

- 1 **The major contribution of mushrooms, bacteria, fungi, and other decomposers to a Virginia forest ecosystem is that they —**
 - A Recycle nutrients
 - B Hold the soil in place
 - C Provide energy for producers
 - D Supply moisture for animals in the soil

- 2 **The various organized structures present in the cytoplasm are called organelles. Which of the following organelles is responsible for the release of energy to support cell activities?**
 - F Mitochondrion
 - G Nucleus
 - H Endoplasmic reticulum
 - J Vacuole

- 3 **Many ideas concerning cells have been proven and incorporated into the cell theory. Which of the following is *not* part of the cell theory?**
 - A All functions may be carried out by cells.
 - B All cells come from other cells.
 - C All cells reproduce through meiosis.
 - D All living things are composed of one or more cells.

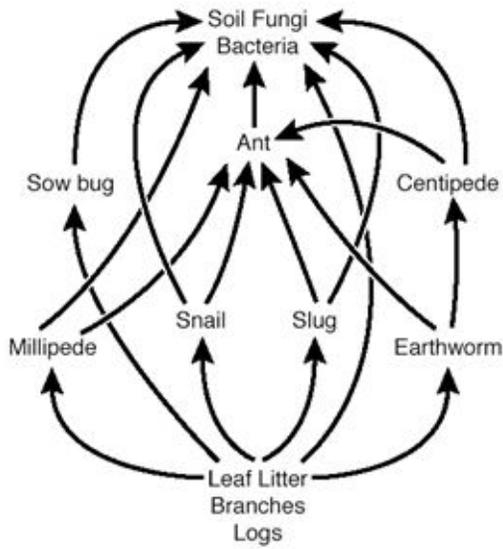
- 4 **Which of these structures is made up of all of the others?**
 - F Systems
 - G Tissues
 - H Cells
 - J Organs

- 5 **Which of the following traits of a corn plant is *least* influenced by the environment?**
 - A Root structure
 - B Height
 - C Number of ears produced
 - D Color of kernels

- 6 **There are many factors that influence the population changes of an ecosystem. Which of these does *not* influence population size in an ecosystem?**

F Birthrates of animals
G An animal's weight
H Number of animals in habitats
J The size of a habitat

- 7 **The diagram shows a simple food web of organisms on a forest floor.**



Which of these is *most* dependent on the earthworm for its food supply?

A Ant
B Slug
C Bacteria
D Centipede

- 8 **An open-air waste water treatment plant is flooded by rain. The rainwater and the waste run into a nearby creek. The organic wastes are very high in Biological Oxidation Demand (BOD) which means the bacteria in the waste need a lot of oxygen. What is the best explanation why many fish might die as a result of this event?**

F The bacteria create toxic wastes.
G The bacteria eat all the food in the creek.
H The bacteria remove the oxygen from the water.
J The bacteria are eaten by the fish and are toxic.

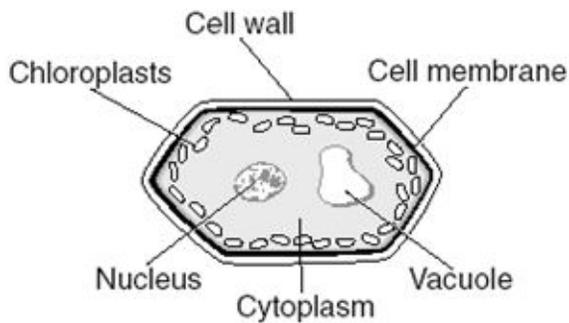
9 **Finches found on the isolated Galapagos Islands are different species with different beak sizes and shapes, but are otherwise similar to a finch species found on the South American mainland. What might be the cause of the differences in the development of the beaks of these Galapagos finches?**

- A The different types of food available on the islands
- B The original source of the finches
- C The type of predators found on the islands
- D The differences in the types of nests the birds built

10 **Which type of characteristics can be inherited?**

- F Those caused by accidents
- G Those controlled by genes
- H Those produced by diet
- J Those produced by exercise

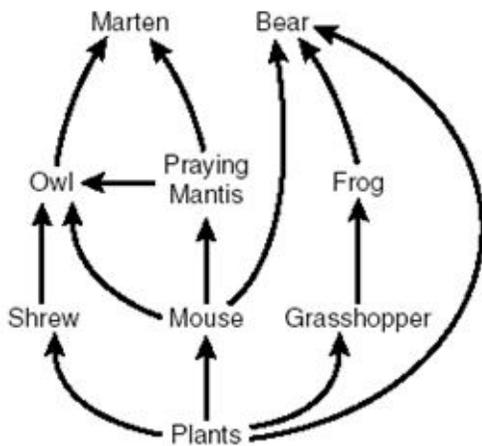
11 **Study this plant cell.**



Which cellular structure allows certain materials to pass in and out of the cell?

