Name: _____ Class: _____ Date: _____ ID: A

AP Biology CH 1 PRACTICE QUIZ

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. A localized group of organisms that belong to the same species is called a
a. biosystem.
b. community.
c. population.
d. ecosystem.
e. family.

____ 2. Organisms interact with their environments, exchanging matter and energy. For example, plant chloroplasts convert the energy of sunlight to
a. the energy of motion.
b. carbon dioxide and water.
c. chemical energy.
d. oxygen.
e. kinetic energy.

____ 3. The main source of energy for producers in an ecosystem is
a. light energy.
b. kinetic energy.
c. thermal energy.
d. chemical energy.
e. ATP.

____ 4. Which of the following types of cells utilize deoxyribonucleic acid (DNA) as their genetic material but do not have their DNA encased within a nuclear envelope?
a. animal
b. plant
c. archaea
d. fungi
e. protists

____ 5. To understand the chemical basis of inheritance, we must understand the molecular structure of DNA. This is an example of the application of which concept to the study of biology?
a. evolution
b. emergent properties
c. reductionism
d. the cell theory
e. feedback regulation

____ 6. Prokaryotes are classified as belonging to two different domains. What are the domains?
a. Bacteria and Eukarya
b. Archaea and Monera
c. Eukarya and Monera
d. Bacteria and Protista
e. Bacteria and Archaea

____ 7. A water sample from a hot thermal vent contained a single-celled organism that had a cell wall but lacked a nucleus. What is its most likely classification?
a. Eukarya
b. Archaea
c. Animalia
d. Protista
e. Fungi

____ 8. An organism has been isolated from decomposing organic matter. This organism has a cell wall but no chloroplasts. How would you classify this organism?
a. domain Bacteria, kingdom Prokaryota
b. domain Archaea, kingdom Bacteria
c. domain Eukarya, kingdom Plantae
d. domain Eukarya, kingdom Protista
e. domain Eukarya, kingdom Fungi

____ 9. Which of these provides evidence of the common ancestry of all life?
a. ubiquitous use of catalysts by living systems
b. near universality of the genetic code
c. structure of the nucleus
d. structure of cilia
e. structure of chloroplasts

____ 10. Which of the following is (are) true of natural selection?
a. It requires genetic variation.
b. It results in descent with modification.
c. It involves differential reproductive success.
d. It results in descent with modification and involves differential reproductive success.
e. It requires genetic variation, results in descent with modification, and involves differential reproductive success.

____ 11. Charles Darwin proposed a mechanism for descent with modification that stated that organisms of a particular species are adapted to their environment when they possess
a. non-heritable traits that enhance their survival in the local environment.
b. non-heritable traits that enhance their reproductive success in the local environment.
c. non-heritable traits that enhance their survival and reproductive success in the local environment.
d. heritable traits that enhance their survival and reproductive success in the local environment.
e. heritable traits that decrease their survival and reproductive success in the local environment.

____ 12. Which of these individuals is likely to be most successful in an evolutionary sense?
a. a reproductively sterile individual who never falls ill
b. an organism that dies after five days of life but leaves 10 offspring, all of whom survive to reproduce
c. a male who mates with 20 females and fathers one offspring
d. an organism that lives 100 years and leaves two offspring, both of whom survive to reproduce
e. a female who mates with 20 males and produces one offspring that lives to reproduce

____ 13. Through time, the lineage that led to modern whales shows a change from four-limbed land animals to aquatic animals with two limbs that function as flippers. This change is best explained by
a. natural philosophy.
b. reductionism.
c. the hierarchy of the biological organization of life.
d. natural selection.
e. feedback inhibition.

____ 14. Which of the following best describes what occurred after the publication of Charles Darwin's *On the Origin of Species?*
a. The book received little attention except from a small scientific community.
b. The book was banned from schools.
c. The book was widely discussed and disseminated.
d. The book's authorship was disputed.
e. The book was discredited by most scientists.

____ 15. Why is Darwin considered original in his thinking?
a. He provided examples of organisms that had evolved over time.
b. He demonstrated that evolution is continuing to occur now.
c. He described the relationship between genes and evolution.
d. He proposed the mechanism that explains how evolution takes place.
e. He observed that organisms produce large numbers of offspring.

____ 16. Darwin's finches, collected from the Galápagos Islands, illustrate which of the following?
a. mutation frequency
b. ancestors from different regions
c. adaptive radiation
d. vestigial anatomic structures
e. the accuracy of the fossil record

____ 17. What is the major distinguishing characteristic of fungi?
a. gaining nutrition through ingestion
b. being sedentary
c. being prokaryotic
d. absorbing nutrients
e. being decomposers of dead organisms

____ 18. Imagine there is a species-specific fishing regulation that mandates only adult fish of this species that are 75 cm or longer may be kept and shorter fish must be released. Based on your knowledge of natural selection, you would predict that the average length of the adult fish population will
a. remain unchanged.
b. gradually decline.
c. rapidly decline.
d. gradually increase.
e. rapidly increase.

