

Unit 1 Cell Structure Assignment

Name: _____ Date: _____ Score: ____/24

Experimental Design Scenario

Doug and Virginia wanted to find out if temperature affects the growth of mold on bread. At lunch they asked nine of their friends to donate a piece of bread for this experiment.

- A. Three of the flasks were kept in a refrigerator (temperature about +4C)
- B. Three of the flasks were kept at room temperature (about +20C)
- C. Three flasks were kept in a lab oven at +90C

The nine flasks were sealed and examined after four days.

1. Give a title for this experiment. (2 marks)

2. What was the purpose of the experiment? (2 marks)

3. Write a hypothesis. (2 marks)

4. What was the major difference between the nine flasks? (2 marks)

5. Name three ways Doug and Virginia kept the conditions of the experiment constant. (2 marks)

6. Why would the flasks need to be closed? Explain. (2 marks)

7. The students made at least one error in performing the experiment. Suggest what this error was and explain how it could be corrected. (2 marks)

8. Scientific research is performed strictly on what is already known.
 - a. True
 - b. False
9. Scientists typically ask philosophical question such as, "Should cloning be legal?"
 - a. True
 - b. False
10. In order for data to be considered valid, the experiment must be repeated under the same conditions.
 - a. True
 - b. False
11. Experimental data can prove that a hypothesis is true.
 - a. True
 - b. False
12. Scientists gain confidence on the validity of a hypothesis when tests are continuously performed and the hypothesis is continually supported by the observations gathered.
 - a. True
 - b. False
13. What organelle produces vesicles and contains sacules?
 - a. Nucleolus
 - b. Golgi body/apparatus
 - c. Mitochondrion
 - d. Rough endoplasmic reticulum
14. Which of the following organelles breaks down old blood cells and other worn-out organelles in the cell?
 - a. Nucleolus
 - b. Lysosome
 - c. Chromosome
 - d. Ribosome

15. Organelle A produces proteins that move through organelle B. From B they move toward organelle C, where they are packaged. Which organelles do letters A, B, and C represent? The following table provides four possible answers. Select the letter in the far left-hand column the describes your answer.

	Organelle A	Organelle B	Organelle C
A	Chromosome	Nucleus	Smooth ER
B	Nucleolus	Cell membrane	Golgi body
C	Ribosome	Rough ER	Golgi Body
D	Ribosome	Mitochondria	Lysosome

16. Organelle A is responsible for producing organelle B. Organelle B is responsible for making proteins. Both A and B could not function properly if they did not have the energy created in Organelle C. Which organelles do letters A, B, and C represent? The following table provides four possible answers. Select the letter in the far left-hand column that describes your answers.

	Organelle A	Organelle B	Organelle C
A	Nucleus	Nucleolus	Chloroplast
B	Nucleolus	Rough ER	Mitochondria
C	Nucleolus	Ribosome	Chloroplast
D	Nucleolus	Ribosome	mitochondria

17. Where are the structures that distinguish rough ER from smooth ER produced?

- a. In the nucleus
- b. In the endoplasmic reticulum
- c. In the ribosomes
- d. In the nucleolus