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EXAMI
INTEGRATIVE BIOLOGY 245, NEUROANATOMY
FEBRUARY 20, 2007

PART I. True (A) or False (B)

- A 1. Obstruction of pontine arteries can cause hemiplegia because the motor fibers from the cerebral cortex pass through the ventral pons.
- B 2. Blood leaking into the space between the bone of the calvarium and the periosteal dura can cause a subdural hematoma.
- B 3. The dorsal or posterior root carries both motor and sensory fibers.
- B 4. A ventral anterior ramus carries only motor fibers.
- B 5. The posterior horns are largest in the thoracic area.
- B 6. The sympathetic components of the autonomic nervous system are associated only with the cervical segments of the cord.
- B 7. The diaphragm, part of the respiratory system, is innervated mostly by the fourth cervical nerve, forming the phrenic nerve. Respiratory centers superior to C4 regulate rhythmic breathing. Therefore, an injury to the cord inferior to C4 is very serious and could mean death.
- B 8. The anterior cerebral artery gives off hair-like lateral lenticulostriate arteries to the basal ganglia and internal capsule.
- B 9. The common carotid artery bifurcates into the internal and external carotid arteries at the inferior border of the thyroid cartilage, one of the laryngeal cartilages on the anterior side of the neck.
- B 10. The middle meningeal artery supplies most of the lateral and anterior surface of the cerebral dura mater.
- B 11. The posterior cerebral artery supplies both Broca's area and the choroid plexus of the III ventricle.
- A 12. The cavernous sinus is located on the lateral sides of the sella turcica.
- B 13. Complete blockage or stenosis of the posterior spinal artery causes a TIA, a trans ischemic attack.
- A 14. The calcar avis, an eminence on the medial wall of the posterior horn of the lateral ventricle is caused by the presence of the calcarine fissure in the occipital lobe.

- B 15. The three areas which have no choroid plexus in the cerebral ventricles are the: anterior horn, posterior horn and body of the lateral ventricle.
- A 16. The atrium, or collateral trigone, is the junction of the body, the inferior and the posterior horns of the lateral ventricles.
- A 17. The medulla, pons, cerebellum, midbrain, posterior cerebrum are supplied by vertebrals.
- B 18. The middle cerebral artery gives rise to the ophthalmic artery.
- A 19. The median eminence and the area postrema have no blood barrier.
- A 20. The superior longitudinal or sagittal sinus drains into the transverse sinus which becomes the sigmoid sinus which drains into the internal jugular vein in the neck.

Part II. Please give the BEST answer.

21. In the adult spinal cord the ___ is formed from the alar plate.
- anterior horn
 - posterior horn
 - lateral horn
 - anterior white commissure
22. The glial cells that form the pial glial membrane are the
- oligodendrocytes
 - microglia
 - astrocytes
 - ependymal cells
23. Which is not a derivative of the neural crest cells?
- dorsal root ganglion
 - sensory ganglia of cranial nerves
 - substantia nigra
 - adrenal medulla
24. The anterior spinal artery, a branch of the _____, is found in the anterior median fissure of the spinal cord.
- basilar artery
 - pontine arteries
 - posterior inferior cerebellar artery
 - vertebral artery

25. What glial cell induces the formation of the blood brain barrier?
- ependymal cells
 - oligodendrocyte
 - Schwann cell
 - astrocyte
26. Which glial cells increase in number in Alzheimer's disease?
- microglial cells
 - nonphagocytic cells
 - astrocytes
 - oligodendrocytes
27. Which is true of glial cells?
- have an action potential
 - form synapses
 - all processes are the same on a single glial cell
 - do not divide after birth
28. Which structure is not part of the choroid plexus?
- ependymal cells
 - capillary endothelial cells
 - perivascular feet of oligodendrocytes.
 - pia mater
29. What is not a characteristic of a node of Ranvier?
- collaterals arise here
 - no myelin
 - found on a pyramidal cell dendrite
 - is between two Schwann cells
30. When an action potential reaches the presynaptic terminal, ___ combines with calmodulin to form a 'substructure' to guide vesicles to the presynaptic membrane.
- Na⁺
 - K⁺
 - ~~Ca²⁺~~ Ca⁺⁺
 - Cl⁻
31. An example of a Golgi I cell is a
- granule cell
 - stellate cell
 - bipolar cell
 - pyramidal cortical cell

32. From what division of the neural tube does the hippocampus arise?
- medial diencephalon
 - lateral telencephalon
 - medial telencephalon
 - lateral diencephalons
33. The most rostral part of the original neural tube is called the
- tegmentum
 - tegmentum
 - isthmus
 - lamina terminalis
34. The cerebral cortex and the cerebellar cortex are connected by what massive structure?
- corpus callosum
 - cerebral colliculi
 - pons
 - posterior commissure
35. From what part of the neural tube is the retina derived?
- telencephalon
 - diencephalon
 - mesencephalon
 - metencephalon
36. What structure is found in the floor of the III ventricle?
- optic chiasm
 - pineal gland
 - anterior commissure
 - foramen of magendie
37. The dura mater superior to the pituitary gland and inferior to the hypothalamus is called the
- sella turcica
 - tentorium hypophysis
 - superior tentorium
 - diaphragma sellae
38. Arachnoid villi are found in the superior longitudinal (sagittal) sinus and serve what function?
- site of formation of the CSF
 - site of drainage of CSF
 - produce cerebral spinal fluid
 - increase absorption of Na⁺

39. The first branches off the ascending aorta are the right and left _____ arteries to supply the heart itself?
- carotid
 - spinal
 - coronary
 - brachiocephalic
40. The thin labyrinthine artery is a branch of the _____ artery, destined for the inner ear to supply our hearing and equilibrium receptors.
- posterior inferior cerebellar
 - superior cerebellar
 - anterior inferior cerebellar
 - basilar
41. An area where the ^{PIA}pa and arachnoid separate and is filled with CSF is called
- cistern
 - fossa
 - cubical
 - lacunae
42. An important blood supply to the medulla oblongata comes from the
- anterior inferior medullary artery
 - posterior inferior medullary artery
 - posterior inferior cerebellar artery
 - anterior inferior cerebellar artery
43. Which is not formed from the inner cell mass of the early embryonic disc?
- ectoderm
 - mesoderm
 - entoderm
 - rectoderm
44. The _____ clasp the surface of the ovary and guide the discharged ovum into the Fallopian or uterine tube.
- mesosalpinx
 - fimbria
 - mesovarium
 - broad ligaments
45. The hypothalamus forms from the
- diencephalon
 - mesencephalon
 - metencephalon
 - myelencephalon

46. What does not develop from the metencephalon?
- a. cerebellum
 - b. pons
 - c. cranial nerves VI and VII
 - d. cranial nerve XII
47. The corpus striatum (caudate and putamen) develop from what part of the neural tube?
- a. diencephalon
 - b. mesencephalon
 - c. telencephalon
 - d. metencephalon
48. Injury to the _____ can stop someone from smoking instantly.
- a. globus pallidus
 - b. insula
 - c. internal capsule
 - d. thalamus
49. Subcortical white matter of the cerebrum
- a. only consists of myelinated fibers coming from the cortex
 - b. only consists of myelinated fibers going to the cortex
 - c. consists of myelinated fibers going to and coming from the cortex
 - d. includes the cerebral peduncles
50. Lissauer's fasciculus carries _____ fibers.
- a. epicritic touch fibers
 - b. protopathic touch fibers
 - c. pain
 - d. pressure

THE WORD "DOCTOR" MEANS TEACHER. TRY TEACHING SOMEONE AND SEE HOW MUCH BETTER YOU LEARN.