## **Biology 3rd Edition Sample Questions**

## Name:

4)

1) Which is the correct identification of the parts of the DNA nucleotide in the diagram below?



- A) A = uracil, B = deoxyribose, C = thymine
- B) A = phosphate, B = deoxyribose, C = thymine
- C) A = phosphate, B = ribose, C = uracil
- D) A = thymine, B = ribose, C = uracil
- 2) What is the source of food for offspring developing in the pouch of a marsupial?
  - A) Yolk stored in the egg
  - B) Placenta and an umbilical cord
  - C) Milk from mammary glands
  - D) Unused sperm cells
- 3) Compare and contrast cell division in plant cells and animal cells.

6) The following diagram represents a part of the central nervous system.



Identify the labeled nerves, A and B, in the given diagram.

7)

When a robin tries to pull an earthworm out of the ground, the worm uses its bristles to hold on tight to the walls of its home. Sometimes the worm holds on so tight and the robin pulls so hard that the worm breaks apart. The robin keeps the front end and the hind end wriggles back into its tunnel. If the bird only pulled off the first seven or eight segments of the worm's body, a new head will grow. If the worm is pulled in half, the tail end will die or produce another tail. The double-tailed worm will starve to death. Only a head end can regrow a tail to become a complete worm again.

All of the following are true regarding regeneration in earthworms *except* 

- A) each earthworm will have exactly half the number of the original chromosomes.
- B) stem cells in each earthworm segment divide and differentiate to provide the required missing tissue.
- C) regenerated earthworms are genetically identical to its separated segment.
- D) earthworms are able to regenerate because their body systems are relatively simple compared to more complex organisms that cannot regenerate.



Based on the graph shown, when did the population reach its carrying capacity?

- A) About 1850 C) About 1875
- B) About 1845 D) About 1865
- 5) Which of the following processes takes place in structures known as grana?

A) 
$$2ATP + C_6H_{12}O_6 \xrightarrow{\text{enzymes}} 4ATP + 2 \text{ lactic acid}$$

B) 
$$C_{12}H_{22}O_{11} + H_2O \xrightarrow{\text{enzymes}} C_6H_{12}O_6 + C_6H_{12}O_6$$

C)  $6CO_2 + 12H_2O \xrightarrow{\text{light, enzymes}} C_6H_{12}O_6 + 6O_2 + 6H_2O$ 

8) Using a specific example, explain how a feedback mechanism [12] maintains homeostasis in a living organism.

- 9) A student viewing a specimen under low power of a compound light microscope switched to high power and noticed that the field of view darkened considerably. Which microscope part should the student adjust to brighten the field of view?
  - A) Diaphragm C) Coarse adjustment
  - B) Fine adjustment D) Eyepiece
- 10) If humans overfish the sharks in this community, what would be the most likely short-range effect?



- A) The plankton population will increase.
- B) The squid population will decrease.
- C) The shrimp population will increase.
- D) The squid population will increase.
- During a science field trip, Erin became very interested in 11) the science of studying insects. Which of the following careers would best allow her to pursue that interest?
  - C) Zoology A) Ecology
  - B) Entomology
- D) Insectology

- What might happen if the shape of an enzyme controlling ATP production is altered?
  - A) Metabolism will slow down for a few weeks until the body adapts.
  - The organism's body will begin producing energy from B) other sources, such as sunlight.
  - C) ATP production will remain unaffected.
  - D) ATP production will slow or stop; the organism might die.
- 13) How is the United States government persuading its citizens to build energy efficient homes?
  - A) Giving tax breaks to alternative energy usage
  - B) Changing building codes
  - C) Building fewer power plants
  - D) Leading by example
- 14) Receptors within sense organs, such as the skin and eyes, send impulses to the brain by way of
  - A) endocrine glands. C) muscles.
  - D) skull tissue. B) sensory nerves.
- 15) What mRNA sequence will best match the section of DNA shown?

		Section of DNA	mRNA Sequence
DNA Bases	RNA Bases	[⊨@	<u>)</u>
Guanine	Guanine		
Adenine	Adenine		
Cytosine	Cytosine		∑;==
Thymine	Uracil	E	
			(?=
			∑?==]
A) T-C-G-A-A-C	3	C) C-U-A-C	G-G-A
B) C-T-A-G-G-C	1	D) A-G-C-U	J-U-C

- 16) How would an exotic species, such as a water plant bred for home aquariums, likely interrupt the balance in a freshwater pond ecosystem?
  - A) It would compete for space and light with the plants native to the pond.
  - B) It would cause an overproduction of oxygen in the pond and kill many fish.
  - C) It would become a home for many insects.
  - D) It would attract more animals to the pond than can be sustained.
- 17) One of the most potent toxins resulting from large-scale resource extraction is called acid drainage. Which of the following resources generally produces acid drainage as a byproduct of its extraction?
  - A) Natural Gas C) Timber
  - B) Oil

- D) Coal

- Which organism ingests food by engulfing it with 18) pseudopods?
  - A) Earthworm C) Amoeba
  - D) Paramecium B) Grasshopper
- 19) Explain how green plants capture light energy to make glucose.
- 20) Which components of a geranium plant have functions similar to those of the arteries and veins of humans?
  - A) Cambium and epidermis
  - Chloroplasts and guard cells B)
  - C) Xylem and phloem
  - D) Palisade and spongy layers
- 21) Which type of cell does HIV destroy?
  - A) B-Cells
- C) Antibodies
- B) Killer H-cells D) Helper T-cells

22) The diagram below illustrates which type of reproduction?

B) Cleavage

23)



Which diagram best represents the usual relationships of biomass in a stable community?

