

# Practice Questions – Nervous Tissue and Nervous System

Note: choices may be used more than once or not at all.

## 1-5. Matching

- |                      |                                 |                 |
|----------------------|---------------------------------|-----------------|
| A) Motor neurons     | commonly are multipolar neurons | 1) <u>  A  </u> |
| B) Sensory neurons   | commonly are unipolar neurons   | 2) <u>  B  </u> |
| C) None of the above | found in posterior root ganglia | 3) <u>  B  </u> |
|                      | found in anterior root ganglia  | 4) <u>  C  </u> |
|                      | found in anterior horn          | 5) <u>  A  </u> |

## 6-10. Matching

- |                      |   |                  |
|----------------------|---|------------------|
| A) Axons             | conduct signals long distances in sensory neurons | 6) <u>  A  </u>  |
| B) Dendrites         | carry signals toward motor neuron cell bodies     | 7) <u>  B  </u>  |
| C) None of the above | carry signals from motor neuron cell bodies       | 8) <u>  A  </u>  |
|                      | connect (at synaptic junctions) to muscle         | 9) <u>  A  </u>  |
|                      | are found in spinal nerves                        | 10) <u>  A  </u> |

## 11-15. Matching

- |                     |  |                  |
|---------------------|--|------------------|
| A) Microglia        | myelinate (insulate) neuron processes in the CNS | 11) <u>  D  </u> |
| B) Astrocytes       | myelinate (insulate) neuron processes in the PNS | 12) <u>  C  </u> |
| C) Schwann cells    | produce a barrier between neurons and blood      | 13) <u>  B  </u> |
| D) Oligodendrocytes | are phagocytic cells in the CNS                  | 14) <u>  A  </u> |
| E) C and D          | wrap around neurons in layers                    | 15) <u>  E  </u> |

## 16-20. Matching

- |                              |                   |                  |
|------------------------------|-------------------|------------------|
| A) Central nervous system    | sensory receptors | 16) <u>  B  </u> |
| B) Peripheral nervous system | peripheral nerves | 17) <u>  B  </u> |
|                              | spinal cord       | 18) <u>  A  </u> |
|                              | eyeballs          | 19) <u>  B  </u> |
|                              | brain             | 20) <u>  A  </u> |

## 21-25. Matching

- |               |  |                  |
|---------------|--|------------------|
| A) Somatic    | refers to integumentary and muscular systems | 21) <u>  A  </u> |
| B) Afferent   | refers to visceral (internal) organ systems  | 22) <u>  D  </u> |
| C) Efferent   | refers to outside of the dorsal body cavity  | 23) <u>  E  </u> |
| D) Autonomic  | refers to incoming or sensory signals        | 24) <u>  B  </u> |
| E) Peripheral | refers to outgoing or motor signals          | 25) <u>  C  </u> |

## 26-30. Matching

- |                            |   |                  |
|----------------------------|---|------------------|
| A) Anterior horn           | contains cell bodies of sensory neurons | 26) <u>  E  </u> |
| B) Anterior root           | contains cell bodies of motor neurons   | 27) <u>  A  </u> |
| C) Posterior horn          | contains axons of sensory neurons       | 28) <u>  D  </u> |
| D) Posterior root          | dorsal gray matter of spinal cord       | 29) <u>  C  </u> |
| E) Posterior root ganglion | contains axons of motor neurons         | 30) <u>  B  </u> |

31-35. Matching

- |                      |  |                  |
|----------------------|--|------------------|
| A) Endoneurium       | bundles of axons                               | 31) <u>  E  </u> |
| B) Perineurium       | insulation around axons                        | 32) <u>  D  </u> |
| C) Epineurium        | fibrous connective tissue around a nerve       | 33) <u>  C  </u> |
| D) Myelin            | fibrous connective tissue around fascicles     | 34) <u>  B  </u> |
| E) None of the above | fibrous connective tissue around Schwann cells | 35) <u>  A  </u> |

36-40. Matching

- |  |                         |                  |
|--|-------------------------|------------------|
| A) Originates from the cervical plexus | sciatic nerve           | 36) <u>  D  </u> |
| B) Originates from the brachial plexus | phrenic nerve           | 37) <u>  A  </u> |
| C) Originates from the lumbar plexus   | femoral nerve           | 38) <u>  C  </u> |
| D) Originates from the sacral plexus   | thoracic nerve          | 39) <u>  E  </u> |
| E) None of the above                   | radial and ulnar nerves | 40) <u>  B  </u> |

41-45. Matching (optional material)

- |                        |  |                  |
|------------------------|--|------------------|
| A) Gamma motor neurons | connect to extrafusal muscle                         | 41) <u>  B  </u> |
| B) Alpha motor neurons | connect to intrafusal muscle                         | 42) <u>  A  </u> |
| C) None of the above   | connect to inhibitory interneurons                   | 43) <u>  B  </u> |
|                        | connect to muscle spindle sensory neurons            | 44) <u>  C  </u> |
|                        | adjust the length and sensitivity of muscle spindles | 45) <u>  A  </u> |

46-50. Place in order the structures that **muscle stretch signals** travel through the PNS and CNS.

