

North Carolina End-Of-Course Coach for Biology

Created Triumph Learning, 2007

Question 2

- A fire completely destroys an ecosystem, driving away all the organisms and burning all vegetation to the ground. What is the first organism that needs to return in order for the ecosystem to reestablish itself?
 - Mountain lions
 - Grasshoppers
 - Birds
 - Plants

Question 4

- Which organelle is used to transport compounds throughout the cell?
 - Ribosome
 - Endoplasmic reticulum
 - Nucleus
 - Mitochondria

Look at Chapter 7 notes!

Question 1

- Thymine makes up 32% of the nucleotides in a sample of DNA. What percentage of nucleotides is guanine?
 - 36%
 - 32%
 - 18%
 - 16%

Chargaff said that there is an equal ratio of A:T and G:C.

$$A + G = T + C$$

Question 3


- Which of the following statements about nucleic acids is true?
 - Nucleotides are made of a 5-carbon sugar, a nitrogen base, and a lipid.
 - DNA and RNA are examples of nucleic acids that are rarely seen in living things.
 - Nucleic acids are made of repeating units called lipids.
 - Nucleic acids store important information about cell division and the manufacturing of proteins.

What do you know about nucleic acids? Describe them.

Question 5


- In vascular plants, what is the purpose of vascular tissue?
 - To transport water and dissolved materials throughout the plant
 - To transport sugars from the leaves to the rest of the plant
 - To transport water and dissolved materials from the leaves to the rest of the plant
 - To transport excess water and minerals from the plant back to the ground

Can you eliminate any answer choices?



 Question 6

- Hemophilia is a recessive, sex-linked trait. A healthy mother and a hemophiliac father have a hemophiliac daughter. Which of the following statements is true?
 - All of their children will be hemophiliacs.
 - None of their sons will be hemophiliacs.
 - They can have a healthy daughter who is not a carrier.
 - They can have a healthy son.

What chromosome does sex-linked traits often affect?



 Question 7

- What is the function of the nucleus?
 - Control center of the cell and stores genetic information
 - Contains enzymes to break down certain materials
 - Site of ribosome synthesis
 - Packages chromosomes to be moved into the cytoplasm


 Question 8

- Which organism would be found at the top of an energy pyramid?
 - Alligator
 - Bass
 - Shrimp
 - Green algae

What is an energy pyramid? Which organism consumes the most energy?


 Question 9

- Which of the following would be found in the prokaryotic cell?
 - Mitochondria
 - Ribosomes
 - Endoplasmic reticulum
 - Golgi apparatus


 Question 10

- Which of the following is the *best* description of homeostasis?
 - The movement of materials into and out of a cell
 - The transport of molecules against the concentration gradient
 - A state of biological balance
 - When the same number of molecules are inside and outside the cell


 Question 11

- Which of the following is *least likely* affecting the state of a pond?
 - Chemical fertilizer runoff from cropland
 - Manure runoff from cropland
 - Animal waste runoff from cattle and chickens
 - Trash produced by a farmer and his family

Question 12

- What is the key difference between osmosis and diffusion?
 - A. Diffusion specifically refers to the movement of water across the cell membrane.
 - B. Osmosis specifically refers to the movement of water across the cell membrane.
 - C. Diffusion occurs only in plants.
 - D. Osmosis occurs only in plants.

Question 13

- A student observes an organism under a microscope and discovers that it is unicellular and does not have a nucleus. What kingdom does the organism belong to?
 - A. Plantae
 - B. Protista
 - C. Monera
 - D. Fungi

Question 14

- Bread rises as a result of yeast fermentation. How does fermentation cause the bread to rise?
 - A. Oxygen released during fermentation is trapped in the dough and causes the bread to rise.
 - B. Alcohol that is produced during fermentation and trapped in the dough causes the bread to increase in size.
 - C. Carbon dioxide that is released during fermentation and trapped in the dough causes the bread to rise.
 - D. Carbon dioxide and oxygen that are released during fermentation cause the bread to rise.

What are the products of alcoholic fermentation?

Question 15

- Which of the following is one way that RNA is different from DNA?
 - A. RNA exists in four structural forms.
 - B. RNA contains deoxyribose rather than ribose.
 - C. RNA contains three strands of nucleotides.
 - D. RNA contains uracil rather than thymine.

