

BIOLOGY Unit Review Questions:

1. Two basic tasks that every cell must accomplish are to produce energy and remove waste. Explain how cells accomplish this using your knowledge of organelles.

2. a) Classify the cells in Figure 1 plant or animal cells. b) Explain your reasoning.



Figure 1: Cells

3. a) What happens in "S" phase of the cell cycle?
b) Explain why this step in the cell cycle is essential to produce a multicellular organism.

4. Label the following parts of a cell in metaphase on Figure 2: centrioles, sister chromatids, spindle fibres.

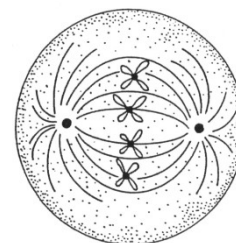


Figure 2: Metaphase

5. Explain how cancer cells differ from normal cells.

6. a) Explain the difference between necrosis and apoptosis.
b) Give a specific example how or where each may occur.

7. How are genes involved in cell specialization/differentiation?

8. a) Rank the following terms from the lowest to highest level of organization in an animal or plant:
tissue, molecule, organelle, organ, cell, organism, organ system

9. What is the difference between a tissue and an organ?

10. The heart is a complex organ of the cardiovascular system. It contains both nervous tissue and muscle tissue. Explain the function of each type of tissue and describe how these cells are specialized to serve each purpose

11. a) What is an organ system?
b) Use a specific example to illustrate your definition. Include examples of specific organs in your definition

12. For each of the following organs, name the organ system they belong to and state their function.
a) kidneys b) stomach c) lungs d) testes e) pancreas f) spinal cord g) spleen

13. The alveoli of the lungs and the walls of the intestines are structured to increase their surface area. How would increasing their surface area help these organs carry out their function?

14. Organ systems often interact. Give an example of 2 systems that interact and explain how they work together to perform a function.

15. a) Humans stop growing after puberty and mitosis slows, but it never completely stops in adults. Explain why.
b) What types of tissues are likely to be undergoing mitosis in adults?