

Time: 30 minutes

Total: 15 points

Please choose the CORRECT answer for each question, then fill in your answer in the attached bubble sheet.

Questions 1-4

- a. Proteins
- b. Mitochondria
- c. Chloroplast
- d. Cell

1. Site where photosynthesis takes place. **C**

2. long chains of amino acids **A**

3. Smallest unit of organization in living things **D**

4. Powerhouse of the cell **B**

5. Which of the following best describes the flow of energy through an ecosystem? Chemical energy enters, is converted to other forms of chemical energy, and is washed out of the ecosystem as medium-sized molecules.

- a. Sunlight energy enters, is converted to chemical energy then is permanently stored as fossil fuels.
- b. Heat enters, is converted to chemical energy and is released as light energy.
- c. Sunlight energy enters, is converted to chemical energy and is released as heat.
- d. Heat enters, turns into biotic chemicals, then is converted back to heat and released

6. If the percentage of guanine (G) nucleotide in a DNA molecule is 17%, then the percentage of thymidine (T) in this molecule is:

- a. 17%
- b. 33%
- c. 34%
- d. 66%

7. Which of the following best describes what will happen if cells are placed in a low salty solution?

- a. The cells remain unchanged.
- b. Water moves from inside of the cell to the outside.
- c. Water moves from outside of the cell to the inside.
- d. The cells burst.

8. If you look at cells under a microscope, in eukaryotes, but not prokaryotes, you would expect to see:

- a. No membrane-bound organelles
- b. Endoplasmic reticulum
- c. A single circular chromosome
- d. A plasma membrane

9. The enzyme that separates the DNA strands from each other during the replication process is:

- a. DNA helicase
- b. DNA ligase
- DNA restriction endonuclease
- DNA Polymerase

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10. What is the similarity between transcription and DNA replication? They both result in two new double helices.

- a. They both make new RNA nucleic acids.
- b. They both occur in the cytoplasm.
- c. They both create new DNA nucleic acids.
- d. They both require a polymerase.

11. Which of the following happens LAST during mitosis?

- a. Microtubules emerge from the centrosomes.
- a. Tetrads form.
- b. The sister chromatids separate.
- c. Sister chromatids align on the metaphase plate.

12. The process of protein synthesis starts in ribosomes by the incorporation of the first amino acid:

- a. Alanine
- b. Glycine
- c. Methionine
- d. Arginine

13. The products of aerobic respiration process are:

- a. Carbohydrates and Oxygen
- b. Oxygen and water
- c. Carbohydrates and carbon dioxide
- d. Carbon dioxide and water

14. Which of the following scientific names is written in the correct form to identify a species?

- a. *meleagris gallopavo*
- b. *Meleagris Gallopavo*
- c. Meleagris Gallopavo
- d. *Meleagris gallopavo*

15. If the dominant gene responsible for the color of hair in dogs is (A), which produces black colored hair, while the recessive gene that produces light brown colored hair is (a). The gene responsible for the length of the hair is (B; the dominant short haired animals), and its recessive counterpart (b) produces long haired dogs. If a female dog with genotype of (aabb) was crossed with a male dog and gave birth to 4 puppies with the following genotypes: AaBb, aaBb, Aabb, & aabb, then the genotype of the crossing dog (the father of the puppies) is:

- a. AABB
- b. AaBb
- c. Aabb
- d. aaBb

-----GOOD LUCK-----