Question 16

- What type of pollination is *most likely* used by a plant that produces a large number of small seeds that are attached to feather-like structures?
 - A. Insect
 - B. Water
 - C. Wind
 - D. Self

Question 17

- What can you state about the organisms *Quercus alba* and *Quercus phellos* by examining their names?
 - A. They are the same organism.
 - B. They are not related.
 - C. They are closely related.
 - D. They are distantly related.

Question 18

- Which of the following statements about carbohydrates is true?
 - Carbohydrates consist of carbon, hydrogen, oxygen, and nitrogen.
 - The ratio of hydrogen to oxygen is always 2:1.
 - There are four classes of carbohydrates.
 - Carbohydrates have a linear structure.

What is a carbohydrate?

Question 19

- Which of the following statements about asexual reproduction is true?
 - Asexual reproduction occurs only during meiosis.
 - Asexual reproduction occurs only in plants.
 - Asexual reproduction creates genetically different offspring.
 - Asexual reproduction occurs only during mitosis.

Question 20

- A segment of DNA contains the bases GTATCAGG. What would be the complementary strand resulting from transcription?
 - CATAGTCC
 - CAUAGUCC
 - CUTUGTCC
 - CATAUTCC

What is made during the process of transcription?

Question 23

- If all green plants were removed from an aquarium, what would *most likely* happen to the fish population?
 - Removing the plants would have no impact on the fish population.
 - The fish population would be stressed due to a decrease in dissolved oxygen.
 - The fish population would begin to reproduce because they would have more room.
 - The fish population would begin to die off due to a lack of food.

Question 24

- Which statement about two offspring created as a result of sexual reproduction is true?
 - The offspring will be genetically identical to one of the parents.
 - The offspring will be genetically similar to both parents.
 - The offspring will have a different number of chromosomes than either of the parents.
 - The offspring will be genetically identical to one another.

Question 25

- In a certain type of mouse, the phenotype gray is produced when a white mouse is crossed with a black mouse. This is an example of incomplete dominance. If two gray mice are crossed, what will be the phenotypes of the offspring?
 - 25% black, 50% gray, 25% white
 - 75% black, 25% white
 - 75% gray, 25% white
 - 75% white, 25% gray

Question 26

- A new type of pesticide has been developed. Which of the following will be the most helpful to the beetle population living where the pesticide is being tested?
 - Genetic variation
 - Speciation
 - Overpopulation
 - A neighboring field that is not being treated

Question 25

- What are the genotypes of the parents in this punnett square?

RR	Rr
Rr	rr

- Rr x Rr
- RR x rr
- Rr x rr
- Rr x RR

Question 26

- In Swiss starlings, clutch size is typically around five eggs. Mortality is higher when the number of eggs laid is much higher or lower than five. What type of selection is this an example of?
 - Morphological selection
 - Stabilizing selection
 - Directional selection
 - Disruptive selection

Question 27

- A lichen is a symbiotic relationship between what two types of organisms?
 - Fungi and bacteria
 - Algae and fungi
 - Algae and mold
 - Fungi and mold

Question 28

- Down syndrome is caused by the presence of an extra copy of chromosome 21. How would a karyotype identify a person with Down syndrome?
 - By identifying the physical characteristics of someone with the disease
 - By identifying parents as being carriers before they have children
 - By identifying the presence of an extra copy of chromosome 21
 - By identifying chemical abnormalities in the blood

Question 29

- In which type of habitat will allopatric speciation occur?
 - In a field where several types of animals are competing for the same food source
 - On a group of islands
 - In a forest where the main food source has been eliminated
 - In an area where animals of the same species do not frequently encounter one another

Question 30

- Walrus live in the Arctic and have a thick fat layer. The ancestors of the modern-day walrus might not have had such a thick layer. Over time, the walrus have probably changed. According to the theory of evolution by natural selection, what is the *most likely* reason that this change has probably occurred?
 - The walrus wanted to adapt to the cold climate, so they learned to develop thicker fat layers.
 - The walrus that had thicker fat layers were more apt to survive and live to reproduce.
 - The walrus inherited a thicker fat layer from their parents.
 - Each successive generation, more walrus have thicker fat layers.

