

# BIOLOGY

## 16/17 Midterm Exam Review

### Chapter 1: The Nature of Science

- 1. The main goal of science is to *Understand The World*
- 2. A possible explanation of an event in nature is a *hypothesis*
- 3. As the result of an experiment, a scientist forms a(n) *Conclusion*
- 4. In a experiment, you isolate and test a single *Variable*
- 5. Approved eye protection devices (such as goggles) are worn in the laboratory *All The Time*
- 6. After completing an experiment, all chemical wastes should be *Teacher's Direction*
- 7. You are heating a substance in a test tube. Always point the open end of the tube *Away From Everyone*

### Chapter 2: Biology as a Science

- 1. A microscope with a 10x ocular and a 43x objective would have what total magnification? *430*
- 2. Specific parts of cells can be separated from the rest of the cell by *Centrifugation*
- 3. The line between life and non-life becomes blurred in trying to describe *Virus*
- 4. An organism's ability to maintain stable conditions necessary for life is called *Homeostasis*
- 5. List the 5 characteristics of living things: *Cells, Obtain & Use Energy, Respond, Reproduce, Grow & Develop*
- 6. any process in a living thing that involves putting together complex substances from simpler substances *Anabolic*
- 7. the breakdown of complex substances to simpler substances, usually resulting in a release of energy *Catabolic*
- 8. Describe a prokaryotic cell *small, No Nucleus*
- 9. Describe a eukaryotic cell *Large, Complex, has nucleus*

## Chapter 3: Basic Chemistry

1. The energy levels surrounding the nucleus of an atom contain the *electrons*
2. A covalent bond is formed by *sharing of  $e^-$*
3. If a reaction in one direction releases energy, the reaction in the other direction *uses*

## Chapter 4: The Chemistry of Water and Organic Molecules

1. The most chemically reactive ion is  *$H^+$*
2. The pH scale indicates the relative strengths of  *$H^+$*
3. What is the pH of a HCl? of NaOH?  
*<7      >7*
4. Most substances in the human body are organic compounds because they contain *C*
5. Each of the following is an **inorganic** compound found in fairly large amounts in the human body except  *$CO$ ,  $CO_2$ ,  $CaCO_3$*
6. Why carbon is found in so many molecules? *4 bonds (4 valence  $e^-$ ), Long chains, rings, can bond to many other atoms*
7. How many covalent bonds is carbon capable of making?  
*4*
8. Water is a polar molecule because oxygen *has a high electronegativity*
9. Electronegativity is a measure of *how badly an atom wants  $e^-$*
10. Adhesion is *different things attracted*
11. Adhesion and cohesion are important in the transport of water in *Trees*
12. Name the force that holds water molecules together. *Cohesion*
13. Why is water such a good solvent? *Polar*
14. Glucose is an example of a(n) *Carb*
15. Carbohydrates contain carbon, hydrogen and oxygen in a ratio of *1:2:1*
16. Simple sugars are joined together to form a polysaccharide by a process called *Dehydration synthesis*
17. In which organ in humans is glycogen stored? *liver*
18. If you wanted to break down a polysaccharide into a monosaccharide, what should you add?  *$H_2O$*
19. What are the functions of lipids? *Energy storage, insulation, Membranes*

20. The main difference between fats and oils is that fats *saturated, solid @ room Temp*
21. A lipid that is important in biological membranes is *Phospholipid*
22. The building blocks of all protein molecules are *amino Acids*
23. What are the functions of proteins? *Structure, Communication, Enzymes*
24. The sugar found in DNA is *Deoxyribose*
25. A nucleotide, the building block of nucleic acids, consists of *Phosphate Group, sugar, Nitrogenous base*
26. *Enzymes speed up Reactions by Lowering The Energy of Activation*

## Chapter 5: Cell Biology

1. Who was the first to observe microorganisms in a drop of water. *Leavenhoek*
2. The part of the cell that regulates what enters and leaves the cell is the *Cell Membrane*
3. Proteins are produced at the *ribosomes*
4. The process by which molecules of a substance move from an area of higher concentration of that substance to an area of lower concentration is known as *Diffusion*
5. The small membrane-bordered structures that contain substances necessary for the digestion of some cellular materials are *lysosome*
6. In plant cells, the single large central saclike structure that is filled with liquid is known as the *Large Central Vacuole*
7. Cells that do not have a nucleus are said to be *Prokaryotic*
8. List the 3 components of the cell theory?  
*All Living Things are made of Cells, Cells are the basic units of structure for life, All*
9. A tissue is composed of a group of similar *cells* *cells come from other cells.*
10. All members of the Moneran kingdom are composed of prokaryotic cells.
11. If a cell of an organism contains a nucleus, the organism is a *Eukaryotic*
12. The organelle that makes energy available for both plant and animal cells is the *Mitochondria*
13. The movement of water molecules across a membrane is known as *Osmosis*
14. The cell wall performs all of the following functions EXCEPT
15. **Cell Diagram – Be able to label the following parts of the cell:**

ribosome	cell membrane	mitochondria	sER	rER
centrioles	golgi apparatus	nucleolus	nucleus	cytoplasm
16. Be able to predict the movement of water and solutes across a semi-permeable membrane.
17. *Cholesterol keeps The membrane Fluid even when it is Cold.*