- |                                 |        |                  |
|---------------------------------|--------|------------------|
| A) Anterior root / spinal nerve | first  | 46) <u>  B  </u> |
| B) Muscle spindle receptors     | second | 47) <u>  C  </u> |
| C) Posterior root ganglion      | third  | 48) <u>  D  </u> |
| D) Posterior horn               | fourth | 49) <u>  E  </u> |
| E) Anterior horn                | fifth  | 50) <u>  A  </u> |

51-55. Matching

- |                             |                                      |                  |
|-----------------------------|--------------------------------------|------------------|
| A) Interventricular foramen | produces cerebrospinal fluid         | 51) <u>  E  </u> |
| B) Spinal commissure        | connects right and left cerebrum     | 52) <u>  D  </u> |
| C) Cerebral aqueduct        | connects third and fourth ventricle  | 53) <u>  C  </u> |
| D) Corpus callosum          | connects third and lateral ventricle | 54) <u>  A  </u> |
| E) Choroid plexus           | connects left and right spinal horns | 55) <u>  B  </u> |

56-60. Matching

- |                           |  |                  |
|---------------------------|--|------------------|
| A) Glossopharyngeal nerve | motor, tongue movements  | 56) <u>  B  </u> |
| B) Hypoglossal nerve      | sensory and motor; visceral organs                               | 57) <u>  D  </u> |
| C) Trigeminal nerve       | sensory and motor; face, mouth, mastication                      | 58) <u>  C  </u> |
| D) Vagus nerve            | sensory anterior 2/3 tongue; motor facial expression             | 59) <u>  E  </u> |
| E) Facial nerve           | sensory posterior 1/3 tongue, carotid arteries; motor swallowing | 60) <u>  A  </u> |

61-65. Matching

- |                            |   |                  |
|----------------------------|---|------------------|
| A) Optic nerve             | motor, eye movement (superior oblique muscle) | 61) <u>  B  </u> |
| B) Trochlear nerve         | special sensory, balance and hearing          | 62) <u>  E  </u> |
| C) Olfactory nerve         | special sensory, vision                       | 63) <u>  A  </u> |
| D) Oculomotor nerve        | special sensory, smell                        | 64) <u>  C  </u> |
| E) Vestibulocochlear nerve | motor, eye movement                           | 65) <u>  D  </u> |

66-70. Matching

- |                      |  |                  |
|----------------------|--|------------------|
| A) Medulla oblongata | connects to the pituitary                      | 66) <u>  B  </u> |
| B) Hypothalamus      | is located below the 4 <sup>th</sup> ventricle | 67) <u>  E  </u> |
| C) Midbrain          | is a continuation of the spinal cord           | 68) <u>  A  </u> |
| D) Pons              | located between the midbrain and medulla       | 69) <u>  D  </u> |
| E) A and D           | is located just posterior to the hypothalamus  | 70) <u>  C  </u> |

71-75. Matching

- |                      |  |                  |
|----------------------|--|------------------|
| A) Medulla oblongata | part of the diencephalon                     | 71) <u>  E  </u> |
| B) Hypothalamus      | controls visceral organs                     | 72) <u>  D  </u> |
| C) Thalamus          | controls endocrine responses                 | 73) <u>  B  </u> |
| D) A and B           | is a continuation of the spinal cord         | 74) <u>  A  </u> |
| E) B and C           | acts as a gate keeper to the cerebral cortex | 75) <u>  C  </u> |

76-80. Matching

- |                    |  |                  |
|--------------------|--|------------------|
| A) Thalamus        | integrate sensory and motor cortical signals | 76) <u>  C  </u> |
| B) Cerebellum      | connection between right and left cerebrum   | 77) <u>  E  </u> |
| C) Basal nuclei    | monitors and times contraction of muscles    | 78) <u>  B  </u> |
| D) Choroid plexus  | produces cerebrospinal fluid                 | 79) <u>  D  </u> |
| E) Corpus callosum | selects sensory information                  | 80) <u>  A  </u> |