Question 31

- Scientists believe that four things needed to occur in order for life to begin. Which of the following things was *not* necessary?
 - The formation of both simple and complex organic compounds
 - The development of chemical reactions involved in growth, metabolism, and reproduction
 - The concentration of organic compounds
 - The development of a carbon dioxide-rich atmosphere

Question 32

- When related species become dissimilar as they evolve, they are undergoing what type of evolution?
 - Convergent evolution
 - Coevolution
 - Adaptive radiation
 - Divergent evolution

Question 33

- In the cross $NNOOPP \times nnoopp$, what would the genotype of the offspring be?
 - $NNnnOOooPPpp$
 - $NnOoPp$
 - $NNOOPP$
 - $nnoopp$

Question 34

- Which of the following statements about disruptive selection is true?
 - Disruptive selection eliminates the extreme forms and favors the intermediate forms.
 - Disruptive selection causes one phenotype to be replaced by another.
 - Disruptive selection causes an increase in the extreme forms and a decrease in the intermediate forms.
 - Disruptive selection is caused when humans specifically select organisms that exhibit a desired trait.

Question 35

- Which of the following about punctuated equilibrium is *not* true?
 - The fossil record does not support punctuated equilibrium.
 - Punctuated equilibrium suggests that new species appear suddenly after long periods of no change.
 - The greatest change in a new species occurs when it first evolves from the parent species and then undergoes little change for the remainder of its existence.
 - The fossil record supports punctuated equilibrium.

Question 36

- At which level of classification do organisms have the most in common?
 - Kingdom
 - Class
 - Genus
 - Phylum

King Phillip Came Over From Germany Sailing!

Question 37

- How do enzymes speed up chemical reactions?
 - By raising activation energy
 - By lowering the activation energy
 - By becoming part of the reaction
 - By releasing proteins

Question 38

- What is the maximum number of amino acids that could be formed from a chain containing 36 nitrogenous bases?
 - 9
 - 12
 - 18
 - 36

Question 39

- Which of the following organisms reproduces by external fertilization?
 - Mammals
 - Reptiles
 - Birds
 - Amphibians

Question 40

- Which of the following is used for movement by single-celled protists?
 - Contractile vacuole
 - Mitochondria
 - Gullet
 - Flagella

Question 41

- What are the four *main* types of tissue in the human body?
 - Epithelial, connective, muscle, and heart
 - Epithelial, connective, muscle, and nerve
 - Connective, muscle, nerve, and brain
 - Muscle, nerve, brain, and skin

Question 42

- Which molecule is responsible for transporting amino acids to the ribosomes?
 - DNA
 - tRNA
 - mRNA
 - rRNA

Question 43

- When measuring water in a graduated cylinder, how do you read the volume in order to obtain the most accurate measurement?
 - Look down into the cylinder and read that volume at the top of the meniscus.
 - Place the cylinder at eye level and read the volume at the top of the meniscus.
 - Look down into the cylinder and read the volume at the bottom of the meniscus.
 - Place the cylinder at eye level and read the volume at the bottom of the meniscus.

Question 44

- The alpha male of the pack has his choice of food, territory, and mate. Any male that violates the rules and tries to take these will be fought. What type of behavior is this an example of?
 - Instinctual behavior
 - Social behavior
 - Learned behavior
 - Altruistic behavior

Question 45

- What is the maximum number of ATP molecules produced by aerobic respiration?
 - 32
 - 34
 - 36
 - 38

Question 46

- Many mammal infants are born with the instinct to suckle. If a mammal is not born with this instinct, what will *most likely* happen to the infant?
 - It will eventually develop the instinct to suckle.
 - The mother will teach it to suckle.
 - The animal will die because it will not be able to feed.
 - The animal will find another source of food.

Question 47

- In what way do lipids differ from other organic molecules?
 - Their ratio of C, H, and O is 1:2:1.
 - They do not dissolve in water.
 - They store energy.
 - They form structural and functional compounds that are important to cells.

Question 48

- A couple has four daughters and no sons. If the couple has another child, what is the probability that the fifth child will be a girl?
 - 25%
 - 50%
 - 75%
 - 100%

Just like flipping a coin!

