

SECTION REVIEW

CHAPTER 3 SAMPLE QUESTIONS

1. Which of the following situations below would **Not** be involved in an evolutionary process that could lead to extinction of species?
 - a. Tall plants out-competing short plants for sunlight
 - b. Large polar bears storing fat and energy for long periods during winter months
 - c. Humans hunting elephants with tusks for ivory
 - d. Natural disasters and human interference

2. Biomes provide an area for several organisms to exist and to acquire the basic necessities for survival. How does the type of biome affect the type of organism that can exist in that biome?
 - a. A biome is specifically designed for whatever organism exists in it.
 - b. A biome is designed only for organisms that are aquatic.
 - c. Only organisms that are specially adapted to survive in a particular biome can live there.
 - d. Any organism can exist in any type of biome.

3. Which statement below best describes the relationship between producers, consumers and decomposers?
 - a. Producers make food, decomposers eat producers, and consumers break down decomposers to release their nutrients because consumers are nature's recyclers.
 - b. Consumers make food, producers eat consumers, and consumers break down decomposers to release their nutrients because consumers are nature's recyclers.
 - c. Consumers make food, decomposers eat producers, and producers break down decomposers to release their nutrients because producers are nature's recyclers.
 - d. Producers make food, consumers eat producers, and decomposers break down dead consumers and producers to release their nutrients because decomposers are nature's recyclers.

4. How does the Law of Conservation of Mass relate to photosynthesis and cellular respiration?
 - a. The mass of the end products of photosynthesis is equal to the mass of the reactants of cellular respiration.
 - b. The oxygen that is given off as a waste product of photosynthesis is utilized as a reactant in the cellular respiration reaction.
 - c. The mass of products and reactants of both photosynthesis and cellular respiration in the environment remains constant over time.
 - d. All of the above

5. Which of the following types of symbiosis is correctly paired with the example given?
- Commensalism—The relationship between moss growing on the trunk of a tree in which the moss gets the light and nutrients they need and the tree is unaffected.
 - Commensalism—The relationship between a child growing up in a 3rd World Nation and the fluke worm inhabiting its stomach resulting in the malnourishment of the child.
 - Mutualism—The relationship between remora fish and sharks in which the remora attaches itself to sharks for transportation and protection and the shark is unaffected.
 - Parasitism -- The relationship between cows and the bacteria that lives in their stomachs that enables cows to digest complex chitin found in grass blades and the bacteria to obtain nutrients from food eaten by the cow.
6. Which of the following situations correctly identifies the environmental problem and the solutions created to resolve that environmental problem?
- Overuse of natural resources solved by exhaustion of them.
 - Keeping all water faucets and light fixtures on to solve energy crisis.
 - Overuse of trees for furniture building solved by reforestation.
 - Use of exotic insect species to eradicate native nuisance.
7. Which situation below is most likely the result of a gene mutation?
- Skin cancer in a young child exposed to too much sunlight.
 - A blister-like growth from an infection of the upper jaw of a wild pig.
 - A polar bear shedding as it ages
 - A human baby losing its baby teeth as it grows up
8. Which of the following examples correctly organizes organisms in an ecosystem by their level of complexity (from the least to the most complex)?
- House fly–ameba– human – horned frog
 - Snap dragon plant– protist — mushroom – chimpanzee
 - E. coli bacteria – reindeer – grasshopper– ameba
 - Halococcus bacteria – snap dragon plant – horned Frog – human
9. Which statement below is true of both mitosis and meiosis?
- Mitosis results in the production of identical diploid cells, while genetic variation is the result of haploid cell production in meiosis.
 - Mitosis results in the production of identical haploid cells, while genetic variation is the result of diploid cell production in meiosis.
 - Meiosis results in the production of identical diploid cells, while genetic variation is the result of haploid cell production in mitosis.
 - Meiosis results in the production of identical haploid cells, while genetic variation is the result of diploid cell production in mitosis.

10. Which of the following statements below concerning the life functions of an organism is **Not** correct?

- a. Respiration is necessary for the removal of unwanted oxygen and the supply of carbon dioxide to the body's cells.
- b. Excretion is necessary for the removal of urea and other metabolic wastes from cells and the filtration of impurities from the blood stream.
- c. Muscular contraction and relaxation are necessary for motile organisms to move so as to locate food, shelter and protect itself from prey.
- d. Reproduction is necessary for the continuation of the species in its ecosystem.

11. The statement below that demonstrates a correct match between an organ and its organ system is

- a. Motor neurons cause you to flinch as your nervous system reacts in response to you friend pretending to throw a punch at you.
- b. You develop diabetes as your pancreas, a part of your reproductive system, fails to produce enough insulin.
- c. Your cardiovascular system works hard at responding to stimuli in your surroundings through the various nerves it employs throughout your body.
- d. Your liver secretes bile that helps regulate the urinary system.

12. Given the Punnett square results below predict the genotypes of the parent organisms.

BB	Bb
Bb	bb

- a. Both parents are genotype **Bb**, thus they are homozygous.
- b. Both parents are genotype **Bb**, thus they are heterozygous.
- c. At least one parent is genotype **BB**, thus the parent is homozygous recessive.
- d. Both parents are genotype **bb**, thus they are heterozygous.

13. What does a pedigree chart reveal about recessive genetic disorders?

- a. Recessive genetic traits are passed on from generation to generation until descendents develop the genetic disorder, having received a recessive allele from only one parent.
- b. Recessive genetic traits are passed on from generation to generation until descendents develop the genetic disorder, having received a recessive allele from both parents.
- c. Recessive genetic traits are passed on from generation to generation until descendents develop the genetic disorder, having received a recessive allele from a spouse.
- d. Recessive genetic traits are passed on from generation to generation until descendents develop the genetic disorder, having received a recessive allele from a sibling.

14. Predict what the complimentary base pair sequence of mRNA would be for the following DNA strand.

ATGGTCTTGGATCC

- a. TACCAGAAACCAAGG
 - b. UACCAGAACTAAGG
 - c. UACCAGAAACUAAGG
 - d. TACCAGAAACCAAGC
15. Which of the following statements below best identifies the similarities between various types of infectious agents?
- a. Viruses, parasites, bacteria, and fungi need a host to survive and reproduce.
 - b. Viruses, parasites, bacteria, and fungi are capable of surviving outside of the hosts' body.
 - c. Viruses and parasites need a host to survive, while bacteria and fungi are capable of surviving without a host.
 - d. Bacteria and viruses need a host to survive, while fungi and parasites are capable of surviving without a host.
16. If Suzy were to find the complete bone set of a limb belonging to an unidentified organism how could comparative anatomy help her to determine the origins of the organism?
- a. Comparative anatomy would allow Suzy to classify the organism based on similar structures in the biochemistry of another organism.
 - b. Comparative anatomy would allow Suzy to classify the organism based on similar body structures of another organism.
 - c. Comparative anatomy would allow Suzy to establish evolutionary relationships between organisms.
 - d. Choices (b) and (c) only
 - e. Choices (a) (b) and (C)
17. The flower is the reproductive structure of angiosperms (flowering plants). It consists of various male and female parts that allow sexually reproduction to occur in the plant. Which statement correctly explains the relationship between the flower's parts and its function?
- a. The anther sends the carpel to the stigma of another flower for self-pollination.
 - b. The stigma of the flower receives pollen from an anther on the same flower during cross-pollination.
 - c. The anther produces pollen which is transferred to the stigma on the same flower during self-pollination.
 - d. Pollinators must be stationary insects that transport the pollen knowingly.
18. Knowledge of organelles is necessary when trying to understand the overall function of the cells. Which of the following situations would cause a cell to dysfunction ?
- a. Mitochondria not producing energy
 - b. Nucleus compromised by viral infection
 - c. Ribosomes not producing proteins
 - d. All of the above

19. What is the benefit of the Linnaean system of taxonomy help us classify organisms?
- Organisms are classified scientifically, which avoids the problem of regional classification.
 - Organisms are classified regionally, which allows for flexibility in identifying organisms.
 - Organisms are specifically identified by their genotypes, which makes them unique.
 - Organisms cannot be identified by the Linnaean system since it uses uninomial nomenclature.
20. Which organism is correctly matched to the correct kingdom based on the 6 Kingdom System of taxonomy?
- Animal Kingdom – Bacteria
 - Archaeobacteria kingdom – Salt tolerant bacteria
 - Fungi kingdom – reptiles
 - Plant kingdom – domestic felines (house cats)
21. The Cell Theory is a major theory that governs the classification of living organisms. It is a fundamental organizing principle of life on Earth. Which of the following statements supported by the Cell Theory?
- Only certain living things are composed of cells.
 - The cell is the basic unit of life.
 - The Cell Theory is an accepted theory that is absolute—there are no exceptions.
 - Viruses can be classified as living things because they can reproduce outside the host organism.
22. Biotechnology is the use of living organisms or other biological material (i.e., DNA) to develop new products for use in daily life. It has been used to develop new foods and medicines and other products. Which of the following are current technologies that employ the idea of biotechnology?
- Nintendo Wii system for gaming and interactive play via the Wii remote controller.
 - Cochlear implants designed to interact with the human brain to produce hearing in deaf individuals.
 - Nose hair trimmer that contours to the inner curves of a persons' nostrils.
 - Push button start for a new vehicle that has just been released for consumer purchase.