Chapter 2 Review

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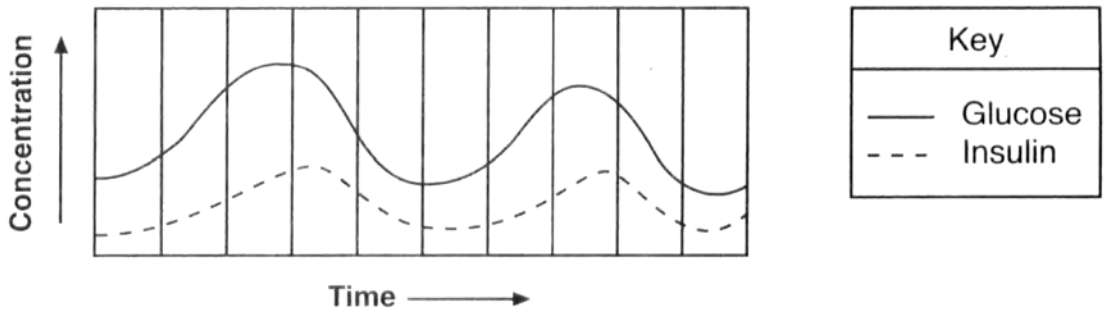
1. The graph below shows the levels of glucose and insulin in the blood of a human over a period of time.



This graph represents

A) an allergic reaction
B) an antigen-antibody reaction
C) maintenance of homeostasis
D) autotrophic nutrition

2. When a person does strenuous exercise, small blood vessels (capillaries) near the surface of the skin increase in diameter. This change allows the body to be cooled. These statements best illustrate

A) synthesis
B) homeostasis
C) excretion
D) locomotion

3. Organisms undergo constant chemical changes as they maintain an internal balance known as

A) interdependence
B) homeostasis
C) synthesis
D) recombination

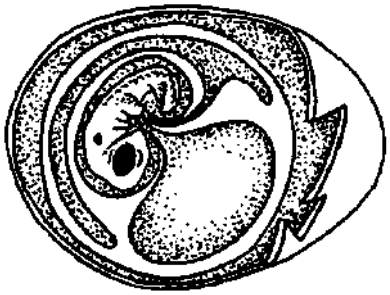
4. The normal sodium level in human blood is 135 mEq/L. If a blood test taken immediately after a meal reveals a sodium level of 150 mEq/L, what will most likely result?

A) Antibody production will increase.
B) The person will move to an ecosystem with a lower sodium level.
C) The nutritional relationships between humans and other organisms will change.
D) An adjustment within the human body will be made to restore homeostasis.

5. If a human system fails to function properly, what is the most likely result?

A) a stable rate of metabolism
B) a disturbance in homeostasis
C) a change in the method of cellular respiration
D) a change in the function of DNA

6. The diagram below represents a developing bird egg.



What is the primary function of this egg?

A) food supply for predators to preserve predator populations
B) adaptation to allow maximum freedom for parent birds
C) continuation of the species through reproduction
D) preservation of the exact genetic code of the parent birds

7. Which groups are arranged in correct descending order according to a modern classification system?

A) kingdom, genus, phylum, species
B) phylum, kingdom, species, genus
C) kingdom, phylum, genus, species
D) phylum, genus, species, kingdom

8. Two organisms can be considered to be of different species if they

A) cannot mate with each other and produce fertile offspring
B) live in two different geographical areas
C) mutate at different rates depending on their environment
D) have genes drawn from the same gene pool

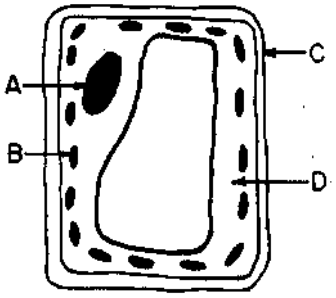
9. In the binomial system of nomenclature, which two classification groups provide the scientific name of an organism?

A) kingdom and phylum
B) phylum and species
C) kingdom and genus
D) genus and species

10. Within which group would all members show the greatest similarity?

A) kingdom B) phylum
C) genus D) species

11. Which structures in the diagram below enable the observer to identify it as a plant cell?



A) *A* and *B* B) *B* and *C*
C) *A* and *C* D) *B* and *D*

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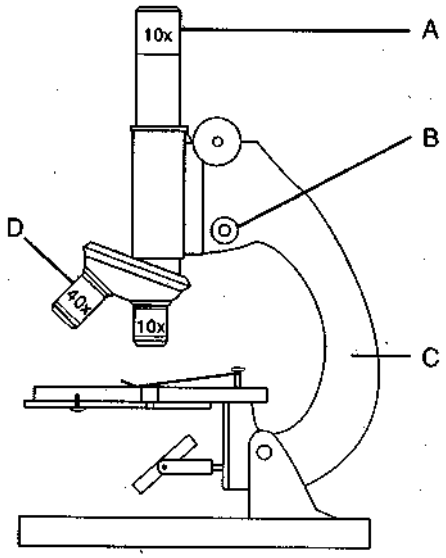
Base your answers to questions **12** and **13** on the diagram below of a microscope and on your knowledge of biology.



