1) The centerline of a section of muscle is called
   a) Z-disk
   b) A band
   c) M line
   d) I band

2) What is the name of the process that starts with binding of Actin and myosin?
   a) Relaxation
   b) Cocking of the myosin head
   c) Latint
   d) The cross bridge cycle

3) What is the name of the enzyme that removes ACH from the synapse?
   a) Acetylcholinesterase
   b) Deoxyribonucleic acid
   c) Cholecystokinin
   d) Cholesterol

4) Which of these processes does NOT use ATP?
   a) Detachment of the myosin head
   b) Flow of K+ out of the Axon
   c) Pump Ca2+ into SR
   d) Pump of K+ and Na+ into original positions

5) Which is the most effective way of getting ATP?
   a) Anaerobically
   b) Direct phosphorylation
   c) Aerobically
   d) Muscle stores

6) Which is not one of the phases of a twitch?
   a) Latent period- initiation
   b) Period of contraction - cross bridge cycle
   c) Mid contraction- break of the cross bridge
   d) Period of relaxation - flow of Ca2+ in SR
7) What are some ways to change the degree of muscle contraction?
   a) Change in frequency of stimulus
   b) Change in strength of stimulus
   c) Change in length of stimulus
   d) Both A and B

8) As you increase the strength of the signal
   a) The number of fibers contracting increases
   b) The number of fibers contracting decreases
   c) The number of fibers contracting stays the same
   d) There is no limit to the number of fibers that contract

9) The sarcolemma propagates the action potential which then runs through
   a) the actin
   b) The myosin
   c) The motor neuron
   d) The T-tubules

10) Which is not a type of muscle?
    a) Skeletal
    b) Cardiac
    c) Smooth
    d) Reproductive

11) Which is not a characteristic of muscles?
    a) Conductivity
    b) Contractility
    c) Flexibility
    d) Elasticity

12) What are the two MAIN divisions of the nervous system?
    a) Sensory & motor
    b) Sympathetic & Parasympathetic
    c) Central & peripheral
    d) Somatic & automatic

13) Which is NOT a type of neuron?
    a) Schwann neurons
    b) Sensory neurons
    c) Interneurons
    d) Motor neurons

14) Which neuroglial cell is located in the PNS?
    a) Oligodendrocytes
    b) Ependymal cells
    c) Astrocytes
    d) Schwann cells
15) Which part of the neuron is the location of neurotransmitter release?
   a) Axon hillock
   b) Axon
   c) Axon terminal
   d) Dendrites

16) Which is NOT a property of the neuron?
   a) Excitability
   b) Elasticity
   c) Conductivity
   d) Transmissibility

17) Which is not a Type of activation?
   a) Voltage gated
   b) Mechanical
   c) Chemical/ligand
   d) Water activated

18) For an action potential to occur the charge needs to:
   a) Decrease
   b) Reach a threshold
   c) They just happen
   d) None of the above

19) At resting membrane potential the charge of the membrane should be.
   a) Negative
   b) Positive
   c) Neutral
   d) There is no electricity

20) During Repolarization what channels are open?
   a) Sodium
   b) Potassium
   c) Neither
   d) Both

21) Where are the voltage gated channels located in a myelinated cell?
   a) In the myelin sheath
   b) Under the myelin sheath
   c) In the nodes of Ranvier
   d) There are none

22) Which is not matched correctly with its definition?
   a) Axondendritic - connection between Axon terminal and dendrite
   b) Axosomatic - Connection between axon terminal and cell body
   c) A xoaxonic- connection between axon terminal and another axon
   d) All are correct
23) What is the first step of signaling in the synaptic cleft?
   a) Ca2+ binds to sinaptagamin
   b) Exocytosis of neurotransmitters
   c) Fusion of the synaptic vesicle
   d) Flooding of the Ca2+

24) Which is not a way that neurotransmitters are removed from the synaptic cleft?
   a) Enzymatic degradation
   b) Diffusion
   c) Reuptake by the presynaptic neuron
   d) The neurotransmitters are never removed

25) What is the function of inhibitory neurotransmitters?
   a) They help trigger action potential
   b) They open Na+ channels
   c) They cause depolarization
   d) They lead to hyperpolarization

26) Which of the following electrical events occurs when a threshold is reached?
   a) Resting membrane potential
   b) EPSP
   c) Action potential
   d) IPSP

27) Normally a cell has a potential of -70 mV. A potential of -90 mV is considered:
   a) A normal resting potential.
   b) A graded potential
   c) Depolarized
   d) Hyperpolarized

28) What is the correct sequence of the following events?
   a) Neurotransmitter is released
   b) Action potential reaches the axon terminal
   c) Calcium ions enter the axon terminal
   d) Neurotransmitter binds to receptors on the postsynaptic cell
   e) The post synaptic cell depolarizes
      i) b,c,a,d,e
      ii) a,b,c,d,e
      iii) b,a,c,e,d
      iv) C,b,a,e,d

