I. Part I. Choose the BEST answer:

1. Which is not a derivative of the neural crest cells?
   a. dorsal root ganglion
   b. sensory ganglia of cranial nerves
   c. substantia nigra
   d. adrenal medulla

2. The glial cells that form the pial glial membrane are
   a. oligodendrocytes
   b. microglia
   c. astrocytes
   d. ependymal cells

3. Which cells are not related myelin formation?
   a. oligodendrocytes
   b. Schwann cells
   c. nerve cells
   d. astrocytes

4. The anterior spinal artery is found in the
   a. anterior median fissure
   b. anterior lateral sulcus
   c. posterior median sulcus
   d. anterior intermediate sulcus

5. The notochord induces the________to form the neural plate.
   a. nucleus pulposus
   b. mesoderm
   c. ectoderm
   d. endoderm

6. What glial cell induces for the formation of the blood brain barrier?
   a. ependymal cell
   b. astrocyte
   c. oligodendrocyte
   d. Schwann cell
7. Which glial cells increase in number in Alzheimer's disease?
   a. microglial cells
   b. nonphagocytic cells
   c. astrocytes
   d. oligodendrocytes

8. Which is true of glial cells?
   a. have action an potential
   b. form synapses
   c. all processes the same
   d. do not divide after birth

9. Which structure is not part of the choroid plexus?
   a. perivascular feet of oligodendrocytes
   b. ependyma cells
   c. capillary endothelial cells
   d. pia mater

10. Which is not a characteristic of a node of Ranvier?
    a. collaterals arise here
    b. no myelin
    c. between two Schwann cells
    d. found on a pyramidal cell dendrite

11. When an action potential reaches the presynaptic terminal, ______ combines with calmodulin to form a "substructure" to guide vesicles to the presynaptic membrane.
    a. Na++
    b. Mg++
    c. Ca++
    d. Cl-

12. An example of a Golgi I cell is a
    a. granule cell
    b. stellate cell
    c. bipolar cell
    d. pyramidal cell

13. Which is not a derivative of the mesencephalon?
    a. superior colliculus
    b. hypothalamus
    c. cerebral peduncles (crus cerebri)
    d. III cranial nerve
14. From what division of the neural tube does the hippocampus arise?
   a. medial diencephalon
   b. lateral telencephalon
   c. medial telencephalon
   d. lateral diencephalon

15. The most rostral part of the original neural tube is called the
   a. isthmus
   b. tectum
   c. tegmentum
   d. lamina terminalis

16. The cerebral cortex and the cerebellar cortex are connected by what structure?
   a. corpus callosum
   b. pons
   c. cerebral colliculi
   d. anterior commissure

17. What structure is found in the roof of the III ventricle?
   a. choroid plexus
   b. foramen of Magendie
   c. foramen of Luschka
   d. pineal gland

18. What structure is not found in the floor of the III ventricle?
   a. the stria medullaris of the epithalamus
   b. mammillary bodies
   c. median eminence
   d. optic chiasm

19. From what part of the neural tube is the retina derived?
   a. telencephalon
   b. diencephalon
   c. mesencephalon
   d. metencephalon

20. The paleocortex is associated with what function?
   a. motor control
   b. balance
   c. olfaction
21. The pachymeninges is associated with what structure?
   a. pia mater
   b. arachnoid
   c. arachnoid granulations
   d. falx cerebri

22. The dura mater superior to the pituitary gland and inferior to the hypothalamus is called the
   a. sella turcica
   b. tentorium hypophysis
   c. diaphragma sellae
   d. superior tentorium

23. Arachnoid villi are found in the superior longitudinal (sagittal) sinus and serve what function?
   a. a site of formation of cerebral spinal fluid
   b. a site of drainage of cerebral spinal fluid
   c. produce cerebral spinal fluid
   d. increase absorption of Na+

24. The first branches off the ascending aorta are the right and left coronary arteries to supply the heart itself.

25. An area where the pia and arachnoid separate and are filled with a "pond" of CSF is called a
   a. cistern
   b. fossa
   c. cubical
   d. lacunae

26. The labyrinthine artery is a branch of the_______artery, destined for the inner ear to supply our hearing and equilibrium receptors.
   a. posterior inferior cerebellar
   b. anterior inferior cerebellar
   c. superior cerebellar
   d. basilar
27. In the adult spinal cord the _______ is formed from the alar plate.
   a. posterior horn
   b. anterior horn
   c. lateral horn
   d. anterior white commissure

28. The function of the habenular nucleus is
   a. part of the visual pathway
   b. part of the auditory pathway
   c. part of the motor pathway
   d. a site of convergence of limbic forebrain pathways that convey impulses to the rostral portions of the midbrain (d. is correct, a learning question; mark d on scantron)

29. An important blood supply to the medulla oblongata comes from
   a. anterior inferior medullary artery
   b. posterior inferior medullary artery
   c. posterior inferior cerebellar artery
   d. anterior inferior cerebellar artery

30. The cisterna magna is found
   a. inferior to L1 and L2
   b. superior to the superior colliculus
   c. inferior to the cerebellum and superior to the roof of the IV ventricle
   d. inferior to the foramen magnum

Part II. Mark A for True and B for false.

31. The middle cerebral artery gives rise to the ophthalmic artery.

32. The inferior and medial temporal lobe is supplied by the posterior cerebral artery.

33. Venous blood from the internal forebrain drains eventually into the straight sinus.

34. The median eminence and the area postrema have a very well developed blood brain barrier.
35. Obstruction of the pontine vessels can cause hemiplegia because the motor fibers from the cerebral cortex pass through the pons.

36. Large afferent fibers going into the DRG can carry impulses up to 120 meters/second.

37. Blood leaking into the space between the bone of the skull and the periosteal dura can cause a subdural hematoma.

38. The dorsal root carries both motor and sensory fibers.

39. A ventral or anterior ramus carries only motor fibers.

40. The posterior horns are largest in the thoracic region of the cord.

41. The sympathetic and parasympathetic components of the autonomic nervous system are associated only with the cervical segments of the cord.

42. Fasciculi found in the funiculi of the cord and carry specific functional pathways.

43. The diaphragm related to the respiratory system is innervated mostly by the fourth cervical nerve forming the phrenic nerve. Therefore, an injury to the cord superior to C4 is very serious and could mean death.

44. The middle cerebral artery gives off the hair-like lateral lenticulo striate arteries to the basal ganglia and internal capsule.

45. The common carotid artery bifurcates into the internal and external carotids arteries at the superior border of the thyroid cartilage, one of the laryngeal cartilages on the anterior side of the neck.

46. The middle meningeal artery supplies most of the lateral surface of the cerebral dura mater, part of the leptomeninges.

47. The posterior cerebral artery supplies both Wernicke's and Broca's areas.
48. The middle cerebral vein drains into the cavernous sinus.

49. The cavernous sinus is on the anterior/posterior sides of the sella turcica.

50. Blockage or stenosis of the posterior spinal artery causes a TIA, trans ischemic attack.

51. The calcar avis is formed by the calcarine fissure on the inferior surface of the frontal lobe.

52. The three areas which have no choroid plexus in the cerebral ventricles are: anterior horn, posterior horn and body of the lateral horn.

53. The atrium or collateral trigone is the junction of the body, the inferior and the posterior horns of the lateral ventricles.

54. The floor of the fourth ventricle is formed by the pons cranially and the medulla caudally.

55. The medulla, pons, cerebellum, midbrain, posterior cerebrum are all supplied by arteries initially supplied by the vertebrals.

56. Only the lateral anterior cerebrum is supplied by the anterior cerebral artery.

57. The average latent period until functional maturity after distal nerve injuries is 20 days after crush and 50 days after suture. (True, mark A. a learning question)

58. Symptoms of a lower motor neuron damage include: paralysis, loss of reflexes, atrophy and reduced sensations.

59. The femoral nerve (L2-L4) sends impulses to the flexors of the leg.

60. The sciatic nerve (L4-S3) is the largest nerve in the body and supplies innervation to the posterior thigh muscles and leg.

61. A ruptured or herniated intervertebral disc may lead to compression of spinal nerve roots as they approach the
intervertebral foramen or the foramina may be narrowed due to osteoarthritis.

62. One of the best known nerve stretching mechanisms is the straight leg-raising test. In a person lying supine with the legs extended, elevation of one extended (straightened) leg by flexion of the thigh at the hip causes stretching of the sciatic nerve. Stretching of the sciatic nerve in the presence of meningitis, intervertebral disc disease, peripheral neuritis or nerve trauma, produces pain in the distribution of the nerve. (Teaching statement, mark True.)

The word "Doctor" means teacher. Try teaching someone and see how much better you learn.