Fill in the letter of the BEST choice for each question on the computer answer sheet. Use A = True and B = False.

1. A cut through the body that passes perpendicular to the long axis of the body and divides the body into a superior and inferior section is known as a
   A. frontal section  
   B. coronal section  
   C. transverse section  
   D. sagittal section  
   E. parasagittal section

2. Glands that discharge an oily secretion into hair follicles are
   A. ceruminous glands  
   B. apocrine sweat glands  
   C. merocrine (eccrine) sweat glands  
   D. sebaceous glands  
   E. mammary glands

3. Action potentials are conducted into the skeletal muscle fiber by
   A. motor end plates  
   B. neuromuscular junctions  
   C. transverse tubules  
   D. triads  
   E. sarcoplasmic reticulum

4. The plates of bone found in spongy bone are called
   A. osteons  
   B. trabeculae  
   C. concentric lamellae  
   D. interstitial lamellae  
   E. lacunae

5. How would blocking the activity of acetylcholinesterase affect skeletal muscle?
   A. It would make the muscles less excitable.  
   B. It would produce muscle weakness.  
   C. It would cause spastic paralysis (muscles are contracted and unable to relax).  
   D. It would cause flaccid paralysis (muscles are relaxed and unable to contract).  
   E. It would have no affect on skeletal muscles.

6. Interactions between actin and myosin filaments of the sarcomere are responsible for
   A. muscle fatigue  
   B. the conduction of neural information to the muscle fiber  
   C. muscle contraction  
   D. muscle relaxation  
   E. the striped appearance of skeletal muscle

7. The layer of the epidermis that contains cells undergoing division is the
   A. stratum corneum  
   B. stratum lucidum  
   C. stratum germinativum  
   D. stratum granulosum  
   E. stratum spinosum
8. The pigment melanin
   A. is produced by cells called melanocytes
   B. is usually some shade of brown or black
   C. protects DNA from the damaging effects of U.V. radiation
   D. increases with increased exposure to sunlight
   E. all of the above

9. The watery medium that surrounds our cells is known as
   A. cytosol
   B. protoplasm
   C. interstitial fluid
   D. cytoplasm
   E. a colloidal gel

10. In the elderly, blood supply to the dermis is reduced and sweat glands are less active. This combination of factors would most affect
    A. the ease with which the skin is injured
    B. the ability to heal injured skin
    C. the ability to thermoregulate
    D. the physical characteristics of the skin
    E. the ability to grow hair

11. When stress is applied to a bone
    A. the minerals in the bone produce a weak electrical field that activates osteoblasts
    B. osteoclast activity increases
    C. it becomes thin and brittle
    D. it bends
    E. trabeculae are formed perpendicular to the zone of stress to increase strength

12. An immovable joint is a(n)
    A. synarthrosis
    B. diarthrosis
    C. amphiarthrosis
    D. syndesmosis
    E. symphysis

13. The layer of the skin that provides protection against bacteria as well as chemical and mechanical injuries is the
    A. dermis
    B. subcutaneous layer
    C. epidermis
    D. stratum granulosum
    E. sebum layer

14. The molecule ATP
    A. is formed from ADP and phosphate
    B. contains high-energy covalent bonds
    C. is the most important high energy compound in human cells
    D. provides energy for cellular reactions when the bond attaching the last phosphate to the molecule is broken
    E. all of the above

15. Cross-bridges are located on
    A. actin molecules
    B. myosin molecules
    C. troponin molecules
    D. tropomyosin molecules
    E. calcium ions
16. During muscle contraction
   A. ATP is hydrolyzed to ADP and phosphate
   B. Actin and myosin filaments slide together
   C. the sarcomere becomes shorter
   D. calcium concentration in the sarcomere increases
   E. all of the above

17. During the recovery period after muscular exercise the body's need for oxygen is increased because
   A. muscle cells are producing energy anaerobically
   B. the individual is panting
   C. oxygen is required to metabolize the lactic acid produced during exercise
   D. the liver requires more oxygen to produce lactic acid
   E. the muscles are not producing ATP

18. The following is a list of several levels of organization that make up the human body.
   1. tissue
   2. cell
   3. organ
   4. molecule
   5. organism
   6. organ system

   The correct order from the smallest to the largest level would be
   A. 2, 4, 1, 3, 6, 5
   B. 4, 2, 1, 3, 6, 5
   C. 4, 2, 1, 6, 3, 5
   D. 4, 2, 3, 1, 6, 5
   E. 2, 1, 4, 3, 5, 6

19. T  F In the process called osteolysis, bone matrix is dissolved and minerals are released into the blood.

20. T  F Serous membranes secrete lubricating fluid and are found lining cavities and covering organs without openings to the outside of the body.

21. Most of the chemical reactions involved in cellular metabolism are regulated by
   A. lipids
   B. electrolytes
   C. enzymes
   D. sugars
   E. nucleotides

22. T  F Intramembranous ossification occurs primarily in the skull of the fetus.

23. Each of the following is a primary tissue type except one. Identify the exception.
   A. muscle tissue
   B. nerve tissue
   C. adipose tissue
   D. connective tissue
   E. epithelial tissue
24. Depolarization of the sarcolemma at the myoneural junction occurs when
   A. acetylcholine binds to receptors on the sacrolemma
   B. acetylcholinesterase binds to receptors on the sacrolemma
   C. calcium ions bind to receptors on the sacrolemma
   D. a motor neuron directly stimulates the sacrolemma
   E. none of the above

25. Parathyroid hormone
   A. stimulates osteoclast activity
   B. increases the rate of calcium absorption from the intestine
   C. decreases the rate of calcium excretion by the kidneys
   D. raises the level of calcium ion in the blood
   E. all of the above

26. Water molecules and small ions enter a cell through
   A. lipid channels
   B. peripheral proteins
   C. channels (pores) in some integral proteins
   D. peripheral carbohydrates
   E. small holes in the lipid layer of the membrane

27. The central canal of an osteon contains
   A. bone marrow
   B. osteocytes
   C. concentric lamellae
   D. blood vessels
   E. lacunae

28. A muscle that is stimulated so frequently that the relaxation phase is completely eliminated is said to exhibit
   A. depolarization
   B. complete tetany
   C. treppe
   D. wave summation
   E. recruitment

29. Which of the following happens if body temperature rises above normal?
   A. circulation in the skin decreases
   B. sweat gland activity decreases
   C. evaporative cooling stops
   D. blood flow to the skin increases
   E. none of the above

30. Vitamin D is necessary for
   A. collagen formation
   B. absorption of calcium and phosphate ions
   C. reducing osteoblast activity
   D. increasing osteoclast activity
   E. the formation of the organic framework of bone