

INTEGRATIVE BIOLOGY 131  
Examination II, November 12, 2003

. Mark the best answer.

1. The lateral wall of the nasal cavity has bony projections
  - a. designed to increase the surface area of the exposed respiratory epithelium.
  - b. filled with holes to cleanse the air.
  - c. to protect the masses of lymphatic nodules.
  - d. all from the ethmoid bone
  
2. Posteriorly the nasal cavity has \_\_\_\_\_ nares which communicate with the nasopharynx
  - a. two
  - b. three
  - c. four
  - d. five
  
3. Both the frontal and the maxillary sinuses drain into the
  - a. nasolacrimal duct
  - b. ciliary duct
  - c. superior meatus
  - d. middle meatus
  
4. Which structure is not part of the nasal septum?
  - a. perpendicular plate of ethmoid
  - b. vomer
  - c. vestibule
  - d. hyaline cartilage

5. Respiratory epithelium is designed to clean, warm and moisten the air. Which component does not participate in these functions?
- a. goblet cells
  - b. cilia
  - c. epiglottis
  - d. venous plexus
6. Respiratory epithelium, pseudostratified columnar epithelium with goblet cells, is not found in/on which of the following:
- a. laryngopharynx
  - b. nasopharynx
  - c. nasal cavity
  - d. vomer
7. Which does not play a role in the formation of the human voice?
- a. the medial elastic ligament *or vocal fold*
  - b. the lateral elastic ligament
  - c. the thyroarytenoid muscle
  - d. the glottis
8. Cancer of the lung commonly starts in the bronchi which lie between the
- a. alveoli and terminal bronchioles
  - b. alveoli and respiratory bronchioles
  - c. trachea and bronchioles
  - d. terminal bronchioles and the respiratory bronchioles

9. Neurogenesis or the formation of new nerve cells does not take place in the adult
- olfactory epithelium
  - granule cells of the cerebellum
  - anterior horn of the spinal cord
  - dentate gyrus in the telencephalon
10. Schwann cells are a type of glial cell which form
- oligodendrocytes
  - neurotubules which guide axoplasm down the axon
  - myelin around peripheral nerves
  - endothelium in blood vessels
11. The initial segment of an axon has which of the following characteristics
- the highest threshold of any part of the nerve fibers
  - is filled with Nissl substance
  - arises from an axon collateral
  - the lowest threshold of any part of the axon
12. The more myelin surrounding an axon
- the faster the impulse
  - the slower the impulse
  - the Schwann cells are smaller
  - no impulse can occur
13. Which is incorrect regarding nodes of Ranvier?
- collaterals sprout here
  - no myelin is present
  - Nissl substance is beneath the axon membrane
  - Saltatory conduction occurs here

14. Which of the following is not correct regarding astrocytes?
- a. all processes are the same; there are no axons and dendrites
  - b. influence the development of the Blood Brain Barrier
  - c. store glycogen to provide a fuel source for nerve cells
  - d. form the dural glial membrane around the CNS
15. Which is not correct regarding microglia?
- a. they are mesodermal in origin
  - b. they migrate into the CNS along blood vessels
  - c. they form the pial-glial membrane
  - d. they are phagocytic
16. Presynaptic vesicles fuse with \_\_\_\_\_ during impulse conduction.
- a. calmodulin
  - b. Nissl
  - c. postsynaptic membrane
  - d. presynaptic membrane
17. If a person has her/his dorsal root nerve fibers cut, what cells show chromatolysis?
- a. anterior horn cells
  - b. dorsal root ganglion cells
  - c. dorsal horn cells
  - d. lateral horn cells

18. A person with a spinal cord injury is unable to execute movements with the left hand. Where is a possible injury?
- a. posterior horn
  - b. lateral spinothalamic tract
  - c. lateral cortical spinal tract
  - d. dorsal root ganglia
19. The region around the CNS containing CSF (cerebrospinal fluid) is called the \_\_\_\_\_ space.
- a. epidural
  - b. subdural
  - c. pial
  - d. subarachnoid
20. The second neuron in the pain and temperature pathway is located in the
- a. medulla
  - b. substantia gelatinosa
  - c. thalamus
  - d. dorsal root ganglion
21. The spinal cord is anchored to the coccyx by the
- a. denticulate ligaments
  - b. filum terminale
  - c. sacral nerve roots
  - d. dural sac
22. A spinal nerve to the upper and lower extremities contains
- a. only afferent fibers
  - b. both afferent and efferent fibers
  - c. only efferent fibers
  - d. none of the above

23. The longitudinal fissure separates the two cerebral hemispheres. If you cut down through the fissure, what structure do you cut through first?
- a. Corpus callosum
  - b. basal ganglia
  - c. thalamus
  - d. corpora quadrigemina
24. A patient with damage to the cerebellum would probably exhibit
- a. absence of the patellar reflex
  - b. inability to perform voluntary movements
  - c. inability to speak
  - d. inability to execute smooth, precise coordinated movements
25. The vital centers for the control of heart beat and respiration are located in the
- a. cerebrum
  - b. cerebelum
  - c. medulla oblongata
  - d. basal ganglia
26. The cerebrospinal fluid is formed by the choroid plexus at the rate of 700 cc per day. Where would you find some of this fluid?
- a. thalamus
  - b. ventricle
  - c. Cerebral cortex
  - d. Cerebellar cortex

