

A & P 1 – Unit 1 Review

Mary Stangler Center for Academic Success

This review is meant to highlight basic concepts from Unit 1. It does not cover all concepts presented by your instructor. Refer back to your notes, unit objectives, labs, handouts, etc. to further prepare for your exam.

1. Define and fill in the table:

a. Atom –

Subatomic Particle	Charge	Location	Molecular weight
Proton			
Neutron			
Electron			

2. Define and answer the following:

a. Element –

b. Atomic number is used to identify elements on the periodic table...what is the difference between atomic number and atomic mass?

3. Give the chemical symbol of the 6 major elements and the 6 lesser elements that make up the human body:

4. Define and answer the following:

a. Ion –

b. What is the relationship between an electrolyte and an ion?

5. Name the following types of chemical bonds:

a. A bond formed when two atoms share one or more pairs of electrons:

b. A bond formed when two ions of opposite charge are attracted to each other:

c. A bond formed between two molecules; it occurs because of attractive forces between a positively charged area of one molecule and a negatively charged area of another molecule:

6. Differentiate between a polar and non-polar covalent bond.

7. The most important inorganic molecule is water - answer and define:

a. Why is it so essential?

b. Hydrophilic:

c. Hydrophobic:

8. Define the following:

a. Acid -

b. Base –

c. pH

9. List the four macromolecules that make up all living things and describe their major functions.
10. What is the difference between a monosaccharide and polysaccharide?
11. Describe the structure and function of each type of lipid:
 - a. Triglycerides
 - b. Phospholipids
 - c. Cholesterol
12. What subunits make up a protein? How many of these subunits are there? What are some functions of proteins?
13. Enzymes are made up of proteins, what is the function of enzymes in the body and how do they work?
14. How do we get energy from ATP?
15. Compare and contrast the structure and function of DNA and RNA.
16. Define the following cell organelles:
 - a. Cell membrane :
 - b. Cytoplasm:
 - c. Nucleus:
 - d. Rough Endoplasmic Reticulum (RER):
 - e. Ribosome:
 - f. Smooth Endoplasmic Reticulum (SER) :
 - g. Golgi:
 - h. Mitochondria:
 - i. Vesicles:
17. Write the equation for cellular respiration (aerobic):
18. Compare and contrast passive and active transport. Refer to energy use, concentrations gradient, and list the main types for each one.
19. Osmosis & Tonicity – explain what happens to a cell when placed in each of the following solutions:
 - a. Isotonic:
 - b. Hypertonic:
 - c. Hypotonic:
20. Differentiate between endocytosis and exocytosis, give examples if applicable.

21. Explain what happens in each phase of the cell cycle.
- Interphase
 - Mitosis
 - Prophase
 - Metaphase
 - Anaphase
 - Telophase
22. Define the following:
- Histology –
 - Longitudinal section –
 - Cross section –
 - Oblique –
23. Give the major function(s) of each type of tissue:
- Epithelial
 - Connective
 - Nervous
 - Muscular
24. Identifying Epithelial Tissue (Membranes) – Epithelial Tissue is named by its layer classification, cell shape, and specialized structures.
- What are the two layer classifications?
 - What are the three major cell shapes?
 - Why is pseudostratified columnar considered a simple epithelium?
 - What type of epithelium changes shape between squamous and cuboidal?
 - Give an example of where each type of epithelium might be found:
 - Simple squamous
 - Simple cuboidal
 - Non-ciliated simple columnar
 - Ciliated simple columnar
 - Ciliated pseudostratified columnar
 - Non-keratinized stratified squamous
 - Keratinized stratified squamous
 - Stratified cuboidal
 - Stratified columnar
 - transitional
25. Identifying Connective tissue – Connective Tissue is classified by the amounts and organization of the following components: cells, protein fibers, and ground substance.
- Describe the general structure, basic function, and give an example of where it might be found in the body for each:
- Connective Tissue Proper:
 - Loose areolar

- ii. Reticular
 - iii. Adipose
 - iv. Dense regular
 - v. Dense irregular
 - vi. Elastic
- b. Cartilage
 - i. Hyaline
 - ii. Elastic
 - iii. Fibrous (fibrocartilage)
- c. Bone
 - i. Compact
 - ii. Spongy
- d. Blood

26. Describe the structure, function and location of nervous tissue.

27. Describe the structure, function, and location of muscular tissue.

- a. Skeletal
- b. Cardiac
- c. Smooth

28. Define the following terms relating to tissue growth:

- a. Hyperplasia
- b. Hypertrophy
- c. Metaplasia
- d. Neoplasia

29. Define the following terms relating to tissue shrinkage or death:

- a. Atrophy
- b. Necrosis

30. What is cancer? How can it spread to other areas of the body?

31. Cancers are named for their tissue of origin, name the following cancers:

- a. _____ – originate in epithelial tissue (membranes, glands)
- b. _____ – originate in blood-forming tissue (bone marrow)
- c. _____ – originate in lymph nodes
- d. _____ – originate in pigment cells of epidermis (melanocytes)
- e. _____ – originate in bone, other connective tissue, or muscle

32. Anatomic Directional Terms – give the direction for the following:

- a. _____ or Ventral – front side
- b. _____ or Dorsal – back side
- c. Superior – toward the _____
- d. Inferior – away from the _____
- e. Medial – toward _____ of the body
- f. Lateral – away from the _____ of the body
- g. Proximal – _____ point of attachment
- h. Distal – _____ point of attachment
- i. Superficial – _____ body surface
- j. Deep – _____ body surface

33. Thoracic Cavity & Membranes – define and answer the following questions:

- a. What is a serous membrane?
- b. The _____ layer lines the internal surface of the body wall.
- c. The _____ layer covers the external surface of the organs.
- d. The serous _____ is the potential space between the two layers of serous membrane.
- e. The serous membranes secrete a serous _____ that fills the space between the layers.
- f. What is the body cavity associated with the heart and what are the names of the serous membranes here?
- g. What is the body cavity associated with the lungs and what are the names of the serous membranes here?
- h. What is the name of body cavity just inferior to the thoracic cavity? What are the names of the serous membranes here?

34. Define Homeostasis:

35. Negative Feedback – define and give an example of negative feedback:

36. Positive Feedback – define and give an example of positive feedback: