

HIGHLAND OAKS WINTER BREAK REFRESHER
 DUE MONDAY JAN. 8, 2018 AT 9:00 AM IN ROOM 221
 TO BE ELIGIBLE FOR AN "A"

BIOLOGY

HAM & CHEESE

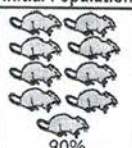

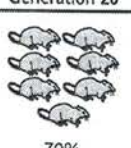





1 The table below shows the classification of five different animals.

Classification Level	Aardwolf	Gray Wolf	Coyote	Lion	Blue Whale
<i>Kingdom</i>	Animalia	Animalia	Animalia	Animalia	Animalia
<i>Phylum</i>	Chordata	Chordata	Chordata	Chordata	Chordata
<i>Class</i>	Mammalia	Mammalia	Mammalia	Mammalia	Mammalia
<i>Order</i>	Carnivora	Carnivora	Carnivora	Carnivora	Cetacea
<i>Family</i>	Hyaenidae	Canidae	Canidae	Felidae	Balaenopteridae
<i>Genus</i>	Proteles	Canis	Canis	Panthera	Balaenoptera
<i>Species</i>	Proteles cristatus	Canis lupus	Canis latrans	Panthera pantheraleo	Balaenoptera musculus

Which two organisms would you expect to have the most similar DNA sequences?

- A. aardwolf and grey wolf
 - B. grey wolf and coyote
 - C. coyote and lion
 - D. lion and blue whale
- 2 Which kingdoms contain only unicellular organisms?
- F. Archaeobacteria and Protista
 - G. Archaeobacteria and Eubacteria
 - H. Eubacteria and Protista
 - I. Eubacteria and Fungi
- 3 Robert Hooke was the first to describe cells in plants. What invention allowed Hooke and later scientists to develop the cell theory?
- A. light microscope
 - B. genetic engineering
 - C. X-ray crystallography
 - D. 3-D computer imaging
- 4 How are regeneration and budding similar?
- F. They are both a result of mitosis.
 - G. They are both a result of meiosis.
 - H. They are both a result of apoptosis.
 - I. They are both a result of crossing-over.

- 5 A dark fur mutation occurred in a mouse population. The chart below shows how the population changed over 30 generations.

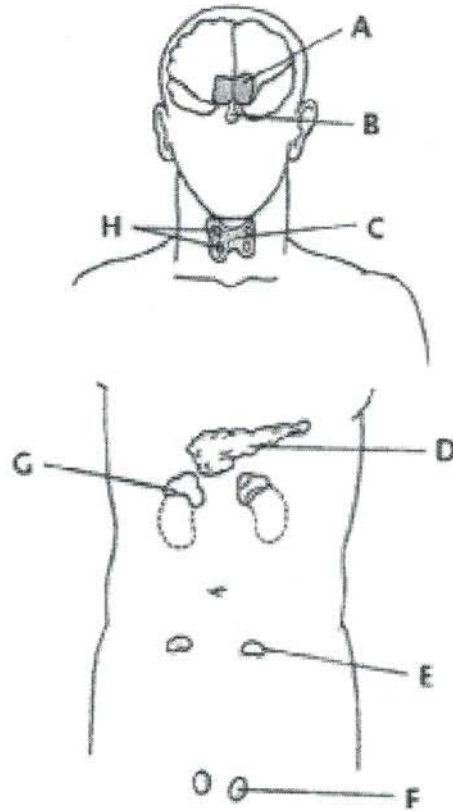
Initial Population	Generation 10	Generation 20	Generation 30
 90%	 80%	 70%	 40%
 10%	 20%	 30%	 60%

- Which statement **most likely** explains the change shown in the chart?
- Light mice are less likely to mate.
 - Light mice are better able to find food.
 - Dark mice are harder for predators to see.
 - Dark mice are more susceptible to disease.
- 6 Which of the following is true about the functions of rough endoplasmic reticulum (rough ER) and smooth endoplasmic reticulum (smooth ER)?
- Although both are sites of cell membrane lipid assembly, proteins are assembled and packaged only in rough ER.
 - Neither kind of ER is a site of cell membrane lipid assembly but both are sites of protein assembly.
 - Enzymes within rough ER detoxify drugs and assemble proteins while smooth ER only assembles cell membrane lipids.
 - All protein assembly occurs in rough ER, and all cell membrane lipid assembly occurs in smooth ER.
- 7 In photosynthesis, plants use carbon (C), hydrogen (H), and oxygen (O) to form organic compounds. In what form do plants use these elements?
- glucose ($C_6H_{12}O_6$)
 - carbon dioxide (CO_2) and water (H_2O)
 - carbon monoxide (CO)
 - elemental forms (C, H, and O)

