

Bio1010 Fall 2015 Practice Exam 1 Questions

Multiple Choice (80 pts)

1. Each element is made up of a unique type of
 - A. atom.
 - B. protein.
 - C. neutron.
 - D. proton and neutron.
 - E. macromolecule.

2. Which of the following statements is TRUE?
 - A. Protons, neutrons, and electrons are found inside the nucleus of an atom.
 - B. Protons and electrons are found in the nucleus and neutrons orbit around them.
 - C. Protons and neutrons are found in the nucleus and electrons orbit around them.
 - D. Electrons are relatively heavy compared to protons and neutrons.
 - E. Protons are positively charged while electrons are neutral.

3. The scientific process from beginning to end can be outlined as:
 - A. hypothesize, test, analyze, and conclude.
 - B. observe, hypothesize, test, analyze, and conclude.
 - C. observe, test, analyze, and conclude.
 - D. hypothesize, test, analyze, and conclude.
 - E. observe, test, hypothesize, analyze, and conclude.

4. Maintaining a separate and distinct internal environment from the external environment is called
 - A. life.
 - B. cell exclusion.
 - C. metabolism.
 - D. hydrophobicity.
 - E. homeostasis.

5. In a well-designed experiment the independent variable
 - A. does not depend on another factor or condition.
 - B. changes from subject to subject randomly.
 - C. can never be manipulated by the researcher.
 - D. will depend on the dependent variable.
 - E. None of the above.

6. Viruses contain genetic material and protein, can make copies of themselves, but only by using the services of a living host cell, are assembled in their final form and size by the host cell, and use the host cell's energy mechanisms. Which of the following requirements for life can be applied to viruses?

- A. Contain a common set of molecules
- B. Metabolism
- C. Reproduce
- D. Both B and C
- E. None of the above

7. Atoms are made up of

- A. positively charged protons, negatively charged neutrons, and neutral electrons.
- B. positively charged electrons, negatively charged neutrons, and neutral protons.
- C. positively charged protons, negatively charged electrons, and neutral neutrons.
- D. negatively charged protons, positively charged electrons, and neutral neutrons.
- E. positively charged neutrons, negatively charged electrons, and neutral neutrons.

8. Based on previous published data and some preliminary experiments done in my lab, I hypothesize that a drug called "shrinkase" will inhibit the growth of a particular type of cancerous tumor. What is my next step in the scientific process?

- A. find people with that kind of tumor
- B. obtain a large supply of shrinkase
- C. determine what my control and experimental groups will be
- D. submit my hypothesis for peer review
- E. analyze the results of my experiments

9. Which part of a cell membrane phospholipid is exposed to the aqueous (watery) exterior?

- A. hydrophilic head and tail
- B. hydrophilic tail
- C. hydrophilic head
- D. hydrophobic head
- E. hydrophobic tail

10. What are the steps used in the process of a scientific study?

- A. making initial observations that generate questions, studying the literature, generating hypotheses that are both testable and falsifiable, testing the hypothesis with experiments and analyzing the data, and making conclusions that are supported by data
- B. generating hypotheses, conducting experiments, researching literature, making conclusions supported by the literature, and analyzing data
- C. making initial observations that generate questions, generating hypotheses, studying the literature, conducting experiments based on literature, and making conclusions supported by data

- D. generating hypotheses based on published literature, testing hypotheses, and making conclusions supported by data
 - E. None of the above.
11. What protects a cell from the environment?
- A. hydrophobic tails and hydrophilic heads of phospholipids
 - B. a phospholipid bilayer
 - C. a semipermeable phospholipid barrier
 - D. the cell membrane
 - E. All of the above.
12. Examples of the monomers that make up the molecules for life are:
- A. nucleotides, amino acids, and sugars
 - B. nucleic acids, proteins, and lipids
 - C. nucleic acids, proteins, and starch
 - D. nucleotides, lipids and sugars
 - E. nucleotides, phospholipids, and amino acids
13. A hypothesis must be _____ and _____.
- A. logical; verifiable
 - B. logical; falsifiable
 - C. testable; logical
 - D. irrefutable; testable
 - E. testable; falsifiable
14. In a water molecule, hydrogen atoms are bonded to oxygen by _____ bonds, whereas neighboring water molecules are held together by _____ bonds.
- A. polar covalent; hydrogen
 - B. hydrogen; polar covalent
 - C. ionic; polar covalent
 - D. polar covalent; ionic
 - E. ionic; hydrogen
15. A hypothesis is a statement that
- A. can be changed throughout the experiment.
 - B. can be avidly accepted by scientists.
 - C. can be tested and proven true.
 - D. can be tested and proven false.
 - E. precedes a theory.
16. The number of protons plus the number of neutrons equals
- A. the atomic number.
 - B. the atomic mass.
 - C. the number of electrons.
 - D. the number of bonds the atom can form.