UNIT 3 REVIEW

A.) Cell Theory and the Tools of the Trade

1. List the 4 statements of the Cell Theory.
2. List 3 exceptions to the Cell Theory.
3. Define Magnification
4. Define Resolution
5. Describe the main differences between TEM's and SEM's
6. Why are Transmission Electron Microscopes useful?
7. Why are Scanning Electron Microscopes useful?
8. Identify one advantage and one disadvantage to using Electron Microscopes.
9. What is Cell Fractionation?
10. Describe the process of Cell Fractionation and state why it is useful

B.) Cytology (study of cells)

11. Explain why cells evolved to be so small.
12. Compare and contrast Prokaryotic cells and Eukaryotic cells.
13. Identify and describe the function of each Animal Cell organelle
14. Identify and describe the function of each Plant Cell organelle
15. List and describe 4 differences between Plant and Animal cells.
16. List the structures involved in the Endomembrane System (NEGLVP)
17. Explain how the Endomembrane System assembles and transports proteins.
18. List 3 functions of the Cytoskeleton.
19. Name the three fibers that make up the Cytoskeleton.

20. Explain how cilia and flagella move

21. What is the ECM and where is it located?

22. List and describe the three proteins found in the ECM

23. Why is the ECM important to cells?

24. Name the cell junction found in plant cells

25. What types of substances move through these junctions?

26. List and describe 3 types of cell junctions found in animal cells

27. What types of substances move through these junctions

C.) Cellular Transport

28. Draw and label a "Fluid Mosaic Model"

29. Identify the hydrophilic and hydrophobic regions of the model

30. Why is cholesterol important in plasma membranes?

31. Explain the effects of temperature on membrane fluidity

32. Explain the effects of saturated and unsaturated phospholipids on membrane fluidity

33. Define Passive Transport

34. What is a concentration gradient?

35. Compare and contrast Diffusion, Facilitated Diffusion and Osmosis

36. Describe the difference between a channel protein and carrier protein

37. Explain a plant and animal cell's behavior in a hypertonic solution

38. Explain a plant and animal cell's behavior in a hypotonic solution

39. Explain a plant and animal cell's behavior in an isotonic solution

40. Describe an example of osmoregulation (paramecium)

41. Discuss the significance of aquaporins in relation to osmosis

42. Define water potential

43. Define osmotic potential

44. How is water potential calculated?

45. What is the water potential of distilled water at standard temp. and pressure?

46. Define Active Transport

47. Explain why ion pumps are an example of active transport

48. Explain why proton pumps are an example of proton pumps

49. Explain why cotransport is an example of active transport

50. What is the difference between exocytosis and endocytosis and why are they both considered to be Active Transport?