## B

## **Neuroanatomy Final Exam**

## April 10, 2007

Name

There are 50 questions for this examination. Each is worth 2 points. These questions will be graded by computer and must be answered on the accompanying computer answer sheet. On the computer answer sheet, your name should be printed in the boxes indicated and the appropriate circles below each letter filled in.

Write Marino in the space provided for instructor. If your exam has an A above please write A next to Marino If you exam has a B above please write B next to Marino

On the back of the computer sheet there is a place for your signature and the date. Please fill these out.

Record your answer for each multiple choice question on the computer sheet. Mark each correct response with a #2 pencil on the answer sheet using numbers 1 - 50. If you erase be sure to erase completely.

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There is only once correct answer for each question.

Have fun and celebrate!

1. The first three neurons in the visual pathway are located in the:

- A. lateral geniculate nucleus
- B. primary visual cortex.
- C retina.
- D. optic nerve.

2. Left visual field information is carried in or to the:

- A. left optic tract
- B. left lateral geniculate nucleus.
- C) right optic radiations.
- D. right frontal lobe cortex.



3. Which one of the following does NOT contain axons of retinal ganglion cells? Refine - Optic None - Optic Ch. - Optic Tract - Lat. 6. N.)

- (A) Optic radiations.
- B. Optic nerve. ( C. Optic chiasm D. Optic tract. ke c.N.

4. Total and complete blindness in the right eye suggests that the lesion is:

(A) on the right side before (anterior to) the optic chiasm. B. on the right side after (posterior to) the optic chiasm.

- C. in the left optic radiations.
- D. in the left primary visual cortex.

5. Fibers in the visual pathway that are in the process of crossing the midline are found in the:

A Optic nerve.

B. Optic chiasm. C. Lateral geniculate nucleus.

D. Optic tract.

6. Coordinated eye movements require all of the following cranial nerves except:

(A) Olfactory.

- B. Oculomotor.
- C. Trochlear.
- D. Abducens.

7. Coordinated eye movements in the lateral or horizontal plane require which one of the following tracts?

- A. Medial lemniscus.
- B. Anterolateral system.
- C. Spinal tract of V.
- (D). Medial Longitudinal fasciculus (MLF).

8. In addition to the optic nerve, the pupillary light reflex requires which one of the following cranial nerves?

(A) Oculomotor (III).

- B. Trochlear (IV).
- C. Abducens (VI).
- D. Vestibulocochlear (VIII).

9. Neuron cell bodies that are innervating the trapezius and sternocleidomastoid muscle are found in the:

A. Midbrain.

B Spinal cord.

C. Pons.

D. Thalamus.

10. The hypothalamus in its regulation of autonomic function has its effect on which of the following areas?

A. Spinal cord.

B. Midbrain.

C. Medulla.

D. Pons.

(E.) All of the above.

11. Which one of the following does NOT form an anatomical landmark boundary for or within the hypothalamus?

(A.) Inferior olivary nucleus. B. Optic chiasm. T

C. Mammillary bodies.  $\uparrow$ 

D. Fornix. †

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12. Anatomical and vascular connections between the hypothalamus and pituitary are critical for all of the following functions, EXCEPT:

A. Control of thyroid function. T
B. Activity in the vagus nerve.
C. Control of water intake.

- D. Control of adrenal cortex secretions  $\mathcal{T}$

13. Which of the following participates in the control of body temperature regulation?

- A. Temperature receptors in the anterior hypothalamus.
- B. Descending autonomics to the brain stem and spinal cord. your dill & valocout
- C. Posterior hypothalamus.
- (D) All of the above.

14. Cell bodies in the hypothalamus synthesize and release all of the following, EXCEPT:

- (A) Thyroid stimulating hormone (TSH).
- B. Antidiuretic hormone (ADH). 7
- C. Gonadotropin releasing hormone (Gn-RH).
- D. Oxytocin. +

15. The primary descending pathway by which the hypothalamus regulates autonomic centers and nuclei is the:

lateral

- A. Corticospinal tract in the pyramids.
- (B) Descending autonomics.
- C. Vestibulospinal tract.
- D. Rubrospinal tract.

