

Biology I Advanced
Obj Chapter 5
The working cell

1. Differentiate between three types of electron microscopes.

2. Write an equation for calculating the total magnification of a light microscope.

3. Be able to identify the parts of a light microscope and describe the function of each.

4. Define these terms:

energy	Kinetic energy	Potential energy
Chemical energy	exergonic reaction	endergonic reaction
Cellular metabolism	entropy	energy coupling

5. State the first and second laws of thermodynamics and explain their implications for living things.

6. Describe and differentiate between the structure of ATP, ADP and AMP molecules.

7. Describe the ATP-ADP cycle and how it drives cellular work.

8. Describe the function of enzymes in terms of activation energy. Explain how the shape of an enzyme is related to lowering activation energy. Explain how the active site of the enzyme accomplishes this.

9. Write a generalized equation for a reaction mediated by an enzyme.

10. Identify factors which affect enzyme activity. Explain why each is a factor.

11. Describe the action of enzyme inhibitors. Differentiate between competitive and non-competitive inhibition.

12. Describe five types of protein found in cell membrane. Describe the properties of the proteins and the advantages of those properties for the function of membranes

13. Describe three types of lipid found in cell membrane. Describe the properties of the lipids and the advantages of those properties for the function of membranes.

14. List six factors which influence the rate of diffusion.

15. Define these terms:

osmosis	diffusion	plasmolysis
crenation	tonicity	lysis
hypotonic	hypertonic	
turgor pressure		
isotonic		

16. Describe the conditions that occur when osmosis takes place.

17. Compare and contrast facilitated diffusion (transport) and active transport.

18. Define these terms:

Endocytosis	exocytosis	pinocytosis	phagocytosis
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19. Draw and explain a series of diagrams that show endocytosis and exocytosis. Describe how endocytosis can be mediated by membrane associated proteins.

Be able to predict the effect of solutions of varying tonicities on cells.