

Biopsychology (Psy 308) – Sample Exam 1

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1. The first major Physiological Psychologist was
 - a. Socrates.
 - b. Plato.
 - c. **Descartes.**
 - d. Aristotle.
2. Electrical stimulation of the right primary motor cortex produces
 - a. a stinging sensation on the right side of the body.
 - b. tingling on the left side of the body.
 - c. movement of a specific area on the right side of the body.
 - d. **movement of a specific area on the left side of the body.**
3. All of the following are lobes of the cerebral cortex EXCEPT the
 - a. temporal.
 - b. parietal.
 - c. **tegmental.**
 - d. occipital.
4. When a neuron is at rest, the inside of the axon
 - a. **is negatively charged with respect to the outside.**
 - b. is positively charged with respect to the outside.
 - c. is not charged.
 - d. converts potential energy into radiant energy.
5. Two conditions associated with abnormal dopamine levels are
 - a. sleep disorders and Parkinson's disease.
 - b. Parkinson's disease and Huntington's chorea.
 - c. Alzheimer's disease and schizophrenia.
 - d. **schizophrenia and Parkinson's disease.**
6. Which of the following is the principal excitatory transmitter in the brain?
 - a. Norepinephrine.
 - b. GABA.
 - c. Dopamine.
 - d. **Glutamic acid.**
7. How many pairs of cranial nerves are there in humans?
 - a. **12.**
 - b. 23.
 - c. 31.
 - d. 32.

8. A node of Ranvier is a
- bundle of microtubules.
 - naked portion of a myelinated axon.
 - group of neural cell bodies in the central nervous system.
 - knob-like structure at the end of an axon.
9. In mammals, the superior colliculi are involved in
- auditory output.
 - regulating the autonomic nervous system.
 - hindbrain function.
 - vision.
10. The term "cortex" is the name given to the
- outer surface of the brain.
 - grooves on the outer surface of the brain.
 - white matter of the brain.
 - "primitive" area of the brain.
11. Darwin revolutionized biology by formulating the principle of
- natural selection.
 - inherited consolidation.
 - genotypical selection.
 - natural concordance.
12. Cocaine can be highly addictive because it
- increases alertness.
 - increases activity of dopaminergic neurons involved in reinforcement.
 - produces euphoria.
 - releases endogenous opiates.
13. The structure that is cut during the split-brain operation is the
- cingulate gyrus.
 - lateral fissure.
 - corpus callosum.
 - posterior commissure.
14. Autoreceptors regulate neurotransmitter release primarily by
- controlling ion channels.
 - producing changes in the membrane potential.
 - regulating the synthesis and release of the neurotransmitter.
 - all of the above.
15. A bulge or convolution of the cerebral cortex is called a
- fissure.
 - sulcus.
 - ganglion.
 - gyrus.

16. A decrease in the effectiveness of a drug that is administered repeatedly is called
- a. tolerance.**
 - b. sensitization.
 - c. addictiveness.
 - d. the therapeutic index.
17. The sites of protein synthesis are called
- a. granules.
 - b. ribosomes.**
 - c. lysosomes.
 - d. genes.
18. Another word for rostral is
- a. posterior.
 - b. superior.
 - c. anterior.**
 - d. inferior.
19. When an odor enters the right nostril, a split-brain patient would be able to
- a. say what produced the odor.
 - b. use the left hand to select objects related to the odor.**
 - c. use the right hand to select objects related to the odor.
 - d. use the right hemisphere to speak.
20. The strength or intensity of a neuronal signal (e.g. a pain signal or visual signal) is determined by
- a. The size of the action potential.
 - b. The rate of firing of a neuron.**
 - c. The type of receptor that is activated.
 - d. The type of neuron that is activated.
21. What happens to an axon when a positive charge is applied to the inside of its membrane?
- a. Hyperpolarization.
 - b. No change.
 - c. Depolarization.**
 - d. An action potential.
22. The hereditary disorder called myasthenia gravis is caused by an attack of one's immune system against _____ receptors.
- a. acetylcholine.**
 - b. dopamine.
 - c. serotonin.
 - d. glycine.
23. Which of the following is NOT given as a role for serotonin?
- a. Control of eating.
 - b. Visual perception.**
 - c. Sleep.
 - d. Regulation of pain.

