

Advanced CNS Questions

Part I: True or False Questions

1. The nervous system controls body functions exclusively through chemical signals.
2. The spinal cord and brain together form the central nervous system.
3. All sensory information enters the body through the peripheral nervous system before reaching the CNS.
4. The CNS is located outside the protective skeletal structures.
5. Emotional regulation and personality are functions of the peripheral nervous system.
6. Ganglia contain groups of neuron cell bodies located outside the central nervous system.
7. The autonomic nervous system operates under voluntary control.
8. The somatic nervous system is responsible for involuntary movements like heartbeat.
9. The enteric nervous system can function independently of the CNS.
10. Neuroglia are the only cells capable of generating electrical impulses in the nervous system.
11. The space between neurons is filled mainly with cerebrospinal fluid.
12. The cell body of a neuron contains structures specialized for protein synthesis.
13. Mature neurons can divide and replace damaged cells.
14. Axons and dendrites both transmit impulses toward the cell body.
15. Dendrites have a constant diameter along their entire length.
16. Myelinated axons conduct nerve impulses faster than unmyelinated ones.
17. Astrocytes are responsible for forming the myelin sheath in the central nervous system.
18. Microglial cells act as immune defense cells within the CNS.
19. Ependymal cells form part of the lining of the brain's ventricles.
20. Schwann cells and oligodendrocytes perform the same basic function in different parts of the nervous system.
21. Myelination in the CNS involves wrapping the entire oligodendrocyte cell around the axon.
22. Unmyelinated axons in the PNS are still associated with Schwann cells.

23. Each nerve fiber is surrounded by perineurium.
24. The perineurium contributes to the blood-nerve barrier.
25. The dura mater is the softest of the three meninges.
26. The subarachnoid space lies between the arachnoid and pia mater.
27. The cerebrospinal fluid acts as both a shock absorber and a medium for metabolic exchange.
28. The CSF is located only inside the brain's ventricles.
29. The blood-brain barrier allows free passage of all substances into neural tissue.
30. Astrocytes play an essential role in maintaining the blood-brain barrier.
31. The cerebrum is divided into two hemispheres and four lobes per hemisphere.
32. The cerebellum is the largest part of the human brain.
33. The cerebrum is mainly responsible for involuntary reflex actions.
34. All sensory perceptions are processed within the cerebrum.
35. The lateral ventricles are located within the cerebrum.
36. The dura mater contains venous sinuses that help drain blood from the brain.
37. The arachnoid mater is vascular and contains many blood vessels.
38. The pia mater directly covers the brain surface.
39. Damage to neurons in the CNS usually leads to fibrous tissue replacement rather than regeneration.
40. The nervous tissue contains abundant extracellular matrix that provides structural rigidity.

Part II: Multiple Choice Questions

41. Which glial cell forms the myelin sheath in the CNS?
 - A) Schwann cell
 - B) Oligodendrocyte
 - C) Astrocyte
 - D) Satellite cell
42. Which part of the neuron conducts impulses toward the cell body?
 - A) Axon

- B) Soma
- C) Dendrite
- D) Myelin

43. Which component forms the blood-brain barrier along with astrocytes?

- A) Myelin
- B) Capillary endothelium
- C) CSF
- D) Pia mater

44. The perineurium is responsible for:

- A) Forming the blood-nerve barrier
- B) Producing CSF
- C) Anchoring pia mater
- D) Connecting brain hemispheres

45. The dura mater is separated from the skull by:

- A) Subdural space
- B) Epidural space
- C) Subarachnoid space
- D) Ventricular cavity

