**Exam Five**

Please read all questions carefully. There is one best answer for each question.

1. Which the following is true of the lateral spinothalamic tracts?
2. It is an ascending tract
3. It is a descending tract
4. It conveys motor impulses
5. It conveys pain and touch
6. It conveys stretch sensations from the viscera
	1. 1, 3, and 5
	2. 2, 3, and 5
	3. 2 and 4
	4. 3 and 5
	5. 1 and 4
7. Identify “x”
	1. Ventral root
	2. Spinal nerve
	3. Dorsal root
	4. Motor pathway
	5. Dorsal root ganglion
8. Identify “Y”
	1. Posterior column
	2. Anterior column
	3. Posterior horn
	4. Anterior horn
	5. Lateral horn
9. Identify “Z”
	1. Posterior column
	2. Anterior column
	3. Posterior horn
	4. Anterior horn
	5. Lateral horn

1. The term “funiculi” refers to
	1. The posterior gray matter in the spinal cord
	2. The anterior gray matter in the spinal cord
	3. The white matter of the cerebral cortex
	4. The gray matter of the cerebral cortex
	5. The white matter of the spinal cord
2. What happens if there is damage to the lower motor neurons
	1. Sensory information fails to reach the brain
	2. Spastic paralysis results
	3. Flaccid paralysis results
	4. Muscles display an irregular stimulation pattern
	5. Involuntary control of the muscle remains intact
3. Where would you expect to see the soma of a second order neuron?
	1. Anterior horn of the spinal cord
	2. Dorsal root ganglion
	3. Thalamus
	4. Posterior horn of spinal cord
	5. Cerebral cortex
4. What are the receptor types that are pain receptors?
	1. Myoceptors
	2. Exteroceptors
	3. Rhabdoceptors
	4. Nociceptors
	5. Thermoceptors
5. Which of the following cranial nerves is sensory only?
	1. Hypoglossal
	2. Trigeminal
	3. Optic
	4. Oculomotor
	5. Trochear
6. Which of the following cranial nerves is mixed (ignore proprioception for this question. Look for the mixed nerve that has sensory input from the skin.)
	1. Olfactory
	2. Optic
	3. Oculomotor
	4. Facial
	5. Vestibulocochlear
7. Which is true about the spinothalamic tract?
	1. It is a descending tract
	2. It decussates at they pyramidal region of the medulla oblongata
	3. It carries fibers for light touch to the cortex
	4. It carries fibers for pain to the thalamus
	5. It carries fibers for the autonomic system only
8. The motor portion of this cranial nerve innervates tongue muscles and salivary glands while the sensory portion is responsible for taste.
