Lecture #01 Neurons, Glia, Meninges, Brain

Question 1: Which is most likely to be a local interneuron?

a) A neuron that releases the neurotransmitter acetylcholine onto a muscle fiber

b) A pyramidal neuron of cerebral cortex layer 5

c) An astrocyte

d) An oligodendrocyte

e) A granule neuron of cerebral cortex layer 4

Lecture #01 Neurons, Glia, Meninges, Brain

Question 2: Which meningeal tissue provides the toughest physical barrier to protect the brain?

a) Pia mater

b) Dura Mater

c) Area Postrema

d) Arachnoid

e) Astrocyte

Lecture #01 Neurons, Glia, Meninges, Brain

Question 3: At which location is the blood brain barrier most easily penetrated?

a) Dura Mater

b) Arachnoid

c) Area Postrema

d) Astrocyte

e) Pia mater

Lecture #01 Neurons, Glia, Meninges, Brain

Question 4: Which glial cell type participates in the glutamate-glutamine cycle (or shuttle)?

a) Oligodendrocyte

b) Satellite cell

c) Astrocyte

d) Microglial cell

e) Schwann cell

Lecture #01 Neurons, Glia, Meninges, Brain

Question 5: Where are the axons in the middle cerebellar peduncle going?

a) To the internal capsule

b) To the cerebral cortex

c) To the cerebellum

d) To the lateral horn of the spinal cord

e) To cranial nerve nuclei III through VI

Lecture #01 Neurons, Glia, Meninges, Brain

Question 6: What is stained by the Golgi stain?

a) gray matter but not cell bodies or neuropil

b) a small percentage of neurons in their entirety

c) unmyelinated axons but not myelinated axons

d) cell bodies of cells with unmyelinated but not myelinated axons

e) both cell bodies and myelin

Lecture #01 Neurons, Glia, Meninges, Brain

Question 7: What is the special role of capillary endothelial cells in the brain?

a) Release of neuromodulators

b) Location lateral to the sulcus limitans

c) Retention of synaptic vesicles

d) Absence of blood-brain barrier

e) Blood-brain barrier

Lecture #01 Neurons, Glia, Meninges, Brain

Question 8: Into which structure(s) does the metencephalon develop?

a) Pons and cerebellum

b) midbrain

c) Medulla

d) Rhombencephalon

e) Thalamus and hypothalamus

Lecture #01 Neurons, Glia, Meninges, Brain

Question 9: Which is most likely to be a projection neuron?

a) A stellate neuron of cerebral cortex layer 4

b) A pyramidal neuron of cerebral cortex layer 5

c) A neuron that releases the neurotransmitter GABA

d) An astrocyte

e) An oligodendrocyte

Lecture #01 Neurons, Glia, Meninges, Brain

Question 10: Where are the axons of Brodmann's area 4 giant Betz cells going?

a) To cranial nerve nuclei III through VI

b) To the ventral horn of the spinal cord

c) To the lateral horn of the spinal cord

d) To the cerebral cortex

e) To the hippocampus

Lecture #01 Neurons, Glia, Meninges, Brain

Question 11: Disynaptic pathways?

a) Have only a single set of interneurons between sensory and motor neurons

b) Use only the neurotransmitter GABA

c) Include the motor cortex and frontal and temporal language areas

d) Would involve only sensory neurons and motor neurons, but do not exist in mammals

e) Were first shown by the demonstration of active brain areas by fMRI

Lecture #01 Neurons, Glia, Meninges, Brain

Question 12: Which glial cell type is most important for isolating neurons from blood-borne toxins?

a) Schwann cell

b) Microglial cell

c) Pyramidal cell

d) Oligodendrocyte

e) Astrocyte

Lecture #01 Neurons, Glia, Meninges, Brain

Question 13: Which -polar classification best fits the sensory receptive neurons of the dorsal root ganglia?

a) Pyramidal-polar

b) Multipolar

c) Pseudounipolar

d) Bipolar depression

e) Stellate-polar

Lecture #01 Neurons, Glia, Meninges, Brain

Question 14: The thalamus has which major function?

a) It is the primary input to the basal ganglia

b) It relays inputs from many parts of the brain to the cerebral cortex

c) It is the primary input to the cerebellum

d) It inhibits the brain via the neurotransmitter GABA

e) It is the primary output from the cerebral cortex

Lecture #01 Neurons, Glia, Meninges, Brain

Question 15: What do axon terminals and dendritic spines have in common?

a) They are parts of glial cells, not neurons

b) They form parts of synapses

c) They are typically uniform in diameter along their length

d) They are found within the perikaryon of the neuron

e) They contain the nucleus

Lecture #01 Neurons, Glia, Meninges, Brain

Question 16: Which glial cell type is most important for myelinating peripheral nervous system axons?

a) Schwann cell

b) Satellite cell

c) Astrocyte

d) Oligodendrocyte

e) Microglial cell

Lecture #01 Neurons, Glia, Meninges, Brain

Question 17: The carotid arteries send blood directly into which artery or arteries?

a) Posterior cerebral

b) Basilar

c) Middle cerebral

d) Anterior communicating

e) Carotid(s)

Lecture #01 Neurons, Glia, Meninges, Brain

Question 18: The vertebral arteries send blood directly into which artery or arteries?

a) Basilar

b) Anterior cerebral

c) Posterior cerebral

d) Carotid(s)

e) Middle cerebral

Lecture #01 Neurons, Glia, Meninges, Brain

Question 19: The coordinate direction anterior is the same as which other coordinate directions?

a) Rostral in the cerebrum, ventral in the spinal cord

b) Posterior in the cerebrum, dorsal in the spinal cord

c) Posterior in the cerebrum, ventral in the spinal cord

d) Dorsal in the cerebrum, ventral in the spinal cord

e) Caudal in the cerebrum, dorsal in the spinal cord

Lecture #01 Neurons, Glia, Meninges, Brain

Question 20: Looping brain pathways likely serve what purpose(s)?

a) Extension of motor commands and formation of memories

b) Interconnecting the basal ganglia and the cerebellum

c) Prevention of negative and positive feedback

d) Monosynaptic reflexes

e) Relaying to the cerebral cortex and bypassing the thalamus

Lecture #01 Neurons, Glia, Meninges, Brain

Question 21: Which glial cell type is most important for myelinating central nervous system axons?

a) Astrocyte

b) Schwann cell

c) Satellite cell

d) Oligodendrocyte

e) Microglial cell

Lecture #01 Neurons, Glia, Meninges, Brain

Question 22: Which is most likely to send an axon to subcortical brain locations?

a) An oligodendrocyte

b) An astrocyte

c) A granule neuron of cerebral cortex layer 4

d) A pyramidal neuron of cerebral cortex layer 5

e) A neuron that releases the neurotransmitter acetylcholine onto a muscle fiber