Question 49

- Which word would be on the bottle of a chemical that can destroy living tissue and is dangerous to the touch?
 - Poisonous
 - Toxic
 - Caustic
 - Flammable

Question 50

- A pond is supporting a large fish community. The addition of any more fish will cause a food shortage that will be detrimental to the fish population. What has the pond reached?
 - Biotic potential
 - Density-dependent population
 - Carrying capacity
 - Logistic growth

Question 51

- What is the cell membrane composed of?
 - Lipids
 - Proteins
 - Proteins and starch
 - Lipids and proteins

Question 52

- The clownfish makes its home inside the tentacles of the sea anemone. The tentacles, which are poisonous to most other organisms, provide protection for the clownfish. The sea anemone will feed on scraps that are not eaten by the clownfish. What type of relationship do the clownfish and sea anemone have?
 - Commensalism
 - Parasitism
 - Mutualism
 - Symbiosis

Question 53

- Which process occurs during asexual reproduction?
 - Crossing-over between homologues
 - Mutation
 - Separation of homologous pairs of chromosomes
 - Separation of sister chromatids

Question 54

- A plant cell is placed into a hypotonic solution. What will happen to the cell?
 - Water will flow out of the cell and cause the cell to wilt.
 - Water will flow into the cell and cause the cell to burst.
 - Water will flow into the cell, but the size of the cell will not change.
 - Water will flow in and out of the cell, but the size of the cell will not change.

Question 55

- You are given a data table that shows the percentages of different types of crops grown on a farm. What would be the *best* way to graph data?
 - Bar graph
 - Pie chart
 - Scatterplot
 - Line graph

Question 56

- What is the correct way to heat a test tube containing a liquid?
 - Wearing goggles and pointing the test tube toward you so you can see when the liquid comes to a boil
 - Not wearing goggles and pointing the test tube away from you
 - Wearing goggles and pointing the test tube away from you
 - Not wearing goggles and pointing the test tube toward you so you can see when the liquid comes to a boil

Question 57

- Which of the following most accurately describes a food web?
 - It shows how energy is passed from one organism to another.
 - It usually consists of three or four organisms.
 - It is a series of overlapping food chains.
 - It contains only consumers.

Question 58

- Researcher are testing a new drug. One-half the participants are given the drug, and the remaining participants are given a placebo. Which phrase describes the people taking the placebo?
 - Independent variable
 - Dependent variable
 - Control group
 - Test group

Question 59

- A student wants to do a science fair project to test the effects of different liquids on plant growth. Why does her teacher tell her that she needs to have three plants for each liquid that she is testing?
 - To provide adequate replication
 - To provide a control for each liquid
 - To provide enough dependent variables
 - To provide enough plants to put them into different rooms

Question 60

- Which of the following diseases would *most likely* be passed genetically?
 - A. Cancer
 - B. Autism
 - C. Hemophilia
 - D. Dyslexia

Question 61

- What would be the *best* piece of equipment to measure 0.25g of iron powder?
 - A. Triple-beam balance
 - B. Teaspoon
 - C. Electronic balance
 - D. 10 mL graduated cylinder

Question 62

- How can you identify the dependent variable in an experiment?
 - A. It is something that is kept the same for every subject in the experiment.
 - B. It is what you are measuring.
 - C. It is controlled by the person designing the experiment.
 - D. It never changes.

Question 63

- Renewable resources can be replaced by nature within a lifetime. Which of the following is a renewable resource?
 - A. Oil
 - B. Hydroelectric
 - C. Coal
 - D. Natural gas

Question 64

- You are writing a formal paper to submit with your science fair project. Which of the following would *most likely* be the first section of your paper?
 - A. Hypothesis
 - B. Conclusion
 - C. Results
 - D. Statement of the problem

Think of the order of the steps in the scientific method!

Question 65

- Which of the following is an example of PPE (personal protective equipment)?
 - A. Open-toed shoes
 - B. Fire extinguisher
 - C. Lab coat or apron
 - D. Safety shower

Question 66

- Which of the following is a list of elements that make up the structure of a carbohydrate?
 - C, N, and O
 - H, C, and O
 - N, S, and O
 - O, C, and P

Question 67

- Which cell organelle is the site of protein synthesis?
 - Endoplasmic reticulum
 - Ribosome
 - Nucleus
 - Mitochondrion

Question 68

- Which of the following cell organelles helps you determine the difference between a plant and an animal cell?
 - Nucleus
 - Cell wall
 - Ribosomes
 - Mitochondria