- 8 Which of the following describes the water in an estuary?
- F. salt water only
 - G. salt water in warmer months and fresh water in cooler months
 - H. fresh water only
 - I. a mixture of fresh water and salt water
- 9 What is the function of ATP in living things?
- A. ATP aids in protein folding and coiling.
 - B. ATP identifies DNA start sequences in preparation for transcription.
 - C. ATP is used to capture and transfer chemical energy.
 - D. ATP helps maintain the fluidity of cell membranes.
- 10 Which of the following is **not** an example of a successful national policy or international cooperation on environmental problems?
- F. a ban on CFCs, resulting in the reduction of the size of the ozone hole
 - G. a reduction in greenhouse gases, resulting in the complete reversal of the effects of global warming
 - H. a ban on lead in gasoline, resulting in dropping lead levels in the environment
 - I. a ban on DDT, resulting in the recovery of many top-level predatory birds
- 11 Which of the following is true of plant cells, but not of bacterial cells?
- A. have cell walls
 - B. do not undergo mitosis
 - C. move by means of flagella
 - D. have chromosomes located in a nucleus
- 12 Drawing on Mendel's principle of independent assortment, Thomas Hunt Morgan found that genes located on the same chromosome sort together. What is this principle called?
- F. codominance
 - G. incomplete dominance
 - H. crossing over
 - I. linkage

13 The diagram below shows the glands of the endocrine system.

The Endocrine System



Which letter labels the gland that produces nine major hormones and controls the release of hormones by several other endocrine glands?

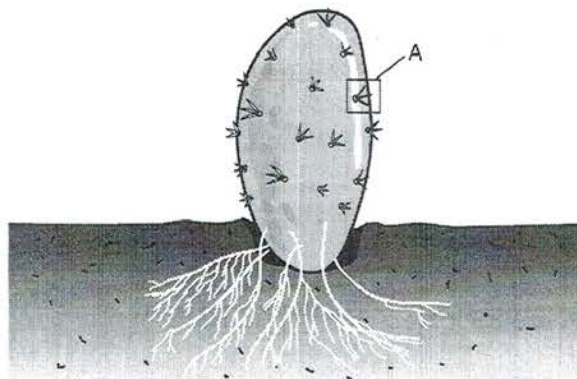
- A. H
- B. B
- C. G
- D. D

14 What causes blood pressure?

- F. cholesterol in the blood
- G. stress that exercise puts on heart muscle
- H. contraction of the ventricles in the heart
- I. removal of oxygen from blood

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- 22 What is the difference between modern methods of classification and traditional methods of classification?
- A. Modern classification is based on the phenotypic similarities of organisms while traditional classification is not.
 - B. Modern classification is based on evolutionary relationships between organisms while traditional classification is not.
 - C. Traditional classification methods are the foundation on which modern classification is built.
 - D. Traditional classification is based on shared-derived characteristics while modern classification is not.
- 23 In eukaryotic cells that are making proteins, translation refers to what part of the protein synthesis process?
- F. making messenger RNA from the DNA molecule in the nucleus
 - G. removing introns from the messenger RNA and splicing exons together
 - H. moving messenger RNA molecules from the nucleus to the cytoplasm
 - I. joining amino acids together at the ribosome according to messenger RNA instructions
- 24 What is the **most likely** reason that teachers now encourage their students to sneeze or cough into the area near their elbow instead of their hands to prevent transmission of a pathogen from one student to another?
- A. Washing your hands has been proven ineffective in preventing disease transmission.
 - B. People are less likely to come in direct physical contact with the elbow region than with the hands of an infected person.
 - C. The sleeve of the shirt will contain the pathogen and keep it from spreading.
 - D. The elbow contains specialized pathogen fighting cells.

- 25 The diagram below shows a type of plant.



What is the primary function of the leaf structures shown by A in the diagram?

- F. to provide the plant with water
 - G. to carry out photosynthesis
 - H. to protect the plant from herbivores
 - I. to catch insects and other small prey
- 26 What feature of the genetic code makes it possible for a mouse gene to work inside the cell of a fly?
- A. All organisms with the same number chromosomes have the same genetic code.
 - B. The genetic code is the same for all organisms.
 - C. The mouse gene determines the genetic code of the fly cell.
 - D. The genetic code is the same for all animals.
- 27 When are asexually reproducing organisms at a disadvantage compared to sexually reproducing organisms and why?
- F. during times of environmental stability; because the population expands too quickly, causing increased competition
 - G. during times of major environmental change; because the lack of genetic variation makes the whole population vulnerable to extinction
 - H. during seasonal changes; because they cannot reproduce as quickly as they can once a season is established
 - I. during times of influx of new organisms to the area; because they are not used to competing with the new organisms
- 28 A student is measuring the mass of 25 beakers. Each beaker has a mass of 48.73 g. What is the total mass of all 25 beakers in kilograms and expressed to the correct number of significant digits?