

Name _____KEY_____

**Nsci 2001: Human Neuroanatomy
2019 Examination 3**

On this page, please write your name.

On your scantron answer sheet, please enter your name (last name, space, first name), internet ID (X.500 name) and student number. Please do it now!!!

Lecture 24 motor system

1. The definition of a motor unit is ...
 - A. all the motor neurons that innervate one muscle.
 - B. all the myofibers innervated by a single motor neuron.
 - C. all the motor neurons that innervate one type of myofiber in a muscle.
 - D. all the myofibers of the same type in a muscle.
 - E. all the motor neurons in a single level of the spinal cord.

2. Type I myofibers generate ...
 - A. low force and fatigue slowly.
 - B. intermediate force and fatigue moderately.
 - C. high force and fatigue quickly.
 - D. Type 1 myofibers are sensory, and do not contract.

3. 80-90% of the corticospinal axons cross the midline of the body in the ...
 - A. diencephalon.
 - B. midbrain.
 - C. spinal cord.
 - D. pons.
 - E. medulla.

4. The majority of axons from primary motor cortex that synapse with spinal (lower) motor neurons run in which tract within the spinal cord?
 - A. lateral corticospinal tract
 - B. ventral corticospinal tract
 - C. dorsal corticospinal tract
 - D. medial corticospinal tract
 - E. None of the above is the correct name for this tract.

5. The axons that run in the ventral roots attached to the cervical spinal cord arise from what type of neuron and synapse where?
 - A. arise from preganglionic sympathetic neurons and synapse in sympathetic ganglia
 - B. arise from postganglionic sympathetic neurons and synapse in the spinal cord
 - C. arise from spinal (lower) motor neurons and synapse in skeletal muscle
 - D. arise from somatosensory neurons and synapse in the spinal cord
 - E. More than one of the above are correct.

Lecture 25 basal ganglia

6. Which of the following is NOT considered to be part of the striatum?
- A. nucleus accumbens
 - B. caudate nucleus
 - C. putamen
 - D. globus pallidus
7. A major input to the striatum that uses glutamate as the neurotransmitter is from the ...
- A. substantia nigra.
 - B. subthalamic nucleus.
 - C. red nucleus.
 - D. cerebral cortex.
 - E. anterior nucleus of the thalamus.
8. Degeneration of neurons in which of the following results in Parkinson's disease?
- A. substantia nigra.
 - B. subthalamic nucleus.
 - C. red nucleus.
 - D. cerebral cortex.
 - E. anterior nucleus of the thalamus.
9. What is a major symptom of Huntington's disease?
- A. bradykinesia
 - B. resting tremor
 - C. hyperkinesia
 - D. slow gait
10. Which of the following axon tracts run through the striatum?
- A. internal capsule
 - B. dorsal columns
 - C. spinocerebellar tract
 - D. medial lemniscus
 - E. More than one of the above are correct.

Lecture 26 cerebellum

11. Which of the following statements is true regarding inputs to the cerebellum?
- A. Axons from motor cortex synapse in the medial region of the cerebellar cortex.
 - B. Axons from motor cortex synapse in the lateral region of the cerebellar cortex.
 - C. Axons from motor cortex synapse in the pontine nuclei, and neurons in the pontine nuclei synapse in the cerebellar cortex.
 - D. Axons from motor cortex synapse in the red nucleus, and neurons in the red nucleus synapse in the cerebellar cortex.
12. What is the major input to the flocculonodular lobe of the cerebellum?
- A. vestibular nuclei
 - B. pontine nuclei
 - C. spinal cord
 - D. motor cortex
 - E. thalamus

13. The major output from the cerebellum is from neurons in the ...
- A. granular cell layer.
 - B. purkinje cell layer.
 - C. molecular cell layer.
 - D. deep cerebellar nuclei.
 - E. inferior olivary nucleus.
14. The primary function of the cerebellum is to ...
- A. initiate movements.
 - B. coordinated movements and maintain balance.
 - C. generate movement plans.
 - D. initiate and maintain repetitive movements like walking.
 - E. end movements initiated by reflexes.
15. Kuru is a disease caused by ...
- A. a gene mutation.
 - B. a viral infection.
 - C. an airborne bacteria.
 - D. a misfolded protein that is usually acquired by eating it.
 - E. sorcery.

Lecture 27 autonomic

16. Where are most parasympathetic ganglia normally located?
- A. hypothalamus
 - B. brainstem
 - C. spinal cord
 - D. just outside the spinal column
 - E. near their target tissues
17. Where is the primary cerebral cortex for visceral sensation?
- A. parahippocampal gyrus
 - B. postcentral gyrus
 - C. parietal cortex just behind the postcentral gyrus
 - D. insular cortex
 - E. orbital cortex
18. Which portion of the autonomic nervous system is described as the “fight or flight” system?
- A. parasympathetic
 - B. sympathetic
 - C. enteric
19. Activation of which of the following neurons is most important for getting an erection of the penis or clitoris?
- A. preganglionic sympathetic neurons in the sacral spinal cord
 - B. preganglionic parasympathetic neurons in the sacral spinal cord
 - C. somatic motor neurons in the sacral spinal cord
 - D. enteric neurons in the wall of the venous sinusoids

Recycle from quiz 6

20. Where are the somas located for preganglionic sympathetic neurons?
- A. brainstem
 - B. cervical spinal cord
 - C. thoracic spinal cord
 - D. sacral spinal cord
 - E. More than one of the above are correct.

