CHAPTER 12-CENTRAL NERVOUS SYSTEM – BRAIN; STUDY GUIDE

Read pages : 429-453; 461-463

The student should be able to:

1. Identify the membranes that surround and protect the brain

2. Describe what exist just superficial to the meninges that also provides the brain with protection.

3. Range the meninges in order from superficial to deep.

4. Explain what spinal cord structures are continuous with the brain’s meninges.

5. Explain the relationship of the periostium of the skulls inner surface and the dura matter.

6. Describe the dura matter, arachnoid matter and the pia matter.

7. Explain what is found between the acachnoid layer and the pia matter.

8. Identify the number of neurons in the brain.

9. Describe the approximate size and shape of the brain.

10. Describe the neural plate and the changes it undergoes to form the neural fold and then the neural tube.

11. Explain what structures the anterior neural tube eventually develops into.

12. Identify the fluid that circulates around the brain and through the spinal cord and brain.

13. Describe and locate the lateral, third and fourth ventricles.

14. Identify what structures produce cerebrospinal fluid and how much is produced daily.

15. Explain what happens to extra cerebrospinal fluid under normal conditions.

16. Explain what happens to a newborn if the cerebrospinal fluid doesn’t circulate properly and so it can not be reabsorbed.

17. Explain what is meant by, “the brain floats in cerebrospinal fluid” and what function does this provided.

18. The cerebrospinal fluid plays a role in the blood-brain barrier to provide a “safe” source of nutrients and oxygen. Explain what is meant by, a safe source”.

19. Identify the four main parts the brain is divided into.
20. Briefly describe the physical appearance of the cerebrum.

21. Describe how the cerebrum is divided into halves.

22. Identify what percentage of the brain is cerebrum.

23. Explain how the two hemispheres of the brain are connected.

24. Identify and describe what part of the brain the conscious mind is found in.

25. Describe the thickness of the cortex and how much of the brain it constitutes.

26. Identify and describe the two layers that make up the cortex and describe their relative position to one another.

27. Identify and describe the condition that occurs when the pressure of the cerebrospinal fluid increases in a newborn.

28. Describe gyri/gyrus, sauci/sulcus and explain their relationship.

29. Identify the prominent sulcus that divides the hemispheres of the cerebrum.

30. Identify the three functional areas of the cerebrum.

31. Define the terms contralateral and ipsilateral.

32. Define neurological nuclei and neurological ganglion.

33. Describe the function and location of the primary motor cortex.

34. Identify the somewhat unique, large neurons that are found in the primary motor cortex.

35. Identify the bundles of axons that emerge from the pyramidal cells (two possible names)

36. Discuss the statement, control of specific body structures are controlled by pyramidal cells in a specific part of the primary motor cortex.

37. Describe and explain the motor homunculus.

38. Briefly describe the diencephalon and identify its three major parts.

39. Locate the thalamus and explain its function.

40. Describe the location of the hypothalamus and describe its function.

41. Describe the infundibulum.
42. Describe the location of the epithalmus and describe its function.

43. Briefly describe the limbic system.

44. Explain the importance and function of the limbic system.

45. Identify two important parts of the limbic system and give the function of each.

46. Describe the location and basic function of the brain stem and identify what types of behavior it controls.

47. Identify the three parts of the brain stem.

48. Locate the midbrain and identify its structure that connects to the 3\textsuperscript{rd} and 4\textsuperscript{th} ventricles.

49. Locate the pons and describe what it connects.

50. Locate the medulla oblongata and briefly describe its function.

51. Locate the cerebellum and describe its function.

52. Describe the structures of the cerebellum and describe its function.

53. Name and describe the connection between the cerebellum hemispheres.

54. Describe the surface appearance of the cerebellum.

55. Identify the three lobes of the cerebellum and give the function of each.

56. Describe the outer layer of the cerebellum.

57. Describe the arbor vitae of the cerebellar cortex.

58. Identify the three cerebellar peduncles and briefly explain their function.