

INTEGRATIVE BIOLOGY 131  
EXAMINATION II  
November 13, 2002

**I. Please choose the best answer:**

1. The Eustachian tube opens into the lateral wall of the
  - a. nasal cavity
  - b. nasopharynx
  - c. inner ear
  - d. oropharynx
  
2. Cricoid, epiglottis and thyroid cartilages are found as part of the
  - a. trachea
  - b. nasal cavity
  - c. oropharynx
  - d. larynx
  
3. What serves as both a respiratory and a digestive pathway?
  - a. oropharynx
  - b. nasopharynx
  - c. trachea
  - d. larynx
  
4. What is not a part of the root of the lung?
  - a. pulmonary artery
  - b. bronchi
  - c. cricoid cartilage
  - d. pulmonary vein
  
5. Which of the following is not part of the nasal septum?
  - a. ethmoid
  - b. nasal conchae
  - c. hyaline cartilage
  - d. vomer
  
6. The glottis is
  - a. superior to the epiglottis
  - b. anterior to the larynx
  - c. between the two true vocal chords
  - d. primarily between the cricoid and the thyroid cartilage

7. The nasolacrimal duct empties its contents into the
  - a. inferior meatus
  - b. superior turbinate
  - c. inferior conchae
  - d. middle meatus
  
8. Emphysema is caused by excessive smoking and mainly
  - a. causes too much surfactant
  - b. excites dust cells to pick up more carbon
  - c. reduces the elasticity of the elastic fibers
  - d. creates a small thoracic cavity
  
9. A region of the adult brain that does not produce new nerve cells is the
  - a. olfactory epithelium
  - b. cerebellum
  - c. dentate gyrus
  - d. precentral gyrus
  
10. The most common type of glia cell in the CNS is the
  - a. oligodendrocyte
  - b. microglia
  - c. Schwann cell
  - d. astrocyte
  
11. Schwann cells and oligodendroglia both form
  - a. surfactant
  - b. myelin
  - c. axons
  - d. neurotransmitters
  
12. Which function is not true for astrocytes?
  - a. form pial-glial membrane
  - b. stimulate formation of blood brain barrier
  - c. form myelin
  - d. store glycogen for nerve cell use

13. When a nerve cell is injured, what is not correct from the choices below?
- chromatolysis takes place
  - neuronal soma swells with fluid
  - Nissl disperses to the periphery of the soma
  - neuronal soma shrinks
14. What is not true about an axon collateral?
- branches at a node of Ranvier
  - can have either ascending or descending branches
  - occurs between glial cells
  - only comes off of the axon hillock
15. Calmodulin combines with \_\_\_\_\_ to align cytoskeleton to direct vesicles to presynaptic membrane.
- Na<sup>+</sup>
  - Mg<sup>++</sup>
  - Ca<sup>++</sup>
  - K<sup>+</sup>
16. By "hopping" on a carrier, cocaine prevents the re-uptake of
- acetylcholine
  - glutamate
  - norepinephrine
  - dopamine
17. The nervous system and the skin develop from which germ layer?
- ectoderm
  - endoderm
  - epiderm
  - mesoderm
18. The outer layer of the blastocyst forms part of the
- embryo
  - fetus
  - placenta
  - inner cell mass

19. Eating green vegetables and wheat products which contain folic acid can prevent spina bifida which occurs most commonly in the \_\_\_\_\_ region of the vertebral column.
  - a. cervical
  - b. thoracic
  - c. lumbar
  - d. sacral
  
20. The roof plate of the IV ventricle which consists of pia and ependyma forms the choroid plexus with the addition of
  - a. astrocytes
  - b. capillaries
  - c. microglia
  - d. reticular fibers
  
21. The inferior horn of the lateral ventricle is found in which lobe of the cerebral hemispheres?
  - a. frontal
  - b. parietal
  - c. temporal
  - d. occipital
  
22. Cerebrospinal fluid flows from the III ventricle into the
  - a. lateral ventricle
  - b. posterior horn
  - c. IV ventricle
  - d. aqueduct
  
23. How much CSF is in the ventricles at any one time under normal circumstances?
  - a. 700 cc
  - b. 125 cc
  - c. 25 cc
  - d. 2000 cc

24. Which cells do not come from the neural crest?
  - a. dorsal root ganglia
  - b. autonomic nervous system cells
  - c. adrenal cortex
  - d. adrenal medulla
  
25. What cranial nerves come from the hind brain?
  - a. V through XII
  - b. III and IV
  - c. I and II
  - d. IV through XII
  
26. The inferior colliculus is concerned with what function?
  - a. auditory
  - b. vision
  - c. kinesthetic sense
  - d. epicritic touch
  
27. The pons connects the cerebral cortex with the
  - a. crus cerebri
  - b. thalamus
  - c. cerebellum
  - d. basal ganglia
  
28. The little one inch long medulla oblongata has many important functions including:
  - a. cardiovascular and respiratory
  - b. vision
  - c. olfaction
  - d. conjugate eye movements
  
29. Parkinson's disease is caused by loss of nerve cells in the
  - a. thalamus
  - b. subthalamic nucleus
  - c. tegmentum
  - d. substantia nigra
  
30. A pineal gland converts neuron signals to endocrine output as
  - a. serotonin
  - b. melatonin
  - c. calcitonin
  - d. pinealotonin

**Part II. Mark A for True and B for False.**

31. The premotor cortex allows one to initially visualize the motor activity before executing it.
32. The medial orbital frontal cortex is involved in emotional functions associated with the hypothalamus and amygdala.
33. A frontal lobotomy severs the frontal cortex from the hypothalamus.
34. An injury to the superior parietal lobe (area 5 and 7) causes a person to become fastidious about his/her personal appearance.
35. If one injures the visual association area, one can still see, but not understand what the visual input means.
36. The white line of Gennari, the outer myelinated fibers of layer IV, is unique to the primary auditory cortex.
37. A lesion in Heschl's gyrus causes auditory hallucinations.
38. Ten of the twelve cranial nerves are related in function to the eye.
39. The lateral rectus eye muscle is innervated by the abducens cranial nerve.
40. The levator palpebrae eye muscle does not function if the IV cranial nerve is injured.
41. When a speck of dust lands on your cornea, the III cranial nerve is stimulated.
42. The retina is an outgrowth of the mesencephalon.
43. For you to swallow, both the VIII and XII cranial nerves are essential for these movements.
44. For you to bring your head down toward your chest, the XI cranial nerve must be intact.
45. When your tooth aches, the VII cranial nerve is firing.

46. Both the III and IV cranial nerve nuclei are in the mesencephalon or midbrain.
47. The hindbrain includes the pons, medulla, and cerebellum where the IV ventricle is also found.
48. The cerebrospinal fluid flows from the inferior horn to the body of the lateral ventricle.
49. For you to chew, the V cranial nerve is firing.
50. Broca's aphasia means you cannot speak.
51. For you to find the light switch before the light goes on requires your dorsal columns to be intact.
52. Free nerve endings are the receptors for pain.
53. Meissner's corpuscles are the receptors for refined touch.
54. All sensory pathways coming up the cord to the cerebral cortex should have at least 3 synapses.
55. The dorsal horns in the cord are motor in function.
56. Syringomyelia is a disease of the anterior horn cells.
57. Working memory is associated with the frontal cortex and recent memory with the hippocampus.
58. Presynaptic and postsynaptic cell membranes touch tightly.
59. A corticospinal tract always ends on an anterior horn cell.
60. On a pseudounipolar cell the peripheral process is myelinated.

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