Question 69

- Cells have a selectively permeable membrane. What is the primary purpose of this membrane?
 - To keep all of the cytoplasm inside the cell
 - To control which materials enter and leave the cell
 - To allow photosynthesis to occur
 - To manufacture proteins

Question 70

- In a certain type of Japanese plants, when two red plants are crossed, all the offspring will be red. When two white plants are crossed, all the offspring will be white. When a red plant is crossed with a white plant, all the offspring will be pink. Which type of trait is this *most likely* an example of?
 - Polygenetic
 - Incomplete dominance
 - Sex-linked
 - Multiple alleles

What is the key word here?

Question 71

- Which of the following is an abiotic factor?
 - Bald eagle
 - Predation
 - Cacti
 - Sunlight

Question 72

- Which of the following statements *best* describes a function of an enzyme?
 - A. All enzymes work on all substrates.
 - B. Enzymes are specialized proteins that serve as catalysts.
 - C. Enzymes are carbohydrate-based molecules in all cells.
 - D. The structure of enzymes is changed during a chemical reaction.

Question 73

- Which of the following factors is *most likely* to affect the function of an enzyme?
 - A. Catalysts
 - B. Size of beaker
 - C. Proteins
 - D. Temperature

Question 74

- Which of the following produces the greatest amount of ATP?
 - A. Glycolysis
 - B. Krebs Cycle
 - C. Electron transport chain
 - D. Fermentation

Question 75

- Which of the following statements about lipids is correct?
 - A. Lipids are hydrophilic, which means they are soluble in water.
 - B. Lipids are hydrophobic, which means they are soluble in water.
 - C. Lipids are hydrophilic, which means they are not soluble in water.
 - D. Lipids are hydrophobic, which means they are not soluble in water.

Question 76

- What is the function of the Golgi apparatus?
 - A. Manufacture proteins
 - B. Package and transport proteins
 - C. Store proteins
 - D. Break down proteins to release energy

Question 77

- Where does DNA replication begin?
 - A. At the 5' end of the DNA molecule
 - B. At the center of the DNA molecule
 - C. At the 3' end of the DNA molecule
 - D. Simultaneously at many points along the DNA molecule

Question 78

- Which of the following is the *best* description of commensalism?
 - A relationship in which one organism is helped and the other is harmed
 - A relationship in which neither organism is helped or harmed
 - A relationship in which one organism is helped and the other is neither helped nor harmed
 - A relationship in which both organisms are helped

Question 79

- A section of DNA has the base sequence TAGATGCG. What will be the base sequence of the mRNA strand?
 - ATCTACGC
 - UTCTUCGC
 - ATUTAUGU
 - AUCUACGC

Question 80

- Why must every experiment include a control group?
 - The control group represents the normal conditions and is used for comparison.
 - The control group represents the variable that is being tested.
 - The control group ensures that there is adequate replication in the experiment.
 - The control group represents the extremes of the variables being tested.

Question 81

- A pond is dredged to remove all the submerged organic material. What will *most likely* happen to the fish population and the population of benthic organisms that the fish feed on?
 - Both populations will increase.
 - Both populations will decrease.
 - The fish population will increase and the benthic population will decrease.
 - The fish population will decrease and the benthic population will increase.

Question 82

- Which of the following statements about two normal gametes from a human female is true?
 - Each gamete contains the same number of chromosomes as the mother.
 - Their chromosomes are exactly alike.
 - Each gamete contains 23 chromosomes.
 - The gamete's chromosomes are exactly the same as the mother's.

Question 83

- Blue is dominant to green. Two heterozygous parents are crossed. Assuming that there is no incomplete dominance or codominance, what would be the ratio of blue to green offspring?
 - 2:1
 - 1:2:1
 - 3:1
 - 1:3

Question 84

- Amphibians often bury themselves in mud or leaves when summer conditions become unfavorable. What is this behavior called?
 - Hibernation
 - Metamorphosis
 - Estivation
 - Survival of the fittest

Question 85

- In a DNA molecule, which of the strands below is complementary to the segment ATCTGATC?
 - CGAGTCGA
 - TAGACTAG
 - GCTCAGCT
 - TAGAGATC

Question 86

- Which of the following is *most* commonly used to study chromosomes?
 - Blood type
 - Karyotype
 - Ultrasound
 - Genetic screening

Question 87

- Which of the following would be an advantage of genetically engineering disease-resistant crops?
 - Growing periods would decrease in most crops.
 - Harvest rates would decrease significantly, giving farmers less to do.
 - Crops could be grown only in certain climates and at certain times of the year.
 - Farmers could reduce the number of chemicals needed to control disease.