81-85. Matching

- |                 |  |                  |
|-----------------|--|------------------|
| A) Hippocampus  | essential for emotions                                     | 81) <u>  C  </u> |
| B) Basal nuclei | includes the caudate nucleus                               | 82) <u>  B  </u> |
| C) Amygdala     | located superior and lateral to the thalamus               | 83) <u>  D  </u> |
| D) A and B      | includes regions implicated in Parkinsonism                | 84) <u>  B  </u> |
|                 | necessary for establishing (or recall of) long term memory | 85) <u>  A  </u> |

86-90. Matching

- |                      |  |                  |
|----------------------|--|------------------|
| A) Frontal cortex    | location of the visual cortex                | 86) <u>  D  </u> |
| B) Postcentral gyrus | involved in decision making                  | 87) <u>  A  </u> |
| C) Precentral gyrus  | location of the primary motor cortex         | 88) <u>  C  </u> |
| D) Occipital cortex  | location of the language processing region   | 89) <u>  E  </u> |
| E) None of the above | location of the primary Somatosensory cortex | 90) <u>  B  </u> |

91-95. Matching

- |  |                                  |                  |
|--|----------------------------------|------------------|
| A) Projects to posterior column nuclei | thalamus                         | 91) <u>  B  </u> |
| B) Projects to primary sensory cortex  | pyramidal tracts                 | 92) <u>  C  </u> |
| C) Projects to ventral horns           | spinothalamic tract              | 93) <u>  D  </u> |
| D) Projects to thalamus                | nucleus cuneatus and gracilis    | 94) <u>  D  </u> |
| E)                                     | fasciculus cuneatus and gracilis | 95) <u>  A  </u> |

96-100. Place in order the structures that **touch signals** travel through the CNS.

- |   |        |                   |
|---|--------|-------------------|
| A) Posterior horn   | first  | 96) <u>  A  </u>  |
| B) Post-central gyrus   | second | 97) <u>  D  </u>  |
| C) Posterior thalamus   | third  | 98) <u>  E  </u>  |
| D) Posterior column pathways (gracilis and cuneatus)                    | fourth | 99) <u>  C  </u>  |
| E) Posterior column nuclei (gracilis and cuneatus) of medulla oblongata | fifth  | 100) <u>  B  </u> |

101-105. Matching

- |                              |                            |                   |
|------------------------------|----------------------------|-------------------|
| A) Receives auditory signals | occipital lobe             | 101) <u>  B  </u> |
| B) Receives visual signals   | inferior colliculus        | 102) <u>  A  </u> |
| C) None of the above         | superior colliculus        | 103) <u>  B  </u> |
|                              | lateral geniculate nucleus | 104) <u>  B  </u> |
|                              | medial geniculate nucleus  | 105) <u>  A  </u> |

106-110. Place in order the structures that **light passes** through the eye.

- |   |        |                   |
|---|--------|-------------------|
| A) Outer segment of photoreceptors (portion with visual pigments) | first  | 106) <u>  C  </u> |
| B) Inner segment of photoreceptors (portion with cell nuclei)     | second | 107) <u>  D  </u> |
| C) Retinal ganglion cells   | third  | 108) <u>  B  </u> |
| D) Bipolar cells  | fourth | 109) <u>  A  </u> |
| E) Pigment layer  | fifth  | 110) <u>  E  </u> |

111-115. Place in order the structures that **visual neural signals** travel through the eye and CNS.

- |                              |        |                   |
|------------------------------|--------|-------------------|
| A) Lateral geniculate nuclei | first  | 111) <u>  C  </u> |
| B) Retinal ganglion cells    | second | 112) <u>  D  </u> |
| C) Photoreceptors            | third  | 113) <u>  B  </u> |
| D) Bipolar cells             | fourth | 114) <u>  E  </u> |
| E) Optic nerve               | fifth  | 115) <u>  A  </u> |

116-120. Place in order the structures that **sound waves** pass through the ear.

- |                                      |        |                   |
|--------------------------------------|--------|-------------------|
| A) Scala vestibule (vestibular duct) | first  | 116) <u>  C  </u> |
| B) Tectorial membrane                | second | 117) <u>  E  </u> |
| C) Auditory ossicles                 | third  | 118) <u>  A  </u> |
| D) Cochlear duct                     | fourth | 119) <u>  D  </u> |
| E) Oval window                       | fifth  | 120) <u>  B  </u> |

121-125. Matching

- |  |                              |                   |
|--|------------------------------|-------------------|
| A) Respond to rotation of head         | posterior semicircular canal | 121) <u>  C  </u> |
| B) Respond to nodding of head          | superior semicircular canal  | 122) <u>  B  </u> |
| C) Respond to sideways tilting of head | lateral semicircular canal   | 123) <u>  A  </u> |
| D) Respond to gravity and acceleration | utricle and saccule          | 124) <u>  D  </u> |
| E) None of the above                   | cochlea                      | 125) <u>  E  </u> |