	1. Vestibulocochlear
	2. Glossopharyngeal
	3. Vagus
	4. Spinal accessory
	5. Facial
9. From the brachial plexus, which nerve innervates the extensor muscles?
	1. Radial nerve
	2. Musculocutaneous nerve
	3. Axillary nerve
	4. Ulnar nerve
	5. Median nerve
10. The sciatic nerve comes from the \_\_\_\_ plexus and is compose of these two nerves:
	1. Cervical: tibial and peroneal
	2. Brachial: tibial and fibular nerves
	3. Lumbar: tibial and peroneal
	4. Sacral: tibial and fibular
	5. Coccygeal: tibial and peroneal
11. A Golgi Tendon Organ will be activated by
	1. Carbon dioxide concentrations
	2. Muscle stretch
	3. Tissue damage
	4. Temperature changes
	5. Muscle contraction
12. Which of the following is true about the lateral horn of the spinal cord
	1. The lateral horn contains cell bodies for sensory fibers
	2. The lateral horn contains cell bodies of motor fibers running to skeletal muscle
	3. The lateral horn contains cell bodes of motor fibers running to smooth muscle and glands
	4. The lateral horn contains ascending nerve tracts
	5. The lateral horn contains descending nerve tracts
13. With muscle spindle activation, which of the following are true,
	* 1. The primary muscle has been contracted
		2. The primary muscle has been stretched
		3. The antagonistic muscle receives an impulse to contract
		4. The antagonistic muscle receives an impulse to relax
	1. 1 and 3
	2. 1 and 4
	3. 2 and 3
	4. 2 and 4
	5. 1, 3, and 4
14. A spinal nerve usually contains
	1. Ascending fibers only
	2. Efferent fibers only
	3. Autonomic fibers only
	4. Mixed sensory and motor nerve fibers
	5. Non-myelinated fibers
15. Where is the cauda equina located?
	1. In the precentral gyrus
	2. In the cervical segments of the spinal cord
	3. At the level of the third thoracic vertebrae
	4. At the level of the third lumbar vertebrae
	5. Anchored to the sacrum
16. Which option below describes the function of the cervical plexus?
	1. A network of nerves coming from C1 – C4 that produce the phrenic nerve
	2. An area of cell bodies located outside of the central nervous system
	3. The location for the autonomic nerve cell bodies
	4. The cells responsible for producing and filtering CSF
	5. The network of nerves that produce the radial, median, and ulnar nerves
17. What do the gray commisure of the spinal cord and the corpus callosum have in common?
	1. Both are ascending tracts
	2. Both carry pain and temperature
	3. Both structures link the left and right sides of their respective structures
	4. Both contain a predominantly unipolar type neuron within their structures
	5. Both are considered association areas.
18. Which of the following is **NOT** an extrapyramidal tract
	1. Rubrospinal
	2. Corticospinal
	3. Tectospinal
	4. Reticulospinal
	5. Vestibulospinal
19. Which branch of the spinal nerve would you expect to see innervate the dura mater?
	1. Ventral rami
	2. Ventral root
	3. Dorsal rami
	4. Dorsal root
	5. Meningeal rami
20. Which of the following senses uses a chemoreceptor?
	1. Vision
	2. Taste
	3. Light touch
	4. Pain
	5. Hearing
21. Which of the following is a simple unencapsulated receptor?
	1. Merkel’s disc
	2. Meissner’s corpuscle
	3. Pacinian corpuscle
	4. Golgi Tendon Organ
	5. Photoreceptor in the retina
22. There are three levels of neural integration. Which levels corresponds to a second order sensory neuron?
	1. Primary level
	2. Somatic level
	3. Circuit level
	4. Receptor level
	5. Perceptual level
23. Of the following senses, which will not adapt?
	1. Taste
	2. Pain
	3. Smell
	4. Light touch
	5. Deep pressure
24. Where would you expect to see a third order neuron?
	1. Running from the spinal cord to an effector
	2. Running from the receptor to the CNS
	3. Ascending through the spinal cord to the thalamus
	4. Ascending from the thalamus to the cortex
	5. Descending through the paravertebral ganglion
25. The endoneurium is
	1. Found surrounding mixed nerves only
	2. Connective tissue that surrounds a nerve
	3. Connective tissue that surrounds a fascicle
	4. Connective tissue that surrounds a neuron
	5. Composed of myelin
26. If you had a fiber that was classified as general somatic efferent, what type of fiber is it?
	1. Sensory to an organ
	2. Sensory from a muscle
	3. Motor to skeletal muscle
	4. Motor to a gland
	5. Motor from one of the cranial nerves going to the muscles of the face.
27. This cranial nerve is associated with the cribiform plate.
	1. Olfactory
	2. Optic
	3. Oculomotor
	4. Abducens
	5. Trigeminal
28. The oculomotor nerve innervates four of the six extrinsic eye muscles. Which of the list below is **not** innervated by cranial nerve III?
	1. Superior oblique
	2. Inferior oblique
	3. Superior rectus
	4. Medial rectus
	5. Inferior rectus
29. Which cranial nerve is responsible for taste sensation on the anterior two thirds of the tongue
	1. Trochlear
	2. Trigeminal
	3. Glossopharyngeal
	4. Vagus
	5. Facial
30. Which type of reflex can be monosynaptic?
	1. Withdrawal reflex
	2. Visceral reflex
	3. Pain reflex
	4. Crossed extensor reflex
	5. Somatic stretch reflex
31. A somatic motor fiber releases the neurotransmitter \_\_\_\_\_\_, while a postganglionic sympathetic fiber releases \_\_\_\_\_\_. (From the options below, choose the answer that makes the statement correct.)