Question 88

- Which of the following statements about the carbon cycle is true?
 - Decomposers release carbon dioxide when they break down organic compounds.
 - The burning of fossil fuels is decreasing the amount of carbon in the atmosphere.
 - Plants release carbon dioxide into the atmosphere during photosynthesis.
 - Respiration is the only way that carbon dioxide is released into the atmosphere.

Question 89

- Which of the following is a *main* part of Darwin's theory of natural selection?
 - There is little to no variation within populations.
 - Organisms will compete for unlimited resources in a given environment.
 - Organisms with characteristics most suited to their environment will survive.
 - Organisms will produce only as many offspring as will survive.

Question 90

- Which of the following statements about photosynthesis is correct?
 - The products of photosynthesis are sugar and oxygen.
 - Photosynthesis occurs in the mitochondria.
 - Sunlight is not necessary for photosynthesis to occur.
 - The products of photosynthesis are sugar and water.

Question 91

- Until 1845, most of the peppered moths in England were white. Industrialization caused an increase in pollution. This increase in pollution caused most of the plants and rocks to turn black. By 1950, most of the peppered moths in the industrialized regions were black. What is this change in moth color an example of?
 - Disruptive selection
 - Directional selection
 - Stabilizing selection
 - Adaptive selection

Question 92

- The protein cytochrome C is essential for aerobic respiration and is found in all organisms. What does the presence of cytochrome C support?
 - The theory that organisms changed over time to utilize cytochrome C
 - The theory that all aerobic organisms descended from a common ancestor that used cytochrome C
 - The theory that anaerobic respiration is not necessary
 - The theory that all organisms will eventually evolve to be aerobic

Question 93

- What is the correct order of the seven levels of classification, listing them from broadest to narrowest?
 - Species, genus, family, order, class, phylum, Kingdom
 - Kingdom, phylum, family, class, family, order, genus, species
 - Genus, species, family, order, class, kingdom, phylum
 - Kingdom, phylum, class, order, family, genus, species

Question 94

- Why is Latin used as the standard language for naming organisms?
 - Latin is spoken universally.
 - Referring to an organism by the Latin name eliminates the confusion caused by the use of common names.
 - The use of Latin allows one organism to have several different names.
 - The use of Latin distinguishes between plants and animals.

Question 95

- A cell is taken from an environment that has a high salt concentration and is placed into an environment that does not contain any salt. What effect will the change in environment have on the cell?
 - There will be no change in the cell.
 - The cell will shrink.
 - The cell will swell.
 - The cell will divide.

Question 96

- Which of the following tools allows students and geneticists to apply Mendel's laws of heredity *most directly* and make predictions about the genetics of a particular offspring?
 - Microscope
 - Cell model undergoing mitosis
 - Law of segregation
 - Punnett square

Question 97

- Straight leaves are dominant curly leaves. A testcross was done on a straight-leaved plant to determine its genotype. For the testcross to be successful, what would the genotype of the second plant need to be?
 - Homozygous dominant
 - Homozygous recessive
 - Heterozygous
 - The genotype of the second plant does not matter

Question 98

- Which of the following conditions is *least likely* to be passed genetically?
 - Cancer
 - Heart disease
 - Sickle cell anemia
 - Autism

Question 99

- A student identifies an unknown cell as being eukaryotic. Which of the following did she *most likely* identify in order to draw this conclusion?
 - Nucleus
 - Cell wall
 - Chloroplasts
 - Cell membrane

Question 100

- Pavlov's dog learned to associate hearing a bell with receiving food. Over time, the dogs would salivate when they heard the bell, even if food was not present. What type of behavior is this an example of?
 - Innate behavior
 - Learned behavior
 - Social behavior
 - Agonistic behavior

Question 101

- Territoriality is a common type of social behavior. Why is territoriality an important behavior?
 - It allows animals to share resources with one another.
 - It allows an animal to protect what is important to its survival.
 - It helps attract mates.
 - It indicates which animal is the alpha of the group.

