Biology Study Guide
1st Semester

I. Inquiry

1) What are the steps of the scientific method? (Be able to explain each step)

2) Define:

Biology-

Hypothesis-

Theory-

Homeostasis-

Observation-

Prediction-

Inference-

II. Cells

1) Define:

Enzyme-

Monomer-

Polymer-

Eukaryotic cell-

2) All organic molecules contain _____. (Which element?)
3) List and draw the monomer for each of the following polymers. Also, give some examples of each molecule.

Carbohydrates- Picture:
Monomer-
Examples-

Proteins- Picture:
Monomer-
Examples-

Lipids- Picture:
Monomer-
Examples-

Nucleic Acids- Picture:
Monomer-
Examples-

4) Lipids are soluble in water T or F
5) What is ATP? How is energy released from ATP?
6) What would happen if we did not have enzymes in our bodies?

7) Describe the functions of the following terms. Be able to identify a picture of them on the exam.

Plasma membrane-

Mitochondria-

Endoplasmic membrane

Ribosome-

Golgi apparatus-

Chloroplast-

Vacuole-

8) What structures do plant cells have that animal cells do not?

9) Define:

Active transport-

Passive transport-

Diffusion-

Osmosis-

Facilitated diffusion-

Hypertonic-

Hypotonic-

Isotonic-

10) What is the result of diffusion? E_____.

11) Define:

Centromere-

Diploid-

Haploid-

Mitosis-

12) What is binary fission? In what organism does it occur?

13) Describe what occurs in the following phases of the cell cycle. (Next page)

Interphase-
- G1-
- S-
- G2-

M-phase-be able to recognize each phase on the exam
- Prophase-
- Metaphase-
- Anaphase-
- Telophase-

Cytokinesis-

III. Interdependence

Define:

Ecology-

Ecosystem-

Habitat-

Community-

Niche-

Producer-

Consumer-

Decomposer-

Trophic level-

Herbivore-

Carnivore-

Omnivore-

Carrying capacity-

Density dependent-

Density independent-

Succession-
- Primary succession-
- Secondary succession-

Pioneer Species-

Chlorofluorcarbon-

Greenhouse effect-

Global warming

14) How much energy moves up to the next trophic level in an energy pyramid?

IV. Flow of Energy and Matter

15) Define:
- Heterotroph-
- Photosynthesis-
- Cellular respiration-
- Glycolysis-
- Aerobic respiration-
- Anaerobic respiration-
- Lactic acid fermentation-
- Alcoholic fermentation-

16) What is the ultimate source of all energy on Earth?

17) What are the reactants of photosynthesis?

18) What are the products of photosynthesis?

19) Draw an ATP molecule. Why is ATP important?

20) What are the reactants of cellular respiration?

21) What are the products of cellular respiration?

22) Where does cellular respiration take place?

23) What is the equation for photosynthesis?

24) What is the equation for cellular respiration?

25) What are the steps involved in cellular respiration and how much ATP is produced in each step?

26) Define:
- Precipitation-
- Condensation-
- Evaporation-
- Nitrogen Fixation-
- Fossil fuel-

27) Which important molecule in our bodies contains nitrogen?

28) How do humans affect the carbon cycle?