16. Preganglionic sympathetic neuron cell bodies are found in the:

- A. Pons.
- B. Midbrain.
- C. Medulla.
- (D) Spinal cord. Cervical garglions
- 17. Choose the INCORRECT pair:
  - A. Facial nerve autonomic innervation of the submandibular gland.  $\top$
  - B) Glossopharyngeal nerve autonomic innervation of the sublingual gland. F
  - C. Trigeminal nerve muscles of mastication.
  - D. Vagus nerve autonomic innervation of the heart.
  - E. All of the above are incorrect.

18. A unilateral lesion of the descending autonomics will NOT cause which one of the following?

- A. Dropping of the eyelid (ptosis).
- B. Pupillary constriction.
- (C) Major loss of parasympathetic function.
- D. Vasodilation and loss of sweating.

19. Where would you expect to find neuron cell bodies controlling bladder function?

- A. Pons.
- B. Hypothalamus. Pre Optic Area
- C. Spinal cord.
- (D) All of the above.

20. Which two cranial nerves innervate the major salivary glands (parotid, submandibular & sublingual)?

- A. Oculomotor (III) and Abducens (VI).
- B. Trigeminal (V) and Hypoglossal (XII).
- C. Vestibulocochlear (VIII) and Spinal Accessory (XI).
- (D) Facial (VII) and Glossopharyngeal (IX).

For questions 21 - 25 match the nucleus on the left with its appropriate function on the right.

VA

VL

MG

LB

21. VPL nucleus of the thalamus $\mathfrak{G}$ .	A. Sensory integration in multiple cortical regions.
22. Medial geniculate nucleus	B. Somatosensory information from the
<u> </u>	body.
23. Lateral geniculate nucleus t	C. Auditory information.
24. VA/VL nucleus	D. Initiation and coordination of
0.	movement.
25. Pulvinar A	E. Vision

While all of the structures in the right hand column may be somewhat involved in the activity listed on the left you want to pair the activity on the left with the structure most involved with that activity on the right for questions 26 - 30.

_	26. Declarative memory	A	A. Hippocampal formation
2/	27. Episodic memory	E ?,	B. Amygdala
	28. Working memory	P. My	C. Cerebellum and Basal Ganglia.
	29. Procedural memory	C. A.	D. Frontal Cortex
	30. Emotional memory	B.	E. Occipital Cortex

- 31. What neurotransmitter is found at the neuromuscular junction?
  - A. Epinephrine.
  - B Acetylcholine.
  - C. Dopamine.
  - D. Serotonin.

32. What neurotransmitter if found in substantia nigra?

A Dopamine. B. Serotonin. Raph Draingfam

- C. Epinephrine.
- D. Norepinephrine.

33. Which neurotransmitter would cause an increase in heart rate and dilation of the pupils?

A. Dopamine.

(B) Norepinephrine.

C. Acetylcholine.

D. Serotonin.

34. Which neurotransmitter is an analgesic?

A. Serotonin.

B. Acetylcholine.

CEndorphins.

D. Glutamate.

35. Over ½ of the brain synapses including the corticobulbar and corticospinal neurons use the neurotransmitter:

A. Serotonin.

B. Acetylcholine.

C. Endorphins.

DGlutamate.

For questions 36 - 40, match the region of the brain with the function. Choose the best answer and use each answer only once.



36. Eye movements A
37. The where pathway. B
38. Object identification.D
39. Vision C
40. Coordination of fine motor movements. E

For questions 41 - 45 match the cellular layer of the cortex with the correct input or output.

41. Layer II	E		A. Receives input from the thalamus
42. Layer III	D ·		B. Sends fibers to the thalamus
43. Layer IV	٨	(	<i>C</i> . Sends fibers to subcortical structures.
	H		(corticobulbars, corticospinals)
44. Layer V	<u>^</u>	27	D. Sends fibers to the cortex on the
	C		opposite side.
45. Layer VI	R	/	E. Receives and sends information to other
	D	/	areas of the cortex on the same side.

For questions 46 - 50 match the major brain region(s) with the major brain network with which it is involved.

46. Posterior parietal cortex, Frontal eye	A. Language Network.
fields, Cingulate gyrus, Prefrontal Cortex	
47. Wernicke's area, Broca's area	B. Executive function- Comportment
r (	Network.
48. Prefrontal Cortex, Medial Temporal F	C. Spatial Attention Network.
Lobe	
49. Lateral prefrontal cortex, Orbitofrontal	D. Object identification Network
cortex, Posterior parietal cortex B	/
50. Lateral Temporal Cortex D	E. Memory- Emotion Network.

Monory Right Facial Ob' - Later. Temp-

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