Question 102

- Ants are born knowing what role they will carry out within the colony. What type of behavior is this?
 - Imprinting
 - Instinct
 - Conditioning
 - Socialization

Question 103

- If the snake population were to increase, what would *most likely* happen to the hawk population?
 - There would be no change.
 - It would decrease because there would be more snakes to prey on the hawks.
 - It would increase because there would be more snakes available for the hawks to eat.
 - It would decrease because the mouse population would decrease.

Question 104

- Which of the following is a *main* part of the cell theory?
 - All organisms are made of one cell.
 - Cells make up living and non-living things.
 - Cells are the basic units of structure and function for all life.
 - All cells contain a nucleus.

Question 105

- What is an ecosystem composed of?
 - All the members of one species
 - The biotic and abiotic factors in an environment
 - All the members of a species living in the same area
 - The biotic factors in an environment

Question 106

- Which type of RNA transmits information from DNA during protein synthesis?
 - tRNA
 - mRNA
 - rRNA
 - Mitochondrial RNA

What process makes this type of RNA from DNA?

Question 107

- A tree falls down in a forest. Which organisms need to be present in order for the nutrients from the tree to be returned to the ground?
 - Parasites
 - Consumers
 - Decomposers
 - Bacteria

Question 108

- Charles Darwin studied the finches of the Galapagos Islands. He identified 13 species of finches. These finches were similar, but they all had different diets. Which of the following is *not* a logical explanation for their differing diets?
 - More than one animal species was competing for the same food source, so the finches evolved to eat another type of food in order to survive.
 - Different food sources were available on different islands, so the finches had to evolve to eat different foods when they migrated to different islands.
 - Disease eliminated the primary food source on one of the islands, forcing the finches to find a new food source.
 - Reproductive isolation caused the finches to have different diets.

Question 109

- The burning of fossil fuels is causing an increase in which of the following?
 - Atmospheric oxygen
 - Atmospheric nitrogen
 - Atmospheric carbon dioxide
 - Atmospheric phosphate

Question 110

- Which of the following statements about photosynthesis and cellular respiration is true?
 - Photosynthesis produces more oxygen than is typically needed for respiration.
 - Cellular respiration produces more carbon dioxide than is typically needed for photosynthesis.
 - The amount of oxygen produced by photosynthesis is typically equal to the amount of carbon dioxide produced by cellular respiration.
 - Cellular respiration produces less carbon dioxide than is typically needed for photosynthesis.

Question 111

- Francesco Redi performed an experiment in which he placed meat in two jars. One of the jars was covered, and one of the jars was left open to the air. How did this experiment help disprove the theory of spontaneous generation?
 - By showing that maggots were found on only the meat in the closed jar
 - By showing that maggots were found on only the meat in the open jar
 - By showing that maggots were found in both jars
 - By showing that maggots were not found in either jar

Question 112

- If the cells produced as a result of meiosis each contain 16 chromosomes, how many chromosomes would be present after sexual reproduction?
 - 8
 - 16
 - 24
 - 32

What type of cells are produced from meiosis?

Question 113

- In which trophic level would the biological magnification of DDT be most apparent?
 - Producers
 - Primary consumers
 - Secondary consumers
 - Tertiary consumers

Question 114

- Which of the following *best* describes the process of translation?
 - Assembling protein molecules from the information encoded in mRNA
 - Assembling protein molecules from the information encoded in tRNA
 - Making RNA molecules from DNA molecules already manufactured
 - Making DNA molecules from RNA molecules already manufactured

Question 115

- You are performing an experiment that could potentially release a small amount of harmful vapors. Where should you perform the experiment?
 - Next to an open window
 - At your usual lab station
 - Inside a fume hood
 - In a lab that is not occupied by other people

Question 116

- An experiment was performed to measure the change in pH of a pond over a 24-hour time period. Which type of graph would *best* illustrate the data?
 - Pie chart
 - Bar graph
 - Line graph
 - Stacked bar graph

Question 117

- Which of the following is a function of proteins?
 - Storing energy
 - Storing waste
 - Growth and repair
 - Breaking chemical bonds

Question 118

- How is a scientific question different from other types of questions?
 - It is something that every person would be inserted in.
 - It is asked by the majority of people on earth.
 - It has a single answer that never changes.
 - It can be answered through observation and analysis.

