

**Integrative Biology 245 exam #III**  
**May 13, 2008**

Please choose the best answer

1. The primary olfactory cortex includes the
  - a. entorhinal cortex and the parahippocampal cortex
  - b. olfactory tubercle and the diagonal band of Broca
  - c. pyriform cortex and the periamygdaloid cortex
  - d. perirhinal cortex and the dentate gyrus
  
2. The limbic system functions include
  - a. memory
  - b. olfaction
  - c. emotions and drives
  - d. all of the above
  
3. The hippocampal complex or formation forms the
  - a. floor of the inferior or temporal horn of the lateral ventricle
  - b. floor of the anterior horn
  - c. floor of the posterior horn
  - d. none of the above
  
4. In addition to the mitral and tufted cells, the olfactory bulb includes
  - a. molecular cells
  - b. basal cells
  - c. granule cells
  - d. polymorphic cells
  
5. The hypophyseal portal system goes between the median eminence of the hypothalamus and
  - a. posterior pituitary gland
  - b. lacrimal gland
  - c. anterior pituitary gland
  - d. thalamus
  
6. The amygdala lies \_\_\_\_\_ to the tip of the inferior (temporal) horn.
  - a. posterior
  - b. anterior
  - c. inferior
  - d. ventral

7. Shaffer collaterals possibly reinforce memory mechanisms by directly synapsing on
  - a. dentate gyrus granule cells
  - b. entorhinal pyramidal cells
  - c. hippocampal pyramidal cells
  - d. parahippocampal granule cells
  
8. The cornus ammonis (CA) is found in the
  - a. frontal lobe
  - b. temporal lobe
  - c. parietal lobe
  - d. insula
  
9. One of the first areas to show plaques and tangles characteristic of Alzheimer's disease is the
  - a. entorhinal cortex
  - b. post central gyrus
  - c. amygdaloid nucleus
  - d. precentral gyrus
  
10. Which cell body is not found in the olfactory epithelium?
  - a. mitral cell
  - b. bipolar neuron
  - c. supporting cell
  - d. basal cell
  
11. The axons from the \_\_\_\_\_ supply inhibitory functions to the olfactory bulb granule cells
  - a. mitral cells
  - b. tufted cells
  - c. anterior olfactory nucleus
  - d. posterior olfactory nucleus
  
12. Which olfactory stria does not supply the amygdala either directly or indirectly?
  - a. lateral
  - b. medial
  - c. superior
  - d. intermediate
  
13. The medial olfactory stria influences the amygdala through the
  - a. diagonal band of Broca
  - b. fornix
  - c. stria terminalis
  - d. median forebrain bundle

14. Branchiomic muscles, embryonic gill arches, refer to \_\_\_\_ muscles in the adult
- arm
  - back
  - head and neck
  - eye
15. Which nucleus is not found in the arbor vitae of the cerebellum?
- dentate
  - emboliform
  - fastigial
  - corticomedial
16. Purkinje cells axons project to the
- inferior olivary nucleus
  - lateral reticular nucleus
  - cerebellar nuclei
  - red nucleus
17. Having received fibers from the cerebral cortex, the pontine nuclei project to the \_\_\_\_\_ of the cerebellum to influence skilled movements.
- anterior lobe
  - posterior lobe
  - inferior lobe
  - floccular-nodular lobe
18. The brachium conjunctivum carries the \_\_\_\_\_ dentato-rubro tract to the red nucleus.
- olivo
  - cortico
  - spino
  - cerebello
19. Purkinje axons go directly to the vestibular nuclei in the medulla via the
- superior cerebellar peduncles
  - middle cerebellar peduncles
  - restiform body
  - brachium conjunctivum
20. Climbing fibers from the inferior olivary nucleus synapse with the dendrites of the
- superior olivary nucleus
  - stellate cells
  - basket cells
  - Purkinje cells

21. Axons from the only excitatory neuron in the cerebellar cortex synapse with \_\_\_\_\_ dendrites.
- stellate cell
  - basket cell
  - Purkinje cell
  - granule cell
22. Golgi II cells in the granular layer of the cerebellar cortex keep the firing rate of the \_\_\_\_\_ cells constant
- Purkinje
  - basket
  - granule
  - emboliform
23. The anterior nucleus of the hypothalamus serves which two functions.
- sympathetic and parasympathetic
  - mating behavior and hormonal regulation
  - temperature regulation and parasympathetic
  - rage and appetite
24. The arcuate nucleus of the hypothalamus regulates the hormonal output of the anterior pituitary through the hypothalamic-\_\_\_\_\_portal system.
- posterior pituitary
  - hypophyseal
  - cerebellum
  - pontine
25. Both the lateral nucleus and the \_\_\_\_\_medial nucleus regulate appetite in the hypothalamus.
- basal
  - posterior
  - ventral
  - anterior
26. The mammillary bodies play a role in \_\_\_\_\_mechanisms.
- memory
  - hunger
  - sympathetic nervous system
  - uterine contraction
27. Which is not a function of the hypothalamus?
- antidiuretic control
  - smooth muscle contraction
  - circadian rhythm regulation
  - taste bud control

