Review for the Biology End of Course Exam-FLVS Video

1. **The Purpose of Science**

    1. Focuses on and attempts to logically explain the _____ and its occurrences.
    2. Supports all findings and beliefs with _____.
    3. Solve problems that are _____.

2.
    A. **The Scientific Method:**
    - Variables:
        - **Independent**- the factor being _____ .
        - **Dependent**- the factor being _____ .
        - **Control**- what stays the same throughout the experiment and remains constant.
    - Analyze date- When analyzing data be sure to avoid personal bias.
    - Draw conclusions. This is based on your data and it confirms or rejects your hypothesis.

    B. **Theories and laws.**
    - **A law:** state that something is _____
    - **A theory:** attempts to _____ why things occur

3. **Multiple Choice- Sample Question Answer: _____**

Part 2: Organization and Development of Living Organisms

4. **The major processes needed for the origin of life on Earth may include:**
    i. the presence of small organic molecules (through spontaneous synthesis or from meteorites)
    ii. assembly of these molecules into larger organic molecules/polymers (such as RNA and protein)
    iii. RNA molecules become self-replicating
    iv. the packaging of groups of molecules into microspheres that are able to maintain an internal chemistry different from surroundings
5. **Origin of Life- Multiple Choice Answer: _____**
6. **The Cell Theory:**
    a. All living things are made up of _____.
    b. The cell is the basic unit of structure and _____ in all living things.
    c. New cells can only be produced from _____ cells.
7. **Cell Theory- Multiple Choice Answer: _____**

8. **Prokaryotes and Eukaryotes.**

    a. **Prokaryotes**
    i. Contain _____
    ii. NO _____
    iii. Can only be single-celled organisms
    iv. Only a few organelles
    v. Very basic

    b. **Eukaryotes**
    i. Animal Cells and Plant Cells are Eukaryotic Cells
    ii. Contain DNA
    iii. Have a_____
    iv. Can be single-celled OR as part of multi-celled organisms
    v. Contain many _____
    vi. Membrane bound organelles

9. **Prokaryotes and Eukaryotes- Multiple Choice Answer: _____**

Part 3: Heredity and Reproduction

10. Mitosis and Meiosis Multiple Choice Answer _____

Event	Mitosis	Meiosis
DNA replication, forming sister chromatids.	Occurs during interphase before nuclear division begins.	Occurs during interphase before nuclear division begins.
Number of division cycles	One, consisting of prophase, metaphase, anaphase, telophase, and cytokinesis.	Two, each consisting of consisting of prophase, metaphase, anaphase, telophase, and cytokinesis.
Total number of daughter cells	Two diploid cells, genetically identical to the parent cell.	Four haploid cells, containing half as many chromosomes as the original parent cell.
Importance	Production of diploid body cells for growth and repair.	Production of haploid gamete cells for sexual reproduction.

11. Patterns of Inheritance

a. **Phenotype**: The _____ expression of a trait
b. **Genotype**: The gentic expression of allele combinaitons.
c. **Dominant**: An allele that is expressed in the phenotype and mask the expression of a recessive allele
d. **Recessive:** An allele that will not be expressed in the phenotype unless the organism is homozygous for this trait
e. **Homozygous:** Having_____ alleles for a given trait (AA or aa)
f. **Heterozygous**: Having two _____ alleles for a given gene (Aa)

12. Punnett Square- Multiple Choice Answer _____

13. DNA

A. DNA is copied in a process called _____

- A-> _____
- C -> _____
- T -> _____
- G -> ____

14. DNA- Multiple Choice Answer _____

15. Biotechnology

- Transgenic Organisms
  - Organisms with traits produced by recombinant DNA are called transgenic. Genetic engineers are now able to produce transgenic plants, animals, and microorganisms; many are used to improve the plants and animals for agricultural purposes.
- Cloning
  - A group of cells or an organism produced asexually from one ancestor, to which they are genetically identical uses a single cell from an adult organism to grow an entirely new individual.
- DNA fingerprinting
  - A tool used by biologists that determines whether two samples of DNA are related by analyzing an individual's unique collection of DNA segments.

16. Biotechnology- Multiple Choice Answer _____