MULTIPLE CHOICE QUESTIONS:

1) Each of the following is false about indirect receptors?
   a) they bind to the channels causing it to open
   b) they are called first messenger
   c) they act through a second messenger
   d) they have a long lasting effect
   e) none of the above is correct

2) A neural processing in which one neuron fires a single impulse to the next neuron and the impulse is then transmitted forward in the same fashion is a_____ processing.
   a) converging
   b) reverberating
   c) diverging
   d) repetitive
   e) serial

3) Gray matter outside the CNS is called_____.
   a) tract
   b) ganglion
   c) nucleus
   d) nerve
   e) horn

4) An inhibitory postsynaptic potential (IPSP) is associated with_____.
   a) bringing the threshold closer to the resting membrane potential
   b) opening of voltage-regulated channels
   c) a change in sodium ion permeability
   d) hyperpolarization
   e) depolarization

5) In what way does the interior surface of a cell membrane of a resting neuron differ from the external environment? The interior is ______.
   a) negatively charged and contains less sodium
   b) negatively charged and contains more sodium
   c) positively charged and contains less sodium
   d) positively charged and contains more sodium
   e) negatively charged and contains less potassium
6) Neurons may be classified according to several characteristics. Which of the following is correct?
   a) Group C fibers are not capable of saltatory conduction
   b) Group A fibers are mostly somatic sensory and motor and are the smallest in diameter
   c) A small cross-sectional area allows shorter conduction times
   d) Group B fibers are highly myelinated and have the highest conduction velocity
   e) Group A fibers are unmyelinated

7) Immediately after an action potential has peaked, which cellular gates open?
   a) chloride
   b) calcium
   c) sodium
   d) potassium
   e) hydrogen

8) Neuroglia that control the chemical environment around neurons by buffering potassium and recapturing neurotransmitters are_____.
   a) microglia
   b) Schwann cells
   c) oligodendrocytes
   d) ependymal cells
   e) astrocytes

9) An action potential_____.
   a) is initiated by potassium ion movement
   b) involves impulse propagation dependent on chemically gated ion channels
   c) is essential for impulse propagation
   d) involves the influx of negative ions to depolarize the membrane
   e) involves the influx of negative ions to hyperpolarize the membrane

10) The sodium-potassium pump_____.
    a) pumps two sodium ions outside the cells and three potassium ions inside
    b) pumps three sodium ions inside the cells and two potassium ions outside
    c) pumps two sodium ions inside the cells and three potassium ions outside
    d) pumps three sodium ions outside the cells and two potassium ions inside
    e) pumps three sodium and two potassium ions outside the cell

11) Schwann cells are functionally similar to______.
    a) ependymal cells
    b) astrocytes
    c) oligodendrocytes
    d) microglia
    e) satellite cells
12) Which of the following pairs is correct?
   a) uncus – olfaction
   b) hyppocampus – vision
   c) postcentral gyrus - primary motor area
   d) globus pallidus - limbic system
   e) temporal lobe - gustatory

13) Which of the following could result from a destruction of the facial nerve?
   a) loss of pain sensation of the face
   b) paralysis of the mastication muscles
   c) blindness
   d) paralysis of the muscles of facial expression
   e) loss of balance

14) If a baby is born with a blockage of the interventricular foramen you should expect to find
   a) increased intracranial pressure because of the accumulation of CSF
   b) increased secretion of hormones by the pituitary gland
   c) excessive crying because of overstimulation of the amigdala
   d) constantly suckling because of the mammilary body
   e) none of the above

15) __________ is defined as depressed consciousness and no response to pain stimulus.
   a) alertness
   b) stupor
   c) coma
   d) sleep
   e) drowsiness

16) Where is the second order neuron of the ascending pathways to the brain found?
   a) spinal cord - anterior horn
   b) thalamus
   c) cerebral cortex
   d) spinal cord – posterior horn
   e) cerebellum
17) The ______ pathway transmits impulses concerned with pain.
   a) ventral spinothalamic
   b) fasciculus cuneatus
   c) tectospinal
   d) gracilis
   e) lateral spinothalamic

18) A patient with a lesion on the Broca’s area will ___
   a) still be able to understand spoken language
   b) have uncoordinated eye movements
   c) be unable to speak
   d) complain of sensation of strange smells all the time
   e) A and C are correct

