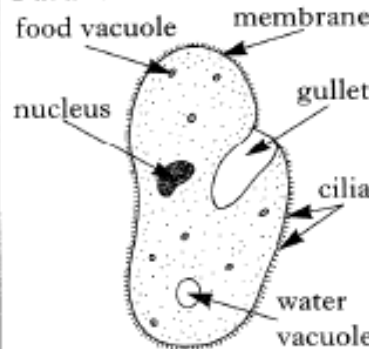
2

b) Name a structure present in cell type D but is absent from the others

\_\_\_\_\_

1

15. Use the information in the table below to answer each of the following questions.  
Each organism consists of one cell

<i>Appearance (not drawn to scale)</i>	<i>Average cell length (mm)</i>	<i>Features</i>
<p><b>Amoeba</b></p>  <p>Labels: food vacuole, water vacuole, nucleus, jelly like surface</p>	1	<p>Move by making the cytoplasm flow in any direction</p> <p>Feed by flowing round smaller organisms</p>
<p><b>Euglena</b></p>  <p>Labels: membrane, eye spot, water vacuole, nucleus, chloroplast, flagellum</p>	0.1	<p>Move by a whipping action of the long flagellum</p> <p>Make food by photosynthesis</p>
<p><b>Paramecium</b></p>  <p>Labels: food vacuole, membrane, nucleus, gullet, cilia, water vacuole</p>	0.2	<p>Move by rhythmical beating of rows of cilia</p> <p>Feed by taking food particles into the gullet and then into the cytoplasm</p>

a) Which organism has the smallest cells?

\_\_\_\_\_

1

b) Which organism does not contain food vacuoles?

\_\_\_\_\_

1

c) Which organism moves using cilia?

\_\_\_\_\_

1

d) *Euglena* carries out photosynthesis. Describe one way in which *Euglena* differs from typical plant cells

\_\_\_\_\_

1

Total /25

Areas I need to work on: