

# Nervous System Exam

**Matching – responses may be used more than once or not be used at all...**

- |                  |             |                     |                  |            |
|------------------|-------------|---------------------|------------------|------------|
| a. brain         | b. spinal   | c. autonomic        | d. somatic       | e. sensory |
| ab. originate in | ac. cranial | ad. peripheral n.s. | ae. central n.s. | bc. motor  |
| bd. arrive to    |             |                     |                  |            |

1. The two major categories of the nervous system are the ..... and the peripheral nervous system.
2. The central nervous system includes the ..... and spinal cord.
3. All ..... impulses arrive into the CNS.
4. Motor impulses ..... the CNS.
5. Nerves that carry impulses to and away from the CNS comprise the .....
6. The ..... nerves of the PNS originate from the brain and extend to the head and neck.
7. The ..... nerves of the PNS arise from the spinal cord to supply the body below the head.
8. The ..... subdivision of the PNS includes nerves that are under voluntary control.
9. The ..... system includes mainly nerves that carry impulses to visceral organs, blood vessels and glands.

**Matching – responses may be used more than once or not be used at all...**

- |                  |                     |                       |                         |
|------------------|---------------------|-----------------------|-------------------------|
| a. axon          | b. cell body        | c. dendrites          | d. gray matter          |
| e. neuroglia     | ab. myelin sheath   | ac. myelinated fibers | ad. unmyelinated fibers |
| ae. neurons      | bc. collateral axon | bd. nodes of Ranvier  | be. Schwann cells       |
| cd. white matter |                     |                       |                         |

10. The primary structural and functional unit of nerve tissue.
11. A type of nerve tissue which supports and maintains neuronal structure and function.
12. A type of nerve tissue which forms about 90% of the substance of the brain and spinal cord.
13. A type of neuroglia which forms the myelin sheath in the PNS.
14. The portion of the neuron containing cytoplasm, plasma membrane, nucleus and nucleolus.
15. The extensions conducting impulses to the cell body of neurons.
16. The extensions from the cell body of neurons that may be one meter long and carry impulses away from the cell body.
17. The white, fatty insulating barrier found on neurons.
18. The gaps between Schwann cells where the myelin is absent.
19. Axons that lack myelin.
20. Groups of unmyelinated fibers and neuron cell bodies in the brain.
21. The spinal cord is part of the
  - a. CNS
  - b. PNS
22. Membrane potential is best describes as
  - a. the use of energy to transport sodium ions out of the cell
  - b. the ability of neurons to respond to a change in their environment.
  - c. the production of ATP to provide energy for impulse speed.
  - d. the difference in charge on either side of a cell membrane.
23. Neuroglia are amitotic because they lack spindle fibers.
  - a. true
  - b. false

24. When a neuron is at rest, where is the greatest concentration of sodium ions?
- outside the cell
  - inside the cell
  - in the ion channels of the membrane
  - equal concentrations inside and outside the cell
25. Which is the best analogy of saltatory conduction?
- electricity through an insulated wire
  - electron flow between poles of a battery
  - a pump
  - a flat stone skipping across water
26. Which of the following is least related to saltatory conduction?
- myelinated fibers
  - unmyelinated fibers
  - nodes of Ranvier
  - split-second emergency responses
27. The process by which additional stimuli from other neurons is applied to a subthreshold stimulus in hopes of reaching an action potential is said to be
- magnified.
  - amplified.
  - converged.
  - diverged.
28. A synapse
- is a cumulative effect that can lead to an action potential
  - is actually a 'gap'
  - is a junction between adjacent neurons
  - both b and c are correct
29. The cytoplasmic extensions that provide the main receptive surfaces for neurons are
- neurofibrils.
  - nissl fibers.
  - axons.
  - dendrites.
30. Masses of myelinated nerve fibers appear
- white.
  - gray.
  - brown.
  - transparent.
31. Which of the following is NOT a type of neuroglial cell?
- astrocyte
  - oligodendrocyte
  - ependymal cell
  - nissl cell
32. When a nerve fiber is polarized, the concentration of
- sodium and potassium ions is higher on the inside of its membrane.
  - sodium and potassium ions is higher on the outside of its membrane.
  - sodium ions is higher on the inside of its membrane and potassium ions is higher on the outside.
  - sodium ions is higher on the outside of its membrane and potassium ions is higher on the inside.
33. Which of the following lists the parts of a reflex arc in the correct sequence?
- receptor, sensory neuron, motor neuron, interneuron, effector
  - effector, receptor, sensory neuron, motor neuron, interneuron
  - effector, sensory neuron, receptor, interneuron, motor neuron
  - receptor, sensory neuron, interneuron, motor neuron, effector
34. The part of the brain that functions to coordinate voluntary muscle movements is the
- cerebrum.
  - brain stem.
  - cerebellum.
  - corpus callosum.
35. Which of the following is most closely associated with the diencephalon?
- thalamus
  - cerebral aqueduct
  - cerebral peduncles
  - red nucleus
36. Within the central nervous system myelin is formed by
- Schwann cells.
  - oligodendrocytes.
  - astrocytes.
  - microglial cells.

37. During an action potential, repolarization occurs as a result of

- a. potassium ions diffusing to the outside of the cell membrane.
- b. potassium ions diffusing to the inside of the cell membrane.
- c. sodium ions diffusing to the outside of the cell membrane.
- d. sodium ions diffusing to the inside of the cell membrane.

38. Reflexes are

- a. involuntary responses
- b. immediate responses
- c. responses to potentially harmful stimuli
- d. all of these

39. Which is a function of your cerebrum?

- a. memory and learning
- b. initiating motor responses
- c. conscious thought
- d. all of these

40. Which of the meninges offers the 'toughest' protection to the brain?

- a. pia mater
- b. arachnoid mater
- c. dura mater
- d. onetuff mater

**Matching – use each once and only once.**

- a. arachnoid mater
- b. cerebrospinal fluid
- c. dura mater
- d. meninges
- e. pia mater
- ab. spinal tap
- ac. epidural space
- e. subarachnoid space

41. literally, 'membranes'

42. outermost membrane around the spinal cord

43. the middle membrane around the spinal cord which looks like a cobweb.

44. thin, innermost membrane attached to surface of spinal cord.

45. area deep to the arachnoid mater.

46. clear and colorless, it helps cushion the spinal cord

47. area between the dura mater and the vertebral column

48. a lumbar puncture below the second vertebra to extract fluid.

49. A person who is paralyzed due to a cervical spinal cord injury may still move in response to spinal reflexes.

- a. true
- b. false

50. Cerebral spinal fluid functions to

- a. act as a cushion for the brain
- b. act as a cushion for the spinal cord
- c. nourish and remove wastes from the brain
- d. all of these

51. Which structure of the human brain is the largest in size?

- a. cerebellum
- b. cerebrum
- c. thalamus
- d. medulla oblongata

52. The structure which allows communication between cerebral hemispheres in the

- a. pituitary gland
- b. cerebral cortex
- c. corpus callosum
- d. transverse fissure

53. Which structure of the brain may cause you to become depressed in the long winter months?

- a. corpus callosum
- b. cerebellum
- c. pineal gland
- d. pons

54. Which brain structure coordinates skeletal muscle movement?

- a. cerebrum
- b. cerebellum
- c. pons
- d. hypothalamus

55. Which brain structure controls involuntary vital functions?

- a. medulla oblongata
- b. cerebrum
- c. cerebellum
- d. thalamus

56. Human emotions are a function of the cerebellum.

- a. true                      b. false

57. Hydrocephalus, or “water on the brain”, is the result of excess pressure of cerebral spinal fluid.

- a. true                      b. false

58. What effect would sympathetic stimulation have upon your heart rate?

- a. it would increase it                      b. it would decrease it                      c. it would have no effect

59. What effect would sympathetic stimulation have upon your stomach’s digestive activity?

- a. it would increase it                      b. it would decrease it                      c. it would have no effect

60. What effect would sympathetic stimulation have upon your skeletal muscle activity?

- a. it would increase it                      b. it would decrease it                      c. it would have no effect

**Matching (one more time)**

- |                    |                            |
|--------------------|----------------------------|
| 61. telencephalon  | a. medulla oblongata, pons |
| 62. metencephalon  | b. midbrain                |
| 63. mesencephalon  | c. cerebrum                |
| 64. diencephalon   | d. cerebellum              |
| 65. myelencephalon | e. thalamic structures     |

**Matching (last time)**

- |                    |                                                          |
|--------------------|----------------------------------------------------------|
| 66. frontal lobe   | a. interprets sensory impulses associated with hearing   |
| 67. temporal lobe  | b. controls visceral functions                           |
| 68. occipital lobe | c. contains motor areas associated with skeletal muscles |
| 69. parietal lobe  | d. interprets sensory impulses associated with vision    |
| 70. brain stem     | e. interprets sensory impulses from the skin             |

**Completion – On your scan-tron sheet, number 71-75 and write the correct answer to the following.**

71. The cells within the nervous system that fill spaces and give support to neurons are called \_\_\_\_\_.

72. A(an) \_\_\_\_\_ is the junction between two neurons.

73. The outermost layer of the meninges is the \_\_\_\_\_.

74. The interconnected fluid-filled cavities within the brain are called \_\_\_\_\_.

75. The part of the brain stem that includes the cardiac and vasomotor centers is the \_\_\_\_\_.