This worksheet will not be graded.
It is to help you review for the closed book test on
Friday April 8, 2011.
The answer key is at the end of the worksheet.
1) Interstitial fluid  
A) is the fluid inside the gastrovascular cavity of Hydra.  
B) is the internal environment found inside an animal's cells.  
C) is composed of blood.  
D) provides for the exchange of materials between blood and body cells.  
E) is found inside the small intestine.

2) Similar fusiform body shapes are seen in sharks, penguins, and aquatic mammals because  
A) natural selection has no limits when different organisms face the same challenge.  
B) respiration through gills is enhanced by having a fusiform shape.  
C) the laws of physics constrain the shapes that are possible for aquatic animals that swim very fast.  
D) the fusiform shape is coded by the same gene in all three types of animals.  
E) all three types evolved from ancestral forms that fly in the air.

3) All animals, whether large or small, have  
A) an external body surface that is dry.  
B) a basic body plan that resembles a two-layered sac.  
C) a body surface covered with hair to keep them warm.  
D) the ability to enter dormancy when resources become scarce.  
E) all of their living cells surrounded by an aqueous medium.

4) To increase the effectiveness of exchange surfaces in the lungs and in the intestines, evolutionary pressures have  
A) increased the surface area available for exchange.  
B) increased the thickness of these linings.  
C) increased the number of cell layers.  
D) decreased the metabolic rate of the cells in these linings.  
E) increased the volume of the cells in these linings.

5) The epithelium type with the shortest diffusion distance is  
A) simple squamous epithelium.  
B) simple cuboidal epithelium.  
C) simple columnar epithelium.  
D) pseudostratified ciliated columnar epithelium.  
E) stratified squamous epithelium.

6) An example of a connective tissue is the  
A) skin.  
B) nerves.  
C) blood.  
D) cuboidal epithelium.  
E) smooth muscles.
7) Connective tissues have
A) many densely-packed cells without an extracellular matrix.
B) a supporting material such as chondroitin sulfate.
C) an epithelial origin.
D) relatively few cells and a large amount of extracellular matrix.
E) the ability to transmit electrochemical impulses.

8) If you gently twist your ear lobe it does not remain distorted because it contains
A) collagenous fibers.
B) elastin fibers.
C) reticular fibers.
D) adipose tissue.
E) loose connective tissue.

9) Muscles are joined to bones by
A) tendons.
B) ligaments.
C) loose connective tissue.
D) Haversian systems.
E) spindle fibers.

10) Bones are held together at joints by
A) cartilage.
B) osteons.
C) loose connective tissue.
D) tendons.
E) ligaments.

11) The nucleus of a typical nerve cell is found in the
A) cell body.
B) synaptic terminals.
C) axonal region.
D) dendritic region.
E) synapse.

12) All skeletal muscle fibers are both
A) smooth and involuntary.
B) smooth and unbranched.
C) striated and voluntary.
D) smooth and voluntary.
E) striated and branched.
13) The type of muscle tissue associated with internal organs, other than the heart, is
   A) skeletal muscle.
   B) cardiac muscle.
   C) striated muscle.
   D) intercalated cells.
   E) smooth muscle.

14) The body's automatic tendency to maintain a constant internal environment is termed
   A) balanced equilibrium.
   B) physiological chance.
   C) homeostasis.
   D) static equilibrium.
   E) estivation.

15) Positive feedback has occurred when
   A) an increase in blood sugar increases the secretion of a hormone that stores sugar as glycogen.
   B) a nursing infant's sucking increases the secretion of a milk-releasing hormone in the mother.
   C) a decrease in blood sugar increases the secretion of a hormone that converts glycogen to glucose.
   D) an increase in calcium concentration increases the secretion of a hormone that stores calcium in bone.
   E) a decrease in blood calcium increases the amount of the hormone that releases calcium from bone.

16) An ectotherm is more likely to survive an extended period of food deprivation than
    would an equally-sized endotherm because
    A) the ectotherm invests little energy in temperature regulation.
    B) the ectotherm maintains a higher basal metabolic rate.
    C) the ectotherm expends more energy/kg body weight than the endotherm.
    D) the ectotherm metabolizes its stored energy more readily than can the endotherm.
    E) the ectotherm has greater insulation on its body surface.

17) Endothermy
   A) is a characteristic of most animals.
   B) involves production of heat through metabolism.
   C) is a term equivalent to "cold-blooded."
   D) is only seen in mammals.
   E) is only seen in insects.
18) Panting observed in overheated birds and mammals dissipates excess heat by
A) countercurrent exchange.
B) acclimation.
C) vasoconstriction.
D) hibernation.
E) evaporation.

19) Near the goose's abdomen, the consequence of this arrangement of the arterial and venous blood vessels is that
A) the temperature difference between the vessels is minimized by countercurrent exchange.
B) the venous blood is as cold near the abdomen as it is near the feet.
C) the blood in the feet as the same temperature as the blood in the abdomen.
D) the temperature at the abdomen is less than the temperature at the feet.
E) the goose loses the maximum possible amount of heat to the environment.

20) The best time to measure an animal's basal metabolic rate is when the animal
A) has not consumed any water for at least 48 hours.
B) is resting and has just completed its first meal of the day.
C) has recently eaten a sugar-free meal.
D) is resting and has not eaten its first meal of the day.
E) has just completed 30 minutes of vigorous exercise.
21) Among these choices, the least reliable indicator of an animal's metabolic rate is the amount of
A) food eaten in one day.
B) heat generated in one day.
C) oxygen used in mitochondria in one day.
D) carbon dioxide produced in one day.
E) water consumed in one day.

22) For a non-hibernating squirrel, the daily expenditure of metabolic energy is
A) usually less than the basal metabolic rate (BMR).
B) always greater than the basal metabolic rate (BMR).
C) constant despite day-to-day changes in ambient temperature.
D) measured only by the distance it has traveled.
E) inversely related to the distance it has traveled.

23) Hibernation and estivation are both examples of
A) acclimatization.
B) torpor.
C) evaporative cooling.
D) non-shivering thermogenesis.
E) shivering thermogenesis.

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