- A Cell membrane
- B Nucleus
- C Vacuole
- D Cytoplasm

- 12 Which of these populations is most likely to increase if the number of grasshoppers decreases?



- F Plant
- G Praying mantis
- H Frog
- J Owl

- 13 Wherever civilizations have flourished, forests have been destroyed. Hundreds of years ago in England, rivers and seaports began to fill with silt after the forests were destroyed. What caused the silt to fill the seaports?

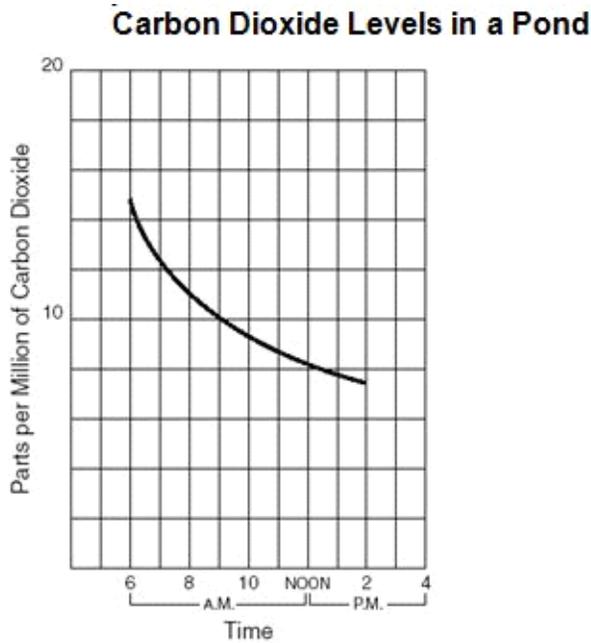
- A Succession
- B Erosion
- C Irrigation
- D Eutrophication

- 14 According to the chart, which set of conditions represents the process of photosynthesis?

	Organism	Environment	Raw Materials	Products
A	bacteria	darkness	light energy, soil	sugar
B	plant	darkness	oxygen, glucose	carbon dioxide, water
C	plant	light	carbon dioxide, water	sugar, oxygen
D	plant	light	amino acids, oxygen	proteins

- F A
- G B
- H C
- J D

- 15 **The graph shows the relationship between the time of day and the amount of carbon dioxide in a certain pond.**



Which of these best describes the relationship?

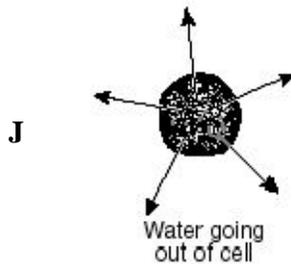
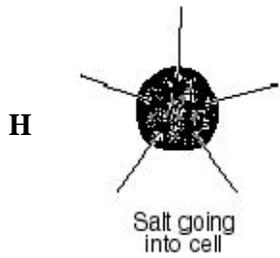
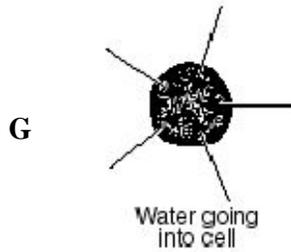
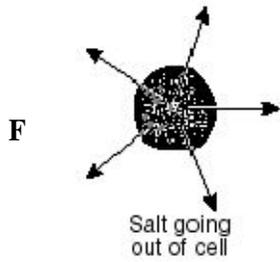
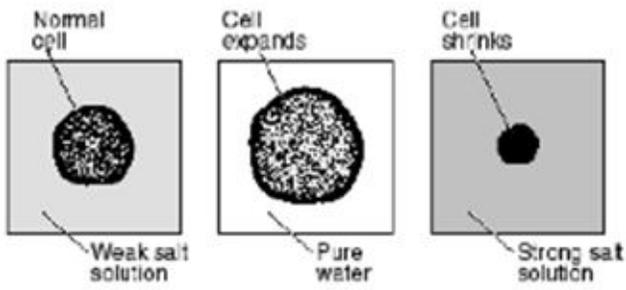
- A During the morning hours, there is less carbon dioxide found in the pond.
 - B There is more carbon dioxide used up by algae later in the day.
 - C There is more carbon dioxide released by animals later in the day.
 - D During the morning hours, there is less carbon dioxide released by fish.
- 16 **The relationship between the algae and the frog in this food chain is—**