27. The axons originating in Area 4, the precentral gyrus, cross in what part of the central nervous system?
- a. pons
  - b. medulla
  - c. cerebral peduncles
  - d. anterior commissure
28. The axons originating from the substantia gelatinosa cross in what part of the spinal cord?
- a. posterior horn
  - b. posterior funiculus
  - c. posterior white commissure
  - d. anterior white commissure
29. The pain and temperature fibers synapse
- a. immediately upon entering the cord
  - b. 1-2 segments below their point of entry into the cord
  - c. in Lissauer's fasciculus
  - d. 1-2 segments above their point of entry into the cord
30. A person whose right eye ball deviates continuously to the right has damage to what nerve?
- a. III
  - b. IV
  - c. abducens
  - d. trigeminal

31. Which cranial nerve allows you to feel a speck of dust on your cornea or a gentle breeze on your cheek?

- a. glossopharyngeal
- b. facial
- c. trigeminal
- d. trochlear

32. What part of the brain stem connects the cerebral cortex to the cerebellar cortex.?

- a. thalamus
- b. pons
- c. medulla
- d. basal ganglia

33. A portion of the brain related to recent memory processing is the

- a. cerebellum
- b. hippocampus
- c. corpora quadrigemina
- d. substantia nigra

34. Medial strabismus is the name given to crossed eyes.

What cranial nerve could be damaged?

- a. II
- b. III
- c. IV
- d. VI

35. What is the area of the cerebral cortex called which helps you plan what you are going to do for the Holidays?

- a. Broca's area
- b. Wernicke's area
- c. Supplementary motor area (medial area 6)
- d. Angular gyrus (area 39)



36. The interventricular foramen is found between the lateral and third ventricle. What is the name of the part of the central canal between the III and IV ventricle?
- a. aqueduct
  - b. canal Schlemm
  - c. parietal ventricle
  - d. Heschl's canal
37. Which function is not associated with the frontal lobe?
- a. seeing
  - b. speaking
  - c. hearing
  - d. planning ahead
38. Multiple sclerosis is a demyelinating disease of the CNS. What cells form myelin in the CNS?
- a. astrocytes,
  - b. microglia
  - c. pericytes
  - d. oligodendrocytes
39. Inability to localize a sound can be a defect in the
- a. superior frontal lobe
  - b. superior colliculus
  - c. superior temporal gyrus
  - d. inferior parietal lobe
40. Inability to recognize by touch is called asteriognosis. Which area of the cerebral cortex is involved?
- a. middle temporal gyrus
  - b. superior occipital lobe
  - c. basal ganglia
  - d. inferior parietal lobe

41. A patient has problems with temperature control, water regulation, sleep and hormonal control over the gonads. Where is the abnormality?
- thalamus
  - hypothalamus
  - cerebral cortex
  - inferior colliculus
42. Cataracts are due to
- protein changes in the lens of the eye
  - endolymph increases in the lens
  - mucous membrane infiltration of the lens
  - cloudiness in the cornea
43. **Which** is not correct for the organ of Corti?
- it was used to play Mozart's minuet in G
  - it consists of hair cells sitting on a basilar membrane
  - the nerve fibers surrounding the hair cells are dendrites of nerve cells whose axons form the auditory nerve.
  - vibrations of the basilar membrane cause the hairs to touch the tectorial membrane
44. The cornea consists of \_\_\_\_\_ which have no blood vessels amongst them.
- clear cartilage cells to support contact lenses.
  - transparent collagenous fibers
  - transparent reticular fibers
  - only clear epithelial cells
45. The tarsal plates are made of dense connective tissue to give shape to the
- cheek bones
  - eyelids
  - Eustachian tube
  - Middle ear

46. Conjunctiva is a mucous membrane found on the
- posterior surface of the cornea
  - anterior surface of the eyelid
  - posterior surface of the eyelid
  - posterior surface of the iris
47. Blockage of the canals of Schlemm at the junction of the cornea and sclera cause
- degeneration of the III cranial nerve
  - increased intraocular pressure found in glaucoma
  - decreased amount of aqueous humor
  - conjunctivitis
48. What is not correct about the fovea centralis?
- only cones are found here
  - it is found in the center of the macula lutea
  - acute vision is concentrated here
  - only rods are present
49. Contraction of the muscles of the ciliary body cause a (an)
- decrease in the diameter of the lens
  - increase in the diameter of the lens
  - increase in the size of the cornea
  - decrease in the diameter of the pupil
50. The basal ganglia modify
- sensory input to the thalamus
  - skeletal muscle control
  - prefrontal cortical neurons
  - emotions from the inferior medial frontal gyrus

**EDUCATION IS THE ONLY ROAD TO PEACE.**