29) A neuron will not respond to a second stimulus of equal strength as the original stimulus it has already responded too because:
   a) The neuron is in the relative refractory period.
   b) Action potential generation is an all-or-none phenomenon.
   c) The neuron is in the absolute refractory period.
   d) Neurons are self-propagating cells.
30) The ________ cells are found in the CNS and the ________ cells are found in the PNS, both wrapping around nerve fibers:
   a) Schwann cells, Oligodendrocytes
   b) Oligodendrocytes, Schwann cells
   c) Oligodendrocytes, Astrocytes
   d) Astrocytes, Schwann cell

31) What is the name of the phase where Na+ is flooding the cell?
   a) Repolarization
   b) Depolarization
   c) Hyperpolarization
   d) Polarization

32) Which is INCORRECTLY matched with its description?
   a) Afferent division—sensory information from receptors to CNS
   b) Efferent division—impulses within the CNS
   c) Somatic—Voluntary control
   d) Autonomic—involuntary control

33) What does myelination do for the neuron
   a) Insulate the axon to conduct the signal faster
   b) Increases repolarization phase
   c) Increases activation energy
   d) Provide nutrients and support for the neuron

34) Which is NOT a function of the muscular system?
   a) Generate Heat
   b) Stabilize joints
   c) Protection
   d) Maintain Body position

35) Which is NOT a characteristic of the muscle type?
   a) Skeletal muscle—very rapid response time and tires quickly
   b) Smooth muscle—no striations
   c) Skeletal muscle—multinucleated
   d) Cardiac muscle—no striations
36) What would happen if a muscle became totally depleted of ATP?
   a) The muscle would remain in a contracted state due to an inability to break actin-myosin cross bridges.
   b) The muscle would exhibit isometric contraction.
   c) The muscle would relax and lengthen due to an inability to sustain actin-myosin cross-bridges.
   d) The muscle would exhibit isotonic contraction.

37) The time lapse between the transmission of the AP down the sarcolemma and the beginning of the contraction phase is called:
   a) Refractory period
   b) Contraction phase
   c) Relaxation phase
   d) Latent period

38) ATP is regenerated in skeletal muscle by all of the following ways EXCEPT:
   a) Aerobic respirat
   b) Anaerobic respiration
   c) Hydrolysis
   d) Direct phosphorylation

39) Division or addition of cells is what kind of growth?
   a) Hypertrophy
   b) Hyperplasia
   c) Satellite
   d) Embryonic mesoderm

40) At low intracellular Ca²⁺ concentration:
   a) Tropomyosin blocks active sites on actin
   b) Muscle fiber is relaxed
   c) Both A and B
   d) None of the above

41) What is the correct order events in the Cross bridge cycle?
   1) Cross bridge formation
   2) Cocking of myosin head
   3) Cross bridge detachment
   4) The power stroke
      a. 1, 2, 3, 4
      b. 2, 4, 1, 3
      c. 1, 4, 3, 2
      d. 3, 2, 4, 1
42) Which is the most abundant type of skeletal cartilage?
   a) Fibrocartilage
   b) Hyaline
   c) Elastic
   d) None of the above

43) All are functions of the skeletal system EXCEPT:
   a) Support
   b) Anchorage
   c) Red Blood cell formation
   d) Movement

44) Organic compounds like collagen are important for bone to:
   a) Maintain tensile strength
   b) Maintain hardness
   c) Maintain rigidness
   d) Maintain posture

45) Inorganic compounds like mineral salts are important for bone to:
   a) Maintain tensile strength
   b) Maintain hardness
   c) Store them for the body to use later
   d) Maintain posture

46) What are the two divisions of the Skeleton?
   a) Axial & Allied
   b) Movement & Stationery
   c) Axial & Appendicular
   d) Appendicular & Allied

47) Which is not one of the Four types of bone?
   a) Long bone
   b) Short bone
   c) Irregular bone
   d) Normal bone
48) What is the structural unit of bone?
   a) Osteon
   b) Lacuna
   c) Lamellae
   d) Diaphyseal

49) Which type of bone cell is responsible for bone growth?
   a) Osteocyte
   b) Osteoclast
   c) Osteoblast
   d) Osteogenic

50) Which type of bone cell is responsible for sensing mechanical stress?
   a) Osteocyte
   b) Osteoclast
   c) Osteoblast
   d) Osteogenic

51) Which term is INCORRECTLY matched with its definition?
   a) Lengthening - an increase in the length of bone
   b) Appositional - adding surface area to the bone
   c) Bone Deposition - the breakdown of bone
   d) Bone remodeling - the breakdown and rebuilding of bone

52) Which is NOT a hormone that affects bone growth?
   a) PTH
   b) GH
   c) Calcitonin
   d) ACTH

53) What is Wolff's law?
   a) The right amount of stress will lead to bone growth
   b) Any stress will inhibit bone growth
   c) Bone growth is not related to stress
   d) None of the above