	1. Norepinephrine; epinephrine
	2. Acetylcholine; dopamine
	3. Acetylcholine; acetylcholine
	4. Acetylcholine; norepinephrine
	5. Norepinephrine; acetylcholine
32. Which of the following will have a long postganglionic fiber?
	1. Somatic motor
	2. Sympathetic motor
	3. Parasympathetic motor
	4. Splanchnic
	5. Special visceral afferent
33. The Parasympathetic system can be described in terms of the “three Ds”. In the list below, indicate the options that do not belong to the parasympathetic system.
	* 1. Digestion
		2. Diuresis
		3. Dilation
		4. Defecation
		5. Diaphoresis
34. 1 and 3
35. 3 and 5
36. 2 and 5
37. 2 and 4
38. 1 and 3
39. The sympathetic system can be described in terms of the “five Es”. Identify the incorrect option below.
	1. Erection
	2. Excitation
	3. Exercise
	4. Embarrassment
	5. Emergency
40. The preganglionic fibers of the sympathetic system thravel through the \_\_\_\_\_\_\_ to reach the paravertebral ganglion.
	1. Gray rami
	2. Dorsal rami
	3. White rami
	4. Ventral rami
	5. Sympathetic fibers do not have rami associated with the ganglion
41. What is unusual about the splanchnic nerves?
	1. They are parasympathetic fibers that release norepinephrine
	2. They are all cholinergic
	3. They are sympathetic fibers that do not synapse in the paravertebral ganglion
	4. They are parasympathetic fibers that do not synapse in any ganglion
	5. They are sympathetic fibers that innervate skeletal muscle
42. Referred pain from the heart is often times felt in the left arm. In what other unusual location can it be percieived?
	1. Right arm
	2. Cheek
	3. Left buttock
	4. Right knee
	5. Umbilicus
43. Adrenergic fibers release
	1. Acetylcholine
	2. Norepinephrine
	3. Dopamine
	4. Nitric oxide
	5. Cortisol
44. What binds to a nicotinic receptor?
	1. Acetylcholine
	2. Norepinephrine
	3. Dopamine
	4. Nitric oxide
	5. Cortisol
45. Which system is responsible for vasomotor tone?
	1. Sympathetic
	2. Parasympathetic
	3. Both sympathetic and parasympathetic
	4. Efferent fibers from the cranial nerves only
	5. Afferent fibers from the spinal nerve only
46. The \_\_\_\_\_ system causes vasodilation and erection during sexual stimulation; the \_\_\_\_ system causes ejaculation. (Choose the option from below that makes the statement correct)
	1. Sympathetic; sympathetic
	2. Parasympathetic; sympathetic
	3. Sympathetic; parasympathetic
	4. Parasympathetic; somatic
	5. Parasympathetic; parasympathetic
47. Which activities does the parasympathetic system not control?
	1. adrenal medulla
	2. sweat glands
	3. arrector pili muscles
	4. Kidneys
	5. It has no control over any of the above options
48. The Vagus nerve extends throughout the body. To which organ does it **not** go?
	1. Stomach
	2. Kidney
	3. Lung
	4. Heart
	5. It goes to all of the organs listed above
49. Which cranial nerves carry **parasympathetic** fibers?
	* 1. Optic
		2. Oculomotor
		3. Trigeminal
		4. Glossopharyngeal
		5. Vagus
50. 1, 2, 3
51. 2, 4, 5
52. 2, 3, 4
53. 1, 3, 5
54. 1, 4, 5
55. The denticulate ligaments that attach the vertebrae to the spinal cord are made up of
	1. Pia mater
	2. Arachnoid mater
	3. Dura mater
	4. Dense connective tissue
	5. Elastic connective tissue
56. With damage to an upper motor neuron,
	1. The lower motor neuron will never fire
	2. The effector will be unaffected
	3. The lower motor neuron can still receive and respond to spinal reflexes
	4. The cortex becomes unstable
	5. Sensory information will fail to reach the brain

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