28. The dorsal longitudinal fasciculus in the hypothalamus extends from the periventricular nucleus to the
- posterior horn
  - lateral horn
  - anterior horn
  - Clarke's column
29. The fornix has both afferent and efferent fibers extending between the
- hippocampus and the septal area
  - preoptic nucleus and the anterior pituitary
  - lateral olfactory stria and the arcuate nucleus
  - supraoptic nucleus and the posterior lobe
30. Which structure is not related directly to the fornix?
- fimbria
  - precommissural fibers to septal area
  - postcommissural fibers to mammillary bodies
  - diagonal band of Broca
31. Efferent fibers from the substantia nigra connect with the
- thalamus
  - globus pallidus
  - caudate and putamen
  - subthalamus
32. Which symptom is not characteristic of Parkinson's disease?
- shuffling gait
  - intension tremor
  - tremor at rest
  - mask-like facial expression
33. Which "pair" is incorrect?
- prefrontal and caudate
  - premotor and putamen
  - caudate-putamen and striatum
  - tail of caudate and floor of inferior horn
34. The nucleus accumbens is found
- where the head of caudate meets with the anterior portion of putamen
  - in the floor of the lateral ventricle
  - in the lateral wall of the anterior horn of lateral ventricle
  - in the medial wall of posterior horn of lateral ventricle

35. Afferent fibers to the cerebellum do not include the
- vestibulocerebellar fibers
  - cochleocerebellar fibers
  - posterior spinocerebellar tract
  - anterior spinocerebellar tract
36. The ascending vestibular fibers in the medial longitudinal fasciculus project to the following areas with the exception of the
- abducens nucleus
  - trochlear nucleus
  - oculomotor nucleus
  - postcentral gyrus
37. Taste impulses from the anterior two-thirds of the tongue reach the
- solitary nucleus (nucleus solitarius)
  - superior salivatory nucleus
  - dorsal motor X
  - nucleus ambiguus
38. Afferent fibers of the mesencephalic nucleus of the trigeminal nerve convey impulses from the
- teeth
  - hard palate
  - muscles of mastication
  - temporomandibular joint
39. The auditory radiation projects to the
- postcentral gyrus
  - precentral gyrus
  - transverse temporal gyri of Heschl
  - parietal cortex
40. All of the following neurons are involved in the auditory pathway except the
- cells of the spiral ganglion
  - cells of dorsal and ventral cochlea nuclei
  - nuclei of the superior olivary complex
  - nuclei of the inferior olivary complex
41. The vestibular portion of the inner ear does not include the
- semicircular canals
  - trapezoid body
  - utricle
  - sacculle

42. The following cranial nerves are present at the junction of the medulla, cerebellum and pons except the
- a. cochlear
  - b. vestibular
  - c. facial and abducens
  - d. trochlear

43. Which of the following characteristics of Purkinje cells is not correct? They have:
- a. a flask-shaped cell body
  - b. axons to deep cerebellar nuclei
  - c. soma which receive basket cell axons
  - d. axons which synapse with granule cell parallel fibers.

44. Right homonymous hemianopsia may result from lesions in what area?
- a. right optic tract
  - b. right optic nerve
  - c. left optic tract
  - d. left optic nerve

45. A case had the following symptoms:  
unsteady walking, poor hearing, loss of corneal reflex, drooping left corner of mouth, inability to close left eye, hearing reduced in left ear, difficulty chewing, weakness of muscles of mastication

Which nerve is not involved?

- a. III
- b. V
- c. VII
- d. VIII

46. A case had the following symptoms:  
alcoholic with uncoordinated gait, broad based gait, minor difficulty with finger to nose test, minor dysdiadokokinesis, heel to knee difficulty, no muscle weakness

Which condition was the cause of these symptoms?

- a. alcoholic globus pallidus degeneration
- b. " subthalamus "
- c. " cerebellum "
- d. none of the above

47. The internal segment of the globus pallidus influences the thalamus which in turn influences the \_\_\_\_\_.
- a. cerebellum
  - b. cerebral cortex
  - c. inferior colliculus
  - d. substantia nigra
48. Most cortical influences on the basal ganglia come from the \_\_\_\_\_ lobe.
- a. parietal
  - b. temporal
  - c. frontal
  - d. occipital
49. The lentiform nucleus includes the
- a. subthalamus and caudate
  - b. caudate and putamen
  - c. globus pallidus and putamen
  - d. putamen and thalamus
50. Which of the following does not develop as a result of a lesion of the oculomotor nerve with the post ganglionic fiber from the ciliary ganglion?
- a. ptosis of the upper eye lid
  - b. constriction of the pupil
  - c. paralysis of the medial rectus extraocular eye muscle
  - d. paralysis of the inferior rectus extraocular eye muscle

**LOVE CONQUERS FEAR.**