

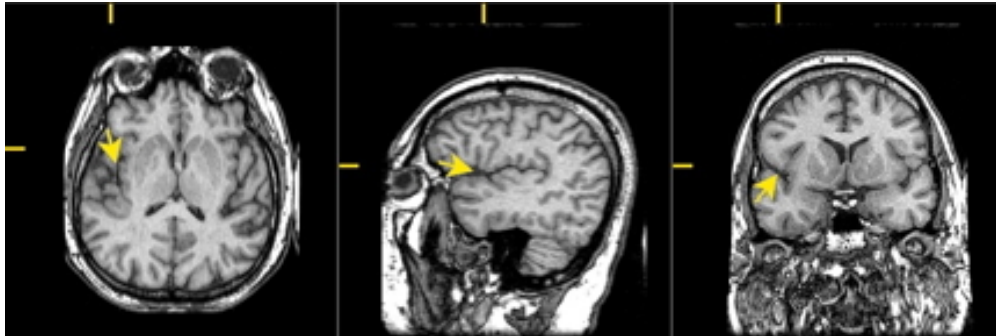
PSYCH 260-BBH 203 Exam 1

September 25, 2015

Answer the questions using the Scantron form.

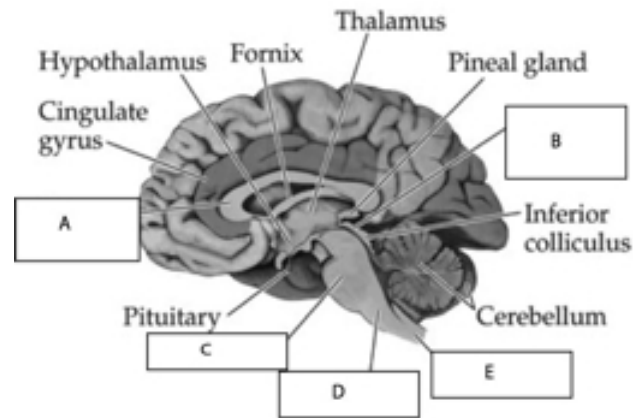
Name: _____

1 Main



1. What plane of section is represented in the left panel?
 - A. Coronal
 - B. Sagittal
 - C. Axial/horizontal**
 - D. Dorsal
2. What plane of section is represented in the middle panel?
 - A. Coronal
 - B. Sagittal**
 - C. Axial/horizontal
 - D. Dorsal
3. What plane of section is represented in the right panel?
 - A. Coronal**
 - B. Sagittal
 - C. Axial/horizontal
 - D. Dorsal
4. What fissure or sulcus is represented in the figures?
 - A. Lateral fissure**
 - B. Superior temporal sulcus
 - C. Central sulcus
 - D. Longitudinal fissure

Identify the structures labeled in the figure below.



5. Spinal cord
6. Superior colliculus
7. Corpus callosum
8. Pons
9. Medulla oblongata

Identify anatomical links between structures in the following questions.

10. Motor cortex
 - A. Temporal lobe
 - B. Frontal lobe**
 - C. Hypothalamus
 - D. Basal ganglia
 - E. Parietal lobe
11. Auditory cortex
 - A. Temporal lobe**
 - B. Frontal lobe
 - C. Hypothalamus
 - D. Basal ganglia
 - E. Parietal lobe
12. Pituitary gland
 - A. Temporal lobe
 - B. Frontal lobe
 - C. Hypothalamus**
 - D. Basal ganglia
 - E. Parietal lobe

13. Somatosensory cortex
- A. Temporal lobe
 - B. Frontal lobe
 - C. Hypothalamus
 - D. Basal ganglia
 - E. Parietal lobe**
14. Caudate nucleus
- A. Temporal lobe
 - B. Frontal lobe
 - C. Hypothalamus
 - D. Basal ganglia**
 - E. Parietal lobe

Match the structure with one of its primary functions in the following questions.

15. Hypothalamus
- A. Sexual behavior**
 - B. Metabolic, physical support of neurons
 - C. Sensory relay
 - D. Memory storage and retrieval
 - E. CNS protection
16. Dura mater
- A. Metabolic, physical support of neurons
 - B. Sensory relay
 - C. Preparation for action
 - D. Memory storage and retrieval
 - E. CNS protection**
17. Thalamus
- A. Sexual behavior
 - B. Metabolic, physical support of neurons
 - C. Sensory relay**
 - D. Preparation for action
 - E. Memory storage and retrieval

18. Hippocampus
- A. Sexual behavior
 - B. Metabolic, physical support of neurons
 - C. Sensory relay
 - D. Preparation for action
 - E. Memory storage and retrieval**
19. Sympathetic nervous system
- A. Sexual behavior
 - B. Metabolic, physical support of neurons
 - C. Sensory relay
 - D. Preparation for action**
 - E. Memory storage and retrieval
20. Which early Roman figure observed that head injuries caused mental and behavioral impairments?
- A. Galen**
 - B. Aristotle
 - C. Vesalius
 - D. Da Vinci
21. Natural philosophers in the middle ages thought that fluid from these structures inflated the muscles.
- A. Astrocytes
 - B. Meninges
 - C. Cerebral ventricles**
 - D. Circle of Willis
22. If you were interested in answering a question about how the human frontal and parietal lobes, as broad regions, respond to stimuli that change every 250 milliseconds, which of the following techniques would you use?
- A. ERP**
 - B. Multi-unit recording
 - C. MRI
 - D. Naturally occurring lesions
23. _____, a type of glial cell, help regulate local blood oxygen levels in response to neuronal activity. These cells thus contribute to the signal measured by _____.
- A. oligodendrocytes; MEG
 - B. Schwann cells; structural MRI
 - C. astrocytes; functional MRI**
 - D. microglia; structural and functional MRI