24. Dopamine produces EPSPs or IPSPs depending on the
- ion channels controlled by postsynaptic receptors.
 - amount of neurotransmitter that is released.
 - presence of neuromodulators.
 - concentration of choline in presynaptic neurons.
25. Nuclei that control vital functions such as respiration are located in the
- medulla.
 - thalamus.
 - cerebellum.
 - pons.
26. Which of the following indicates the proper order of neural transmission in a neuron?
- Axon, cell body, dendrite, dendritic spine.
 - Terminal button, axon, cell body, dendrite.
 - Cell body, dendritic spine, terminal button, axon.
 - Dendrite, cell body, axon, terminal button.
27. The division of the nervous system that contains neurons which control heart and smooth muscles is the _____ nervous system.
- central.
 - peripheral.
 - autonomic.
 - somatic.
28. Acetylcholine plays a role in
- REM sleep.
 - learning and memory.
 - activation of the autonomic nervous system.
 - All of the above.
29. Which of the following statements about CSF is NOT true?
- CSF is produced by the choroid plexus.
 - The total volume of CSF is replaced twice weekly.
 - CSF cushions the brain and spinal cord.
 - The subarachnoid space is filled with CSF.
30. The hypothalamus plays a role in
- fighting.
 - eating.
 - mating.
 - All of the above.
31. The part of a cell that contains the nucleus is called the
- axon.
 - soma.
 - dendrite.
 - mitochondrion.

32. All of the following are characteristics of NMDA receptors EXCEPT
- a. they are metabotropic.
 - b. they control calcium channels.
 - c. they are important in development and learning.
 - d. they are a type of glutamate receptor.
33. The complex, diffuse network of nuclei and neural pathways located in the core of the brain stem is called the
- a. periaqueductal gray.
 - b. cerebellum.
 - c. reticular formation.
 - d. medulla oblongata.
34. All of the following are found in the cell nucleus EXCEPT
- a. chromosomes.
 - b. deoxyribonucleic acid.
 - c. genes.
 - d. sites for protein synthesis.
35. The cells that produce myelin in the peripheral nervous system are called
- a. phagocytes.
 - b. astrocytes.
 - c. oligodendrocytes.
 - d. Schwann cells.
36. Phagocytes are specialized cells that
- a. clean up neuronal debris.
 - b. regulate chemicals in the fluid surrounding neurons.
 - c. manufacture a protective neuronal sheath.
 - d. provide physical support to neurons.
37. The condition called unilateral neglect is caused by damage to the
- a. left parietal lobe.
 - b. right parietal lobe.
 - c. left temporal lobe.
 - d. right temporal lobe.
38. Noradrenergic neurons in the brain control
- a. drinking and eating.
 - b. sexual behavior.
 - c. the autonomic nervous system.
 - d. wakefulness.
39. Mutations occur from
- a. accidental changes in chromosomes.
 - b. poor adaptation to the environment.
 - c. adverse transformations after birth.
 - d. deficient conditions during gestation.

40. The cerebral cortex receives most of its input from the
- limbic system.
 - basal ganglia.
 - thalamus.**
 - medulla oblongata.
41. The function of mitochondria is to
- transport substances.
 - provide energy.**
 - package enzymes.
 - assemble proteins.
42. Which of the following sequences correctly depicts the order in which the brain is covered (from the brain outward toward the skull)?
- Dura mater, pia mater, arachnoid.
 - Arachnoid, dura mater, pia mater.
 - Pia mater, arachnoid, dura mater.**
 - Dura mater, arachnoid, pia mater.
43. One function of the specialized protein molecules in a membrane is to
- selectively allow substances to enter or leave the cell.**
 - provide oxygen and nutrients for the cell.
 - package neurotransmitters.
 - form an impermeable barrier to all substances foreign to the cell.
44. The basal ganglia are
- part of the limbic system.
 - subcortical nuclei located in the forebrain.**
 - located in the brain stem.
 - nuclei that send sensory information to the cortex.
45. A neurotransmitter may open an ion channel directly by attaching to a (an)
- metabotropic receptor.
 - G protein.
 - ionotropic receptor.**
 - second messenger.
46. The enzyme that accepts an acetate ion from coenzyme A and transfers it to a choline molecule, producing acetylcholine, is called
- acetylcholinesterase.
 - coenzyme A.
 - choline acetyltransferase.**
 - acetate cholinyltransferase.
47. Which structure is part of the limbic system?
- Basal ganglia.
 - Tectum.
 - Tegmentum.
 - Hippocampus.**

48. Alzheimer's Disease involves damage to the cholinergic neurons located in the
- Raphe nucleus.
 - Locus coeruleus.
 - Striatum.
 - Basal forebrain.**
49. The activation of second messenger cascades may give rise to
- The synthesis of new proteins.
 - Structural changes in the brain.
 - Learning and memory processes.
 - All of the above.**
50. The major types of neurons in the cerebral cortex are
- Purkinje cells.
 - Glial cells.
 - Pyramidal cells.**
 - Unipolar neurons.