Algae → **Frog** → **Snake** → **Hawk**

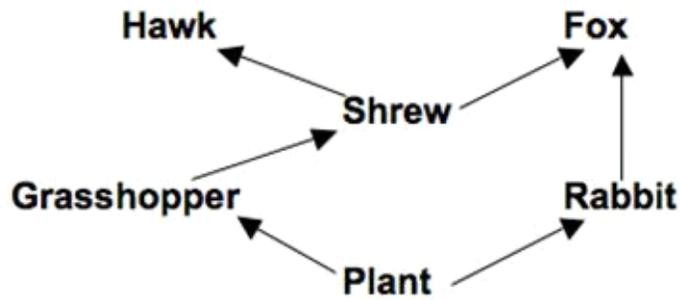
- F producer → decomposer
 - G consumer → producer
 - H producer → consumer
 - J consumer → decomposer
- 17 **Fossils are evidence of living things that were alive many, many years ago and often consist of the skeletons of creatures imbedded in rock. Why don't fossils contain the animal's soft tissues, as well?**
- A Because the rock breaks down soft tissues
 - B Because the soft tissues were always eaten by scavengers
 - C Because the soft tissues decayed before the fossil could be formed
 - D Because the rock always smashed the soft tissues flat

- 18 The island of Guam had no native snake species until the brown tree snake was introduced. What effect did this egg-eating snake have on the native bird populations?**
- F Bird populations increased as the snakes eliminated predators.
 - G Bird populations decreased as the snakes fed on the bird eggs.
 - H Bird populations increased as the birds preyed on the snakes.
 - J Bird populations were not affected by the snake's introduction.
- 19 The presence of permafrost is a characteristic of which major biome?**
- A Tundra
 - B Taiga
 - C Grasslands
 - D Temperate forest
- 20 Of the following, which is the correct progression in the food chain?**
- F Producers • carnivores • herbivores
 - G Herbivores • producers • carnivores
 - H Carnivores • herbivores • producers
 - J Producers • herbivores • carnivores
- 21 The function of a cell nucleus is to—**
- A Transport substances around the cell
 - B Digest foreign substances
 - C Help the cell expel waste
 - D Direct the activities of the cell
- 22 One way plants and animals are alike is that they both—**
- F Move to get their food
 - G Use oxygen
 - H Use carbon dioxide
 - J Make their own food
- 23 During mitosis, the doubling of chromosomes ensures that both new cells—**
- A Have identical genetic makeup
 - B Serve different functions
 - C Remain attached to each other
 - D Are twice the size of the parent cell

24 Which of these best shows what is happening to the cell in pure water?

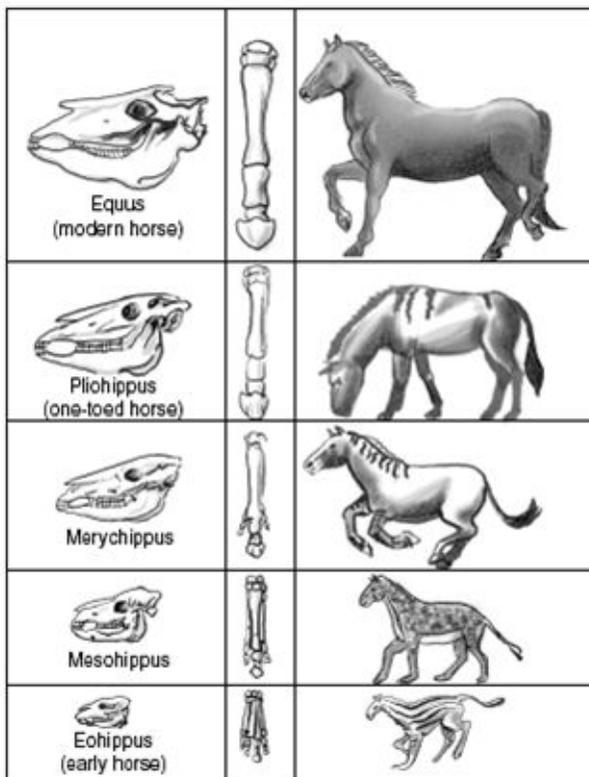


25 The primary producer in this ecosystem is the—



- A Plant
- B Rabbit
- C Hawk
- D Fox

26 The diagram below shows the changes over time in the horse.



Evidence for these changes *most likely* came from—

- F The fossil record
- G Carbon-dating
- H Observations of modern horses
- J Hypotheses of scientists