Question 119

- ADP must combine with which of the following in order to regenerate ATP?
 - A free phosphate
 - A positive ion
 - An adenine base
 - A molecule of glucose

For what do ADP and ATP stand?

Question 120

- Which of the following is a product of cellular respiration?
 - Oxygen
 - Carbon dioxide
 - Glucose
 - Sunlight

Question 121

- In which organelle does photosynthesis take place?
 - The nucleus
 - The vacuole
 - The chloroplast
 - The mitochondrion

Question 122

- What occurs during photosynthesis?
 - Chemical energy is converted to light energy.
 - Light energy is converted into chemical energy.
 - Glucose is broken down to release energy.
 - Carbon dioxide and energy are released into the atmosphere.

Question 123

- Which of the following could result in an increased amount of carbon dioxide in the atmosphere?
 - An increase in the temperature on Earth
 - A decrease in the human population on Earth
 - A decrease in the number of trees on Earth
 - An increase in the amount of blue-green algae in Earth's oceans

Question 124

- Which of the following are the essential raw materials for photosynthesis?
 - Carbon dioxide and water
 - Water and oxygen
 - Glucose, water, and carbon dioxide
 - Glucose, oxygen, and water

Question 125

- What are the building blocks of DNA?
 - Genes
 - Nucleotides
 - Amino acids
 - Ribosomes

Question 126

- A human zygote, like most other human cells, contains 46 chromosomes. How many chromosomes does a zygote receive from the mother?
 - 0
 - 23
 - 46
 - 92

Question 127

- What are different versions of a gene for the same trait called?
 - Phenotypes
 - Alleles
 - Purebreds
 - Homozygous

Question 128

- Crossing a purebred, purple-flowered plant with a purebred, white-flowered plant can be symbolized by which of the following genotypic crosses?
 - Ff x ff
 - FF x ff
 - Ff x Ff
 - FF x FF

Question 129

- In rabbits, the allele for black coat color (B) is dominant over the allele for brown coat color (b). Two black rabbits (Bb) mate. What can you predict about the offspring?
 - Most of the offspring will be brown.
 - Most of the offspring will be black.
 - All of the offspring will be black.
 - All of the offspring will be brown.

Question 130

- Which would be a reason why scientists would genetically engineer bacteria to produce human insulin?
 - Bacteria do not have their own genetic material.
 - Bacteria are living.
 - Bacteria are very small.
 - Bacteria reproduce quickly.

Question 131

- How does the overuse of antibiotics lead to resistant strains of bacteria?
 - Antibiotics change the structure of bacteria, making them resistant.
 - Antibiotic introduce too many bacteria to a population at one time.
 - Antibiotics provide a breeding ground in which bacteria can flourish.
 - Antibiotics shift natural selection to favor existing resistant bacteria.

Question 132

- What is one important way that members of the domain Archaea are different from Bacteria?
 - Archaea lack cell walls.
 - Archaea are multicellular.
 - Archaea lack cells with a nucleus.
 - Archaea have unique DNA.

Question 133

- How do fruits improve the success with which seeds are dispersed?
 - They store egg cells until they are fertilized.
 - They provide sites on which pollen can land and stick.
 - They conserve water in the tissues of plants.
 - They attract animals that eat the fruits and release the seeds.

Question 134

- Which of the following choices is *not* an example of an adaptation?
 - Nocturnal animal species have large eyes.
 - One member of a wolf litter is born with shorter legs than its siblings.
 - The pattern of leopard fur makes it hard to see them in tall grass.
 - Bullfrog calls can be heard by potential mates hundreds of meters away.

Question 135

- Which statement best explains why each trophic level has less energy than the trophic level below it?
 - The energy in an organism is destroyed when the organism is eaten.
 - The number of organisms increases as the trophic level increases, so less energy is available.
 - Predators and consumers do not require as much energy as producers to survive, so they absorb less energy.
 - Some energy at each trophic level is used for biological work or is lost from the food web as heat.

Question 136

- Which is a likely result of habitat destruction caused by human activities?
 - A loss of biodiversity
 - The introduction of new species
 - An increase in bacteria
 - Increased precipitation