46. The ventricular system is lined by which cell type?

- A) Astrocytes
- B) Microglia
- C) Ependymal cells
- D) Schwann cells

47. The PNS myelin is produced by:

- A) Oligodendrocytes
- B) Schwann cells
- C) Astrocytes
- D) Microglia

48. Which part of the brain controls voluntary motor functions?

- A) Cerebellum
- B) Cerebrum
- C) Brainstem
- D) Diencephalon

49. The subarachnoid space contains:

- A) Blood
- B) Lymph
- C) CSF
- D) Fat

50. The smallest neuroglial cells are:

- A) Astrocytes
- B) Microglia
- C) Oligodendrocytes
- D) Schwann cells

51. Which of the following is true about the CNS?

- A) It contains ganglia
- B) It has peripheral nerves
- C) It is protected by meninges
- D) It regenerates easily

52. The dura mater contains:

- A) Capillary beds
- B) Venous sinuses
- C) Arteries
- D) Lymph nodes

53. Which part of the neuron cannot regenerate?

- A) Soma
- B) Dendrite
- C) Axon
- D) Nissl bodies

54. The enteric nervous system mainly controls:

- A) Vision
- B) Hearing
- C) Digestive activity
- D) Breathing

55. Myelin increases conduction speed by:

- A) Increasing resistance
- B) Reducing capacitance
- C) Slowing impulse jumps
- D) Increasing neuron size

56. The cerebellum primarily coordinates:

- A) Vision
- B) Balance and movement
- C) Smell
- D) Speech

57. The brainstem connects the brain to the:

- A) Cerebrum
- B) Cerebellum
- C) Spinal cord
- D) Ventricles

58. The CSF is mainly produced by:

- A) Pia mater
- B) Choroid plexus
- C) Dura mater
- D) Microglia

59. Astrocytes help regulate:

- A) Blood-brain barrier
- B) Reflex arcs
- C) Hormone secretion
- D) Muscle contraction

60. The layer closest to brain tissue is:

- A) Dura mater
- B) Arachnoid mater
- C) Pia mater
- D) Epidural

61. The corpus callosum connects:

- A) Cerebellum and brainstem
- B) The two cerebral hemispheres
- C) Spinal cord and brain
- D) Ventricles

62. Unmyelinated fibers in the CNS are:

- A) Surrounded by Schwann cells
- B) Exposed
- C) Surrounded by oligodendrocyte processes
- D) Covered by meninges

63. Which is NOT part of the CNS?

- A) Brainstem
- B) Spinal cord
- C) Ganglia
- D) Diencephalon

64. The subdural space separates:

- A) Skull and dura mater
- B) Dura mater and arachnoid mater
- C) Arachnoid and pia mater
- D) Pia mater and brain

65. Which cell type is phagocytic?

- A) Astrocyte
- B) Oligodendrocyte
- C) Microglia
- D) Schwann cell

66. The myelin sheath provides:

- A) Insulation and faster conduction
- B) Structural support only
- C) Nutrient supply
- D) Neurotransmitter release

67. The CNS lacks:

- A) Neurons
- B) Neuroglia
- C) Connective tissue
- D) Axons

68. The pia mater participates directly in forming:

- A) Blood-brain barrier
- B) Choroid plexus
- C) Epineurium
- D) Myelin

69. Satellite cells are found in:

- A) Brain cortex
- B) Spinal cord
- C) Dorsal root ganglia

D) Ventricles

70. Damage to oligodendrocytes would affect:

A) Motor nerve speed in CNS

B) Motor nerve speed in PNS

C) Muscle contraction

D) Sensory receptor function

Answers

1. False

2. True

3. True

4. False

5. False

6. True

7. False

8. False

9. True

10. False

11. False

12. True

13. False

14. False

15. False

16. True

17. False

18. True

19. True

20. True

21. False

22. True

23. False

24. True

25. False

26. True

27. True

28. False

29. False

30. True

31. True

32. False

33. False

34. True

35. True

36. True

37. False

38. True

39. True

40. False

41. B

42. C

43. B

44. A

45. B

46. C

47. B

48. B

49. C

50. B

51. C

52. B

53. A

54. C

55. B

56. B

57. C

58. B

59. A

60. C

61. B

62. C

63. C

64. B

65. C

66. A

67. C

68. B

69. C

70. A