- 27 **Which of these best completes the statement about the interaction of the respiratory system with the circulatory system? The lungs add—**
- A carbon dioxide to the blood
 - B oxygen to the blood
 - C nutrients to the blood
 - D bile to the blood
- 28 **A tick that feeds on the blood of animals is a—**
- F host
 - G competitor
 - H parasite
 - J predator
- 29 **Which of the following do typical plant cells have that typical animal cells do not?**
- A Cytoplasm
 - B Chloroplasts
 - C Mitochondria
 - D Nuclei
- 30 **The kangaroo rat is able to get all of the water it needs through its food and, therefore, never needs to drink liquids. This animal has adapted to survive in which biome?**
- F Grassland
 - G Desert
 - H Forest
 - J Tundra
- 31 **Which of these could cause a decrease in the number of squirrels in a population?**
- A An increase in competition with other nut-eating animals
 - B An increase in the squirrels' food supply
 - C An increase in cooperation with birds in the area
 - D An increase in the squirrels' territory
- 32 **Which level of organization below is the most basic or primary level of organization?**
- F Cell
 - G Organ system
 - H Tissue
 - J Organ

33 **Sponges are classified as animals because they cannot—**

- A move from place to place
- B make their own food
- C catch their own food
- D get rid of waste products

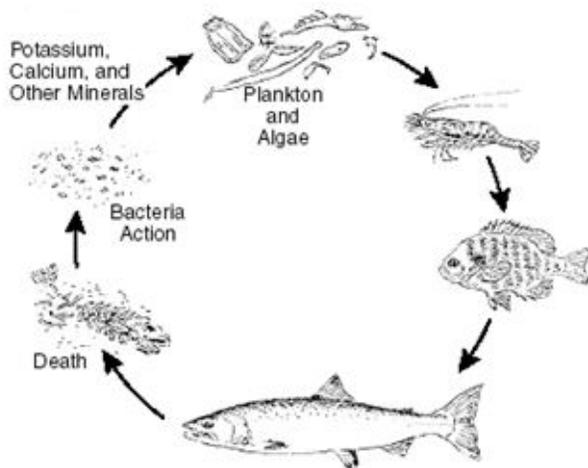
34 **Mendel's early work with pea plants demonstrated a significant genetic discovery. The crossing of homozygous pea plants with homozygous short pea plants always resulted in tall plants and demonstrated that tallness in pea plants is a trait that is—**

- F blended
- G dominant
- H mutated
- J recessive

35 **Which of these processes helps extract energy from food?**

- A Excretion
- B Reproduction
- C Digestion
- D Circulation

36 **According to this diagram, both of these fish—**



- F Give off toxic wastes
- G Eat bacteria
- H Get their energy from other animals
- J Take in minerals through their gills

37 **Most of the hereditary information within the cell is carried in the—**

- A golgi bodies
- B ribosomes
- C chromosomes
- D vacuoles

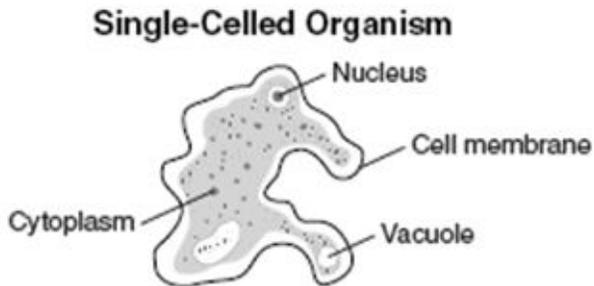
38 **In which biome would you find the most variety of life?**

- F Desert
- G Rain forest
- H Grassland
- J Tundra

39 **Which of the following classification groups contains organisms that have the most characteristics in common?**

- A Phylum
- B Class
- C Species
- D Kingdom

40 **In this diagram of a single-celled organism, which organelle functions as a place to store extra water?**



- F Cell membrane
- G Vacuole
- H Nucleus
- J Cytoplasm