____ 19. Which of the following taxonomic categories is *least* likely to be later revised for a particular organism?
a. kingdom
b. class
c. order
d. phylum
e. species

____ 20. When applying the process of science, which of these is tested?
a. a conclusion
b. a result
c. an observation
d. a hypothesis
e. a control group

____ 21. A controlled experiment is one in which
a. the experiment is repeated many times to ensure that the results are accurate.
b. the experiment proceeds at a slow pace to guarantee that the scientist can carefully observe all reactions and process all experimental data.
c. there are at least two groups, one of which does not receive the experimental treatment.
d. there are at least two groups, one differing from the other by two or more variables.
e. there is one group for which the scientist controls all variables.

____ 22. The application of scientific knowledge for some specific purpose is known as
a. technology.
b. deductive science.
c. inductive science.
d. anthropologic science.
e. pure science.

____ 23. Which of the following are qualities of any good scientific hypothesis?
I. It is testable.
II. It is falsifiable.
III. It produces quantitative data.
IV. It produces results that can be replicated.
a. I only
b. II only
c. III only
d. I and II
e. III and IV

____ 24. In presenting data that result from an experiment, a group of students show that most of their measurements fall on a straight diagonal line on their graph. However, two of their data points are "outliers" and fall far to one side of the expected relationship. What should they do?
a. Do not show these points but write a footnote that the graph represents the correct data.
b. Average several trials and therefore rule out the improbable results.
c. Show all results obtained and then try to explore the reason(s) for these outliers.
d. Throw out this set of data and try again.
e. Change the details of the experiment until they can obtain the expected results.

____ 25. Which of the following is the best description of a control for an experiment?
a. The control group is kept in an unchanging environment.
b. The control is left alone by the experimenters.
c. The control group is matched with the experimental group except for the one experimental variable.
d. The control group is exposed to only one variable rather than several.
e. Only the experimental group is tested or measured.

____ 26. Which of these is an example of inductive reasoning?
a. Hundreds of individuals of a species have been observed and all are photosynthetic; therefore, the species is photosynthetic.
b. These organisms live in sunny parts of this area, so they are able to photosynthesize.
c. If horses are always found grazing on grass, they can be only herbivores and not omnivores.
d. If protists are all single-celled organisms, then they are incapable of aggregating.
e. If two species are members of the same genus, they are more alike than each of them could be to a different genus.

____ 27. Why is a scientific topic best discussed by people of varying points of view, a variety of subdisciplines, and diverse cultures?
a. They can rectify each other's approach to make it truly scientific.
b. Robust and critical discussion between diverse groups improves scientific thinking.
c. Scientists can explain to others that they need to work in isolation to utilize the scientific method more productively.
d. This is another way of ensuring that everyone gets the same results.
e. Scientists need to exchange their ideas with other disciplines and cultures so that all groups are in consensus with the course of future research.

____ 28. Why is it important that an experiment include a control group?
a. The researcher predetermines the results for the control group.
b. The control group provides a reserve of experimental subjects.
c. A control group is required for the development of an "If...then" statement.
d. A control group assures that an experiment will be repeatable.
e. Without a control group, there is no basis for knowing if a particular result is due to the variable being tested.

____ 29. In a high school laboratory, which of the following constitutes an experiment?
I. learning to use a microscope by examining fixed specimens on slides
II. being able to examine swimming protists under a microscope
III. seeking to identify the pigments present in a leaf
IV. preparing root tips for examination by staining them
a. I only
b. II only
c. III only
d. II and III only
e. II, III, and IV

____ 30. Which branch of biology is concerned with the naming and classifying of organisms?
a. informatics
b. schematic biology
c. taxonomy
d. genomics
e. evolution

End-of-Chapter Questions

____ 31. All the organisms on your campus make up
a. an ecosystem.
b. a community.
c. a population.
d. an experimental group.
e. a domain.

____ 32. Which of the following best demonstrates the unity among all organisms?
a. identical DNA sequences
b. descent with modification
c. the structure and function of DNA
d. natural selection
e. emergent properties

____ 33. A controlled experiment is one that
a. proceeds slowly enough that a scientist can make careful records of the results.
b. tests experimental and control groups in parallel.
c. is repeated many times to make sure the results are accurate.
d. keeps all variables constant.
e. is supervised by an experienced scientist.

____ 34. Which of the following statements best distinguishes hypotheses from theories in science?
a. Theories are hypotheses that have been proved.
b. Hypotheses are guesses; theories are correct answers.
c. Hypotheses usually are relatively narrow in scope; theories have broad explanatory power.
d. Hypotheses and theories are essentially the same thing.
e. Theories are proved true; hypotheses are often falsified.

____ 35. Which of the following is an example of qualitative data?
a. The temperature decreased from 20°C to 15°C.
b. The plant's height is 25 centimeters (cm).
c. The fish swam in a zigzag motion.
d. The six pairs of robins hatched an average of three chicks.
e. The contents of the stomach are mixed every 20 seconds.

____ 36. Which of the following best describes the logic of scientific inquiry?
a. If I generate a testable hypothesis, tests and observations will support it.
b. If my prediction is correct, it will lead to a testable hypothesis.
c. If my observations are accurate, they will support my hypothesis.
d. If my hypothesis is correct, I can expect certain test results.
e. If my experiments are set up right, they will lead to a testable hypothesis.