12. While viewing a specimen under high power, a student noticed that the specimen was out of focus. Which part of the microscope should the student use to obtain a clearer image?
    A) *A* B) *B*
    C) *C* D) *D*

13. The highest possible magnification that can be obtained when using this microscope is
    A) 40× B) 100×
    C) 400× D) 4,000×

14. A compound microscope has four objectives labeled 4×, 10×, 43×, and 97× . Which objective, when used in combination with a 10× ocular lens, provides the largest field of view?
    A) 97× B) 43×
    C) 10× D) 4×

15. The field of view becomes darker when a compound microscope is switched from low to high power. The field of view can then be made brighter by
    A) decreasing the size of the diaphragm opening
    B) increasing the size of the diaphragm opening
    C) refocusing with the fine adjustment
    D) refocusing with the coarse adjustment

16. What is the main function of a vacuole in a cell?
    A) storage
    B) coordination
    C) synthesis of molecules
    D) release of energy

17. Which part of a light microscope would most likely be damaged if the coarse adjustment is improperly used while a specimen is being observed under high power?
    A) objective lens B) light source
    C) iris diaphragm D) eyepiece lens

18. Studies of fat cells and thyroid cells show that fat cells have fewer mitochondria than thyroid cells. A biologist would most likely infer that fat tissue
    A) does not require energy
    B) has energy requirements equal to those of thyroid tissue
    C) requires less energy than thyroid tissue
    D) requires more energy than thyroid tissue

19. Which structures are listed in order from the least complex to the most complex?
    A) plant cell, leaf, chloroplast, rose bush
    B) chloroplast, plant cell, leaf, rose bush
    C) chloroplast, leaf, plant cell, rose bush
    D) rose bush, leaf, plant cell, chloroplast

20. Reproduction in humans usually requires
    A) the process of cloning
    B) mitotic cell division of gametes
    C) gametes with chromosomes that are not paired
    D) the external fertilization of sex cells

21. In a cell, information that controls the production of proteins must pass from the nucleus to the
    A) cell membrane B) chloroplasts
    C) mitochondria D) ribosomes

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22. Which sequence contains the correct order of steps for a student to follow to observe the nucleus of protozoa in a stained wet mount, using a compound light microscope?

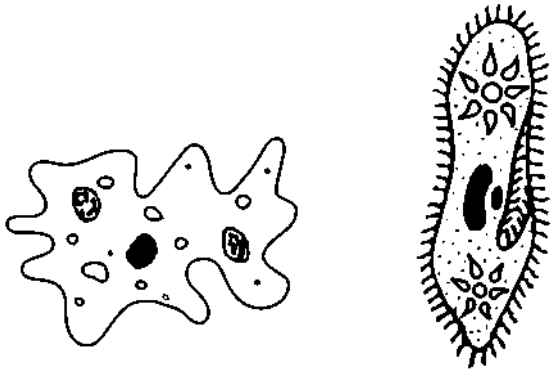
	Begin by using the	Focus using the	Focus using the	Switch to the
(1)	low-power objective →	coarse adjustment →	fine adjustment →	high-power objective
(2)	low-power objective →	fine adjustment →	coarse adjustment →	high-power objective
(3)	high-power objective →	coarse adjustment →	fine adjustment →	low-power objective
(4)	high-power objective →	fine adjustment →	coarse adjustment →	low-power objective

A) 1 B) 2 C) 3 D) 4

23. The structure of a cell nucleus would be seen in the greatest detail by use of
A) a compound light microscope
B) an ultracentrifuge
C) a dissecting microscope
D) an electron microscope

24. Which structures could most likely be observed in cells in the low-power field of a compound light microscope?
A) cell walls and chloroplasts
B) ribosomes and endoplasmic reticula
C) lysosomes and genes
D) nucleotides and mitochondria

25. The diagram below represents two single-celled organisms.



These organisms carry out the activities needed to maintain homeostasis by using specialized internal
A) tissues B) organelles
C) systems D) organs

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Answer Key
[New Exam]

1. C
2. B
3. B
4. D
5. B
6. C
7. C
8. A
9. D
10. D
11. B
12. B
13. C
14. D
15. B
16. A
17. A
18. C
19. B
20. C
21. D
22. A
23. D
24. A
25. B