Multiple Choice
Identify the letter of the choice that best completes the statement or answers the question.

_____ 1. The correct order that information passes through in a neuron is
   a. dendrite, soma, axon
   b. axon, soma, dendrite
   c. dendrite, axon, soma
   d. axon, dendrite, soma

_____ 2. The soma or cell body of a neuron
   a. transmits signals towards other neurons
   b. receives information from other neurons
   c. contains the cell nucleus
   d. releases neurotransmitters

_____ 3. The part of the neuron that has branched extensions that are specialized to receive information are the
   a. dendrites
   b. terminal buttons
   c. somas
   d. axons

_____ 4. The insulation that covers some axons and increases the speed of transmission of the neural impulse is the
   a. neurotransmitter sheath
   b. myelin sheath
   c. glia wrap
   d. terminal cover

_____ 5. The chemicals that are secreted from the terminal buttons into the synapse are
   a. neurotransmitters
   b. action potentials
   c. antagonists
   d. agonists

_____ 6. The space between a terminal button and a dendrite is referred to as the
   a. midsynaptic potential range
   b. transmission gap
   c. neuromodulator
   d. synaptic cleft

_____ 7. Glia cells are the nervous system cells that
   a. receive information from other cells
   b. transfer information within the nervous system
   c. transmit information to other cells
   d. provide support and insulation for other cells in the nervous system

_____ 8. The neurons in Michael's arm just sent a neural impulse. It will be 1-2 milliseconds before another neural impulse can be generated. This brief time period, when another neural impulse cannot occur, is called the
   a. all-or-none period
   b. absolute refractory period
   c. resting potential
   d. postsynaptic discharge

_____ 9. If a neuron is not receiving any input or information, the neuron is at its
   a. baseline potential
b. neurotransmitter potential
c. action potential
d. resting potential

10. When sodium channels open, allowing sodium ions to flow into a neuron, it causes
   a. the likelihood of an action potential to decrease.
   b. the axon hillock to become inactivated.
   c. the likelihood of an action potential to increase.
   d. the neuron to return to its resting potential.

11. The "all-or-none law" refers to the fact that
   a. all neurons are active or none is active
   b. a neuron transmits an impulse of the same strength each time it fires an action potential
   c. the neuron fires several action potentials each second
   d. either all neurons are myelinated or none are

12. What event causes the release of neurotransmitters into the synaptic cleft?
   a. the arrival of the action potential at the postsynaptic neuron
   b. the arrival of the resting potential at the postsynaptic neuron
   c. the arrival of the action potential at the terminal buttons
   d. the arrival of the resting potential at the terminal buttons

13. Neurotransmitters are "recycled" to be used again through the process of
   a. uptake
   b. absorb
   c. reuptake
   d. reabsorb

14. An electric potential that increases the likelihood that the postsynaptic neuron will fire is called an
   a. all-or-none potential.
   b. inhibitory postsynaptic potential.
   c. excitatory postsynaptic potential.
   d. excitatory presynaptic potential.

15. While a chemical that mimics a neurotransmitter and can bind to receptor sites and cause postsynaptic potentials is a(n) ____, a chemical that can bind to receptor sites and block the action of neurotransmitters is a(n) ____.
   a. artificial neurotransmitter; anti-neurotransmitter
   b. antagonist; agonist
   c. agonist; antagonist
   d. endogenous neurotransmitter; ectodogenous neurotransmitter

16. Jeremy is sitting quietly when the muscles in his left leg begin to "twitch." This activation of movement in his voluntary muscles is most likely due to the release of the neurotransmitter
   a. serotonin
   b. dopamine
   c. acetylcholine
   d. norepinephrine

17. When curare blocks the action of acetylcholine by occupying its receptor sites, it is acting
   a. as an agonist
   b. as an antagonist
   c. as a neurotransmitter
   d. as a placebo

18. In Parkinsonism the tremors, muscular rigidity and reduced control over voluntary movements appears to be a function of
   a. damage to glia cells
b. degeneration of neurons that use dopamine as a neurotransmitter
c. agonistic chemical action on the receptor sites of the cerebrum
d. enzymatic deficiency that does not allow for the proper cleanup of waste products in the nervous system

19. Caitlin has taken a drug that has reduced the levels of GABA in her nervous system. One of the side effects that Caitlin is likely to experience will be
   a. depression
   b. motor tics and other involuntary motor movements
   c. hallucinations
   d. increased levels of anxiety

20. Abnormalities at norepinephrine and serotonin synapses appear to play a role in which of the following?
   a. hyperactivity
   b. depression
   c. high anxiety
   d. increased appetite

21. The neurotransmitter believed to be associated with schizophrenia is
   a. dopamine
   b. acetylcholine
   c. endorphin
   d. serotonin

22. Endorphins are neurotransmitters that
   a. are associated with sleep and wakefulness
   b. resemble opiates in structure and effect
   c. are associated with the movement of voluntary muscles
   d. have been related to the development of certain psychological disorders

23. The elimination of old less active synapses is known as
   a. synaptic reuptake
   b. synaptic pruning
   c. neurogenesis
   d. synaptic sculpting

24. The nervous system consists of two major divisions: the ____ and ____ nervous systems.
   a. peripheral; somatic
   b. autonomic; somatic
   c. central; peripheral
   d. central; autonomic

25. The nervous system that consists of the somatic and autonomic nervous systems is the ____ nervous system.
   a. central
   b. skeletal
   c. peripheral
   d. sympathetic

26. The "fight or flight" response is a direct result of activation of the
   a. afferent nervous system
   b. efferent nervous system
   c. sympathetic nervous system
   d. parasympathetic nervous system

27. While the ____ nervous system is associated with conserving bodily resources, the ____ nervous system mobilizes the body's resources for emergencies.
   a. parasympathetic; sympathetic
   b. sympathetic; parasympathetic
28. The central nervous system consists of
a. the brain and peripheral nervous system
b. the brain and spinal cord
c. the sympathetic and parasympathetic nervous system
d. the somatic and autonomic nervous system

29. A device that monitors the electrical activity of the brain over time is
a. ESB
b. TMS
c. EEG
d. PET scan

30. Which procedure results in a high-quality three-dimensional picture of the brain?
 a. MRI scan
 b. ESB scan
c. PET scan
d. TMS scan

31. Which two procedures allow researchers to visualize changes in brain activity over time?
 a. PET scan and CT
 b. PET scan and fMRI
c. MRI and fMRI
d. CT scan and MRI

32. A massive stroke that damages which of the following brain structures is most likely to be fatal since the structure regulates breathing and circulation?
 a. medulla
 b. reticular formation
c. cerebellum
d. pons

33. A gunshot wound in the back of the head would cause the victim to be permanently unable to maintain bodily coordination. The part of the brain that would be damaged is the
 a. cerebellum
 b. cerebrum
c. medulla
d. thalamus

34. The reticular formation is involved in
a. coordinating bodily movements and balance
b. relaying information between the brainstem and cerebellum
c. relaying sensory information to the cerebral cortex
d. the regulation of sleep and wakefulness and contributes to arousal

35. The hypothalamus influences or regulates all of the following except
 a. the autonomic nervous system
 b. the endocrine system
c. memory
d. feeding

36. If a person's hippocampus is completely destroyed, the person would have difficulties
 a. with her sense of vision and hearing
 b. with her memory
c. controlling her food intake
d. controlling her response to pleasurable stimuli
37. The thick band of nerve fibers that connects the two cerebral hemispheres is the
   a. limbic system
   b. corpus callosum
   c. transverse pathway
   d. thalamus

38. The primary visual cortex is located in the
   a. occipital lobe
   b. parietal lobe
   c. temporal lobe
   d. frontal lobe

39. If a patient has severe damage to the prefrontal cortex, you would predict that he might also have difficulty
   a. identifying visually complex materials
   b. planning, paying attention, and getting organized
   c. identifying objects by touch
   d. hearing sounds

40. Which of the following pairings are correct?
   a. Broca's area--speech production
     Wernicke's area--language comprehension
   b. Broca's area--language comprehension
     Wernicke's area--speech production
   c. Prefrontal area--vision
     Occipital area--executive control
   d. Temporal lobe--speech
     Parietal lobe--movement

41. An elderly person has a stroke that leaves her unable to talk and part of her body paralyzed. Which part of the
    body is most likely to be paralyzed?
   a. right side
   b. left side
   c. upper body
   d. lower body

42. Imagine that a picture of a spoon is briefly flashed in the left visual field of an individual with a severed
    corpus callosum. At the same time, a picture of a cup is briefly flashed in the right visual field. Based on
    Roger Sperry's work with split-brain patients, you could predict that this individual will say
   a. "I didn't see anything."
   b. "I saw a spoon resting in a cup."
   c. "I saw a spoon."
   d. "I saw a cup."

43. For most people, the production of language resides in the
   a. posterior cerebral hemisphere
   b. central cerebral hemisphere
   c. right cerebral hemisphere
   d. left cerebral hemisphere

44. For the majority of people the right hemisphere is superior on all the following types of tasks except
   a. visual recognition
   b. musical tasks
   c. spatial tasks
   d. reading
45. A four-year-old boy was accidentally shot in the head nearly his entire left hemisphere was removed but just three years later he was nearly completely normal. What term best explains the ability of the brain to 'rewire' or 'reorganize' itself, especially when we are young?
   a. plasticity  
   b. reflexology  
   c. reuptake  
   d. refraction

46. The "master gland" of the endocrine system is the
   a. hypothalamus  
   b. adrenal gland  
   c. pituitary gland  
   d. gonads

47. The brain structure that controls much of the endocrine system is the
   a. pituitary  
   b. hypothalamus  
   c. thalamus  
   d. cerebellum

48. It is most accurate to state that family, twin, and adoption studies are designed to determine the effect of ____ on human behavior.
   a. living in the same environment  
   b. experience  
   c. genetics  
   d. both experience and genetics

49. If a trait is influenced to some degree by genetic factors, identical twins should be ____ similar to each other than fraternal twins because identical twins ____.
   a. more; have 100% of their genetic information in common  
   b. less; have 100% of their genetic information in common  
   c. more; also grow up in the same environment  
   d. less; also grow up in the same environment

50. Which psychologist believed that organisms tend to repeat responses that lead to positive outcomes?
   a. Carl Rogers  
   b. Sigmund Freud  
   c. William James  
   d. B. F. Skinner

51. The branch of psychology concerned with the diagnosis and treatment of psychological disorders is called
   a. industrial psychology  
   b. social psychology  
   c. developmental psychology  
   d. clinical psychology

52. Oliver is studying motivation in chimpanzees. His roommate doesn't think that Oliver's research will produce much useful information about human motivation because he believes that information from animal studies will not provide meaningful information about human experiences. Oliver's roommate apparently has
   a. a humanistic perspective  
   b. an evolutionary perspective  
   c. a biological perspective  
   d. a cognitive perspective

53. You are interviewing a new member of the psychology department for the university newspaper. The faculty member states: "Many times people are unaware of the unconscious motivations that drive their overt actions." This faculty member's views are most similar to the views held by
   a. B. F. Skinner  
   b. Carl Rogers
54. As the result of a breakdown in communication, morale is low among employees in a local factory. A(n) ____ would be most likely to be helpful in restoring communication and improving morale.
   a. social psychologist
   b. educational psychologist
   c. industrial/organizational psychologist
   d. clinical psychologist

55. A researcher is investigating the effect of high room temperatures on aggressive behavior in preschoolers. Half of the children are in a classroom where the temperature is a warm 88 degrees and half are in a classroom where the temperature is a normal 77 degrees. The researcher measures the number of hitting incidents that occur in each classroom. In this study the temperature of the room is the
   a. dependent variable
   b. experimental group
   c. control group
   d. independent variable

56. A researcher is investigating the effect of music on the productivity of employees in a factory. Half of the employees listen to music while working and half do not listen to music. The researcher measures the productivity of each employee. In this study the employees who listen to music are the
   a. independent group
   b. dependent group
   c. control group
   d. experimental group

57. In the case study method the researcher
   a. uses questionnaires or interviews to gather information about specific aspects of participants' behavior
   b. engages in careful observation of behavior without intervening directly with subjects
   c. manipulates a variable under carefully controlled conditions
   d. conducts an in-depth investigation of an individual subject

58. Dr. Kalmagura plans on introducing a new exam review procedure in his chemistry classes. To check the effectiveness of the new procedure he is going to have half his students try the new technique for one semester, while the remaining students review in the way they have always done in the past. He asks each student to decide which of the techniques they would like to use, the new technique or the standard technique. In this example, Dr. Kalmagura's procedure illustrates
   a. the use of non-random assignment
   b. a correlational research design
   c. a double-blind research design
   d. what is meant by informed consent in research

59. "Statistically significant" means that the results of an experiment most likely
   a. resulted from chance variations
   b. were not due to chance
   c. had practical significance
   d. were important
CHAPTER 3 - BIOLOGY - EXAM

Answer Section

MULTIPLE CHOICE

1. ANS: A  PTS: 1  REF: 74  OBJ: 03-1 TYPE: Factual
2. ANS: C  PTS: 1  REF: 74  OBJ: 03-1 TYPE: Factual
3. ANS: A  PTS: 1  REF: 74  OBJ: 03-1 TYPE: Factual
4. ANS: A  PTS: 1  REF: 74  OBJ: 03-1 TYPE: Factual
5. ANS: A  PTS: 1  REF: 74  OBJ: 03-1 TYPE: Factual
6. ANS: D  PTS: 1  DIF: Correct = 81%
   REF: p. 76  OBJ: 3-4  KEY: Factual
7. ANS: D  PTS: 1  REF: 74  OBJ: 03-2 TYPE: Factual
8. ANS: B  PTS: 1  REF: p. 76  OBJ: 3-3
   KEY: Concept/Applied
9. ANS: D  PTS: 1  REF: 75  OBJ: 03-3 TYPE: Factual
10. ANS: C  PTS: 1  REF: p. 75  OBJ: 3-3
   KEY: Factual
11. ANS: B  PTS: 1  REF: 76  OBJ: 03-3 TYPE: Factual
12. ANS: C  PTS: 1  REF: 76  OBJ: 03-4 TYPE: Factual
13. ANS: C  PTS: 1  REF: 77  OBJ: 03-5 TYPE: Factual
14. ANS: C  PTS: 1  REF: p. 77  OBJ: 3-5
   KEY: Factual
15. ANS: C  PTS: 1  REF: 79  OBJ: 03-6 TYPE: Factual
16. ANS: C  PTS: 1  REF: p. 79  OBJ: 3-6
   KEY: Critical Thinking
17. ANS: B  PTS: 1  DIF: Correct = 63%
   REF: p. 79  OBJ: 3-6  KEY: Factual
18. ANS: B  PTS: 1  REF: p. 79  OBJ: 3-6
   KEY: Concept/Applied
   MSC: ** (new or revised)
19. ANS: D  PTS: 1  REF: p. 80  OBJ: 3-7
   KEY: Concept/Applied
20. ANS: B  PTS: 1  REF: p. 80  OBJ: 3-6
   KEY: Factual
21. ANS: A  PTS: 1  REF: 80  OBJ: 03-6 TYPE: Factual
22. ANS: B  PTS: 1  REF: 80  OBJ: 03-7 TYPE: Factual
23. ANS: B  PTS: 1  REF: p. 78  OBJ: 3-5
   KEY: Factual
   MSC: ** (new or revised)
24. ANS: C  PTS: 1  REF: 81  OBJ: 03-8 TYPE: Factual
25. ANS: C  PTS: 1  REF: 81  OBJ: 03-8 TYPE: Factual
26. ANS: C  PTS: 1  REF: 83  OBJ: 03-8 TYPE: Factual
27. ANS: A  PTS: 1  REF: 83  OBJ: 03-8 TYPE: Factual
28. ANS: B  PTS: 1  REF: 83  OBJ: 03-9 TYPE: Factual
29. ANS: C  PTS: 1  REF: 84  OBJ: 03-10 TYPE: Factual
30. ANS: A  PTS: 1  REF: 87  OBJ: 03-11 TYPE: Factual
31. ANS: B  PTS: 1  REF: 87  OBJ: 03-11 TYPE: Factual
32. ANS: A  PTS: 1  REF: 89  OBJ: 03-12 TYPE: Concept/Applied
33. ANS: A  PTS: 1  REF: 90  OBJ: 03-12 TYPE: Concept/Applied
34. ANS: D  PTS: 1  REF: 90  OBJ: 03-12 TYPE: Factual
35. ANS: C  PTS: 1  REF: 90  OBJ: 03-13 TYPE: Concept/Applied
36. ANS: B  PTS: 1  REF: 92  OBJ: 03-14 TYPE: Concept/Applied
37. ANS: B  PTS: 1  REF: 93  OBJ: 03-15 TYPE: Factual
38. ANS: A  PTS: 1  REF: 93  OBJ: 03-15 TYPE: Factual
39. ANS: B  PTS: 1  REF: 95  OBJ: 03-15 TYPE: Concept/Applied
40. ANS: A  PTS: 1  REF: p. 96  OBJ: 3-17