19) The Purkinje neurons are found in the _____.
   a) basal nuclei
   b) cerebellum
   c) thalamus
   d) precentral gyrus
   e) hypothalamus

20) ____ is the part of the brain responsible for consciousness and alertness.
   a) reticular formation
   b) basal nuclei
   c) cerebellum
   d) hypothalamus
   e) reticular activating system

21) The cerebellum is derived from which embryonic brain vesicle?
   a) metencephalon
   b) myelencephalon
   c) telencephalon
   d) mesencephalon
   e) diencephalon
22) Damage to the ______ will result in muscle paralysis.
   a) occipital lobe  
   b) pre-central gyrus  
   c) thalamus  
   d) postcentral gyrus  
   e) superior colliculi

23) Which of the following is probably directly involved in memory?
   a) medulla oblongata  
   b) pons  
   c) hippocampus  
   d) Broca’s area  
   e) thalamus

24) REM sleep is associated with______.
   a) decreased heart rate  
   b) decreased oxygen use, especially in the cerebral cortex  
   c) temporary skeletal muscle inhibition except for the extrinsic eye muscles  
   d) decreased activity of the brain  
   e) lack of dreams

25) The frontal lobe is separated from the temporal lobe by the_____.
   a) longitudinal fissure  
   b) central sulcus  
   c) cranial fossa  
   d) lateral sulcus  
   e) transverse fissure

26) Which of the following does not belong to the limbic system?
   a) putamen  
   b) cingulated gyrus  
   c) hippocampus  
   d) hypothalamus  
   e) amygdala
27) A person that lost all sensory stimuli of the face has probably an injury of the ______ cranial nerve.
   a) facial
   b) trigeminal
   c) vagus
   d) hypoglossal
   e) accessory

28) Nociceptors would be an example of ______ receptors.
   a) tonic
   b) generator
   c) proprioceptors
   d) phasic
   e) Ruffini

29) The following are the steps of regeneration of nerve fibers
   1. regeneration tube is formed
   2. Wallerian degeneration occurs
   3. axon regenerates and myelin is formed
   4. injury of the axon

   The proper sequence of events is:
   a) 4, 2, 1, 3
   b) 2, 4, 3, 1
   c) 1, 3, 2, 4,
   d) 4, 2, 3, 1
   e) 3, 4, 2, 1

30) Which of the following is not a polysynaptic reflex?
   a) plantar reflex
   b) withdrawal reflex
   c) crossed-extensor reflex
   d) stretch reflex
   e) Golgi tendon reflex

31) Which of the following nerves does not belong to the brachial plexus?
   a) musculocutaneous
   b) axillary
   c) phrenic
   d) ulnar
   e) radial
32) The ______ reflex is an example of a visceral reflex.
   a) gag reflex
   b) pupillary
   c) corneal reflex
   d) stretch reflex
   e) B and D

SHORT ANSWER.

33) That part of the nervous system that is voluntary and conducts impulses from the CNS to the skeletal muscles is the ______________ nervous system.

34) ______________ potentials are short-lived, local changes in membrane potential that can be either a depolarization or a hyperpolarization.

35) One presynaptic neuron fires in rapid order, which produces a much greater depolarization of the postsynaptic membrane than it would result from a single EPSP. This event is called ____________________.

36) A gap between Schwann cells in the peripheral system is called a(n) ______________

37) ______________ sign is an abnormal plantar reflex in adults.

38) The ______________ and the ______________ are the highest precommand level of motor control.

39) ______________ is the area of the skin innervated by a single spinal nerve.

40) The sciatic nerve belongs to the ______________ plexus.
Biol 2401 Practice Exam 2 Answers:

1) A
2) E
3) B
4) D
5) A
6) A
7) D
8) E
9) C
10) D
11) C
12) A
13) D
14) A
15) C
16) D
17) E
18) E
19) B
20) E
21) A
22) B
23) C
24) C
25) D
26) A
27) B
28) A
29) A
30) D
31) C
32) B
33) Somatic motor
34) Graded
35) Temporal
36) Nodes of Ranvier
37) Babinski
38) Cerebellum and basal nuclei
39) Dermatome
40) Sacral