Lecture 28 eye movements

21. In order to see slowly moving objects in the distance when your head is still, which type of eye movement would you primarily use?
- A. vestibulo-ocular reflex
 - B. optokinetic nystagmus
 - C. smooth pursuit
 - D. fast pursuit
 - E. saccades
22. In order to look to the left, what must happen?
- A. the left lateral rectus and right medial rectus must be excited
 - B. the right lateral rectus and left medial rectus must be inhibited
 - C. the right and left lateral rectus must be inhibited
 - D. the right lateral rectus and left medial rectus must be excited
 - AB E. More than one of the above are correct.
23. Which of the following cranial nerves carries parasympathetic axons?
- A. oculomotor (CN III)
 - B. optic nerve (CN II)
 - C. trochlear nerve (CN IV)
 - D. abducens nerve (CN VI)
24. The only goal of eye movements is to maintain alignment of the two eyes so the image of an object of interest falls on both fovea. True or false?
- A. true
 - B. false
25. Which of the following is true regarding childhood onset strabismus?
- A. If it is not corrected by the end of the critical period for development of binocular vision, reduced visual acuity can occur.
 - B. It usually results in better than normal visual acuity.
 - C. It is an uncommon condition in children.
 - D. It is characterized by uncontrolled movements of the eyes.

Lecture 29 reticular formation & sleep

26. Which of the following regions does NOT contain part of the reticular formation?
- A. pons
 - B. midbrain
 - C. medulla
 - D. None of the above are correct as the reticular formation is present in all these regions.

27. Which of the following functions is NOT associated with the brainstem reticular formation?
- A. control of autonomic functions like respiration, heart rate, and vomiting
 - B. sensory attention
 - C. storage of long term memory
 - D. control of posture, balance and muscle tone
 - E. sleep and wakefulness
28. Which two nuclei are required for wakefulness?
- A. lateral geniculate nucleus and locus coeruleus
 - B. raphe nucleus and solitary nucleus
 - C. raphe nucleus and locus coeruleus
 - D. nucleus accumbens and raphe nucleus
 - E. nucleus accumbens and locus coeruleus
29. The circadian rhythm in humans is typically how long?
- A. 1-2 hours
 - B. 6-8 hours
 - C. 16-18 hours
 - D. 24-25 hours
 - E. 30-32 hours
30. Which of the following statements about REM sleep is NOT true?
- A. Breathing and blood pressure increases.
 - B. Dreaming occurs during this stage of sleep.
 - C. Movement of limb (arm and leg) muscles is inhibited.
 - D. There is low cortical activity.
 - E. Eye movements are increased.
31. Which sleep disorder if untreated can result in death?
- A. chronic insomnia
 - B. restless leg syndrome
 - C. night terrors
 - D. sleep walking
 - E. narcolepsy

Lecture 30 hypothalamus

32. In which of the following functions is the hypothalamus NOT involved?
- A. promoting a desire to eat
 - B. promoting a feeling of satiety (fullness from eating)
 - C. adjusting blood pressure
 - D. setting a circadian rhythm
 - E. None of the above are correct as all are functions associated with the hypothalamus.
33. What gland is attached via a stalk to the hypothalamus?
- A. pineal
 - B. adrenal
 - C. pituitary
 - D. salivary
 - E. thyroid

34. Which of the following hormones is made by neurons in the hypothalamus and released into the blood?
- A. corticotropin-releasing hormone
 - B. growth hormone
 - C. thyroxin
 - D. cortisol
 - E. testosterone
35. The hypothalamic portal system is a name for ...
- A. a set of axons from hypothalamic neurons that run down into the posterior pituitary gland and release hormones into capillaries there.
 - B. a set of very porous capillaries in the hypothalamus that allow hypothalamic neurons to monitor certain chemicals in the blood.
 - C. a set of arteries that run from the liver directly to the hypothalamus and are important for the release of certain hormones into the hypothalamus.
 - D. a set of capillaries in the hypothalamus that pick up hormones released by neurons in the hypothalamus that are followed by short veins and then a second set of capillaries in the pituitary where the hypothalamic hormones pass from the blood into the pituitary.
 - E. a set of veins that run from the hypothalamus directly to a number of glands including the thyroid, pancreas and adrenal glands.
36. Imagine that McDonald's asked you to develop a chemical that they could add to their food to make customers who eat their food want to order more. What properties should your chemical have to be most attractive to McDonald's?
- A. It should have properties similar to leptin.
 - B. It should block the actions of orexin.
 - C. It should mimic the actions of ghrelin.
 - D. It should block the actions of thyrotropin-releasing hormone.
 - E. More than one of the above are correct.

Lecture 31 limbic system

37. Psychopathy is associated with a deficit in connectivity from what brain region to the rest of the brain?
- A. hippocampus
 - B. nucleus accumbens
 - C. cingulate gyrus
 - D. amygdala
 - E. septal nuclei
38. Procedural memory was left intact after H.M.'s hippocampi were removed. True or false?
- A. true
 - B. false
39. What syndrome results in sufferers making up plausible lies due to an inability to form new declarative memories due to alcoholism?
- A. Kluver-Bucy syndrome
 - B. post traumatic stress disorder
 - C. Korsakoff's syndrome
 - D. Prader-Willi syndrome
 - E. Angelmann syndrome

40. In humans, increased activity in the amygdala most likely would produce what type of feeling?
- A. euphoria
 - B. affection
 - C. anxiety
 - D. depression
 - E. irritability

The End!

**Please turn in this exam and your scantron in the box at the back of the room.
Double check that your name is on both.**