24. The layers of the meninges are organized in which of the following order, from dorsal (closest to bone) to ventral (closest to cortex)?
- A. Arachnoid membrane; Pia mater; Subarachnoid space; Dura mater
 - B. Dura mater; Arachnoid membrane; Subarachnoid space, Pia mater**
 - C. Pia mater; Subarachnoid space; Arachnoid membrane, Dura mater
 - D. Subarachnoid space; Pia mater; Dura mater; Arachnoid membrane
25. Which of the following statements regarding the blood/brain barrier is NOT true?
- A. Active transport of molecules across the membrane is typically required
 - B. Blood vessel endothelial cells are tightly packed
 - C. The entirety of the nervous system is protected by the barrier
 - D. Microglia are the primary cell type that comprises the barrier**
26. The mesencephalon is another term for the _____; it contains the tectum and tegmentum.
- A. Midbrain**
 - B. Forebrain
 - C. Hindbrain
 - D. Cerebellum
27. Which structure, located caudal to the fourth ventricle and contiguous with the spinal cord, controls many basic involuntary functions such as cardiovascular regulation?
- A. Superior colliculus
 - B. Medulla oblongata**
 - C. Pineal gland
 - D. Fornix
28. The neurotransmitters dopamine, norepinephrine, and serotonin originate from nuclei clustered in which midbrain region?
- A. Basal ganglia
 - B. Lateral geniculate nucleus
 - C. Tegmentum**
 - D. Medial frontal cortex
29. The hypothalamus is NOT responsible for which of the following functions?
- A. Fleeing
 - B. Feeding
 - C. Fighting
 - D. Falling**
30. Which of the following marks the anterior boundary of the parietal lobe?
- A. Lateral fissure
 - B. Longitudinal fissure
 - C. Central sulcus**
 - D. Inferior temporal gyrus

31. This type of myelinating cell, found in the _____, ensheaths many neurons at once.
- A. Astrocytes; PNS
 - B. Oligodendrocytes; CNS**
 - C. Schwann cells; CNS
 - D. Schwann cells; PNS
32. Nodes of Ranvier, or gaps in the myelination of an axon, serve which purpose?
- A. Increase the speed of propagation**
 - B. Allow space in the axon for neurotransmitter release
 - C. Provide structural support to the neuron
 - D. Combine input from different dendrites
33. When a neuron is “at rest,” which of the following ions are more heavily concentrated *outside* of the cell?
- A. Na⁺ and Cl⁻**
 - B. K⁺ and A⁻
 - C. Na⁺ and K⁺
 - D. Cl⁻ and A⁻
34. Which of the following is a characteristic of a neuron’s *relative* refractory period?
- A. Na⁺ channels are either open or inactive
 - B. Very strong stimulation is required to generate an action potential**
 - C. All types of ions are able to flow freely across the post-synaptic membrane
 - D. Action potentials generated during this time vary in size
35. What does the practice of trephining suggest?
- A. Those who practiced the technique knew that the inner regions of the brain were filled with fluid
 - B. Head injury impairs both behavior and thinking
 - C. Electrical stimulation changes behavior
 - D. Ancient practitioners thought that there was a link between the brain and mental function**
36. When a neuron’s membrane potential reaches threshold _____.
- A. voltage-gated K⁺ channels close
 - B. voltage-gated Na⁺ channels close and inactivate
 - C. the Na/K pump works even harder to keep the concentration balance.
 - D. voltage-gated Na⁺ channels open**

37. This part of the cell functions as the neuron's "antennae" by serving as the primary place for receiving input.
- A. Axon
 - B. Soma
 - C. Dendrites**
 - D. Terminal Buttons
38. During the rising phase of the action potential, _____ channels _____.
- A. Ligand-gated K⁺ channels; close
 - B. Voltage-gated Na⁺ channels; close
 - C. Voltage-gated Na⁺ channels; open**
 - D. Voltage-gated K⁺ channels; close
39. During the *falling* phase of the action potential, _____ ions _____.
- A. K⁺; flow out**
 - B. Na⁺; flow out
 - C. K⁺; flow in
 - D. Na⁺; flow in
40. Neurons ensheathed in myelin conduct action potentials _____ than those without myelin.
- A. more slowly
 - B. more quickly**
 - C. more slowly and efficiently
 - D. more quickly, but less efficiently

2 Bonus

41. What is NOT true about astrocytes?
- A. They are present in the brain but not in the spinal cord**
 - B. They are the most numerous type of neuroglia cells
 - C. They provide metabolic support for neurons
 - D. They contribute to the blood/brain barrier
42. Chloride ions would flow _____ along their concentration gradient. This moves the neuron _____ its firing threshold.
- A. Inward; farther from**
 - B. Inward; closer to
 - C. Outward; farther from
 - D. Outward; closer to

43. A toxin found in Japanese pufferfish blocks voltage-gated Na⁺ channels. Applying such a toxin to neurons would have what effect?
- A. Slower falling phase of the action potential.
 - B. Increasing the concentration of Na⁺ inside the cell.
 - C. K⁺ ions would accelerate their flow to compensate.
 - D. Action potentials would be abolished.**
44. The striatum is a term for the _____ and the _____.
- A. hypothalamus; thalamus
 - B. caudate nucleus; putamen**
 - C. hippocampus; amygdala
 - D. superior colliculus; inferior colliculus