KEY: Concept/Applied  MSC: ** (new or revised)
41. ANS: A  PTS: 1  REF: 97  OBJ: 03-17 TYPE: Critical Thinking
42. ANS: D  PTS: 1  REF: p. 97-98  OBJ: 3-17

KEY: Concept/Applied
43. ANS: D  PTS: 1  DIF: Correct = 75%
   REF: p. 96  OBJ: 3-17  KEY: Concept/Applied
44. ANS: D  PTS: 1  REF: 99  OBJ: 03-18 TYPE: Factual
45. ANS: A  PTS: 1
46. ANS: C  PTS: 1  REF: 100  OBJ: 03-19 TYPE: Factual
47. ANS: B  PTS: 1  REF: 100  OBJ: 03-19 TYPE: Factual
48. ANS: D  PTS: 1  REF: 103  OBJ: 03-22 TYPE: Critical Thinking
49. ANS: A  PTS: 1  REF: 104  OBJ: 03-22 TYPE: Factual
50. ANS: D  PTS: 1  REF: 9  OBJ: 01-7 TYPE: Factual
51. ANS: D  PTS: 1  REF: p. 11  OBJ: 1-9

KEY: Factual  MSC: ** (new or revised)
52. ANS: A  PTS: 1  REF: p. 10  OBJ: 1-8

KEY: Critical Thinking
53. ANS: D  PTS: 1  REF: p. 6  OBJ: 1-5

KEY: Critical Thinking
54. ANS: C  PTS: 1  REF: 20  OBJ: 01-15 TYPE: Critical Thinking
55. ANS: D  PTS: 1  REF: 43  OBJ: 02-5 TYPE: Concept/Applied
56. ANS: D  PTS: 1  REF: 43  OBJ: 02-5 TYPE: Concept/Applied
57. ANS: D  PTS: 1  REF: 49  OBJ: 02-8 TYPE: Factual
58. ANS: A  PTS: 1  REF: p. 44  OBJ: 2-5

KEY: Concept/Applied
59. ANS: B  PTS: 1  DIF: Correct = 72%
   REF: p. 56  OBJ: 2-13  KEY: Concept/Applied