Lecture #10 Cerebellum

Question 1: Limb ataxia is most closely associated with which cerebellar structure?

a) Fastigial nucleus

b) Intermediate zone

c) Oculomotor vermis

d) Unipolar brush cell

e) Lingula

Lecture #10 Cerebellum

Question 2: Which path does NOT end as mossy fibers to the cerebellum?

a) Ventral spinocerebellar

b) Reticulocerebellar

c) Olivocerebellar

d) Dorsal spinocerebellar

e) Pontocerebellar

Lecture #10 Cerebellum

Question 3: Which tract travels through the superior cerebellar peduncle?

a) Corticospinal

b) Ventral spinocerebellar

c) Olivocerebellar

d) Dorsal spinocerebellar

e) Cuneo spinocerebellar

Lecture #10 Cerebellum

Question 4: Where does the climbing fiber input to cerebellum originate?

a) Inferior olive

b) Dentate gyrus

c) Dentate nucleus

d) Medial superior olive

e) Superior olive

Lecture #10 Cerebellum

Question 5: The mossy fiber input to cerebellar cortex goes to which?

a) GABA synapses to cause inhibition

b) Parallel fiber axons rather than dendrites

c) Glomeruli that have granule cell dendrites

d) The four spinocerebellar tracts

e) Purkinje cell dendrites, wrapping all around them

Lecture #10 Cerebellum

Question 6: Which cerebellar neurons are excitatory?

a) Golgi cells

b) Basket cells

c) Stellate cells

d) Granule cells

e) Purkinje cells

Lecture #10 Cerebellum

Question 7: The climbing fiber input to cerebellar cortex goes to which?

a) Parallel fiber axons rather than dendrites

b) Purkinje cell dendrites, wrapping all around them

c) The four spinocerebellar tracts

d) GABA synapses to cause inhibition

e) Glomeruli that have granule cell dendrites

Lecture #10 Cerebellum

Question 8: Which neurological problem would be LEAST suggestive of damage to the vermis?

a) Blurred vision due to poor oculomotor control of saccades

b) Reduced tone of postural muscles

c) Loss of balance

d) Reduced hand coordination

e) Drunken gait

Lecture #10 Cerebellum

Question 9: Which lists the major mossy fiber pathway through the cerebellum via the correct structures in the correct order?

a) mossy fiber>deep nuclear neuron>granule cell>Purkinje cell

b) Purkinje cell>parallel fiber>granule cell>Golgi cell>deep nuclear neuron

c) Purkinje cell>granule cell>parallel fiber>Golgi cell>deep nuclear neuron

d) mossy fiber>granule cell>parallel fiber>Purkinje cell>deep nuclear neuron

e) mossy fiber>deep nuclear neuron>parallel fiber>granule cell>Purkinje cell

Lecture #10 Cerebellum

Question 10: The cerebellar deep nuclei are which?

a) The major output destination of cerebellar cortex Purkinje cell axons

b) The vermis, intermediate zone, and hemispheres

c) Numbered from I to X, medial to lateral

d) The major input projection to cerebellar cortex Purkinje cell dendrites

e) Excited by Purkinje cell axons

Lecture #10 Cerebellum

Question 11: Which two tracts convey mainly upper body information to the cerebellum?

a) Rostral and cuneo cerebellar tracts

b) Ventral and caudal spinocerebellar tracts

c) Propriospinal tracts

d) Dorsal and ventral spinocerebellar tracts

e) Ventral and anterior spinocerebellar tracts

Lecture #10 Cerebellum

Question 12: How can you best describe and contrast the motor control roles of the cerebellum vs the basal ganglia, respectively?

a) Movement reward vs movement punishment

b) Tremor reduction at rest vs tremor reduction near movement goal

c) Movement punishment vs movement guidance

d) Movement guidance vs movement initiation

e) Movement initiation vs resting posture

Lecture #10 Cerebellum

Question 13: Which describes the output from cerebellar cortex?

a) It is an entirely inhibitory projection of GABA-ergic neurons

b) It is comprised of axons ending primarily in motor cortex

c) It uses the neurotransmitter dopamine

d) It is an entirely excitatory projection of glutamatergic neurons

e) It is comprised of axons that project to spinal cord motor neurons and interneurons

Lecture #10 Cerebellum

Question 14: A cerebellar glomerulus contains which elements?

a) Granule cell dendrites, Golgi cell axon terminals, mossy fiber axon terminals

b) Granule cell dendrites, Golgi cell dendrites, mossy fiber dendrites

c) Stellate cell axon terminals, basket cell axon terminals, Golgi cell axon terminals

d) Purkinje cell dendrites, granule cell axon terminals, mossy fiber axon terminals

e) Purkinje cell dendrites, granule cell dendrites, mossy fiber axon terminals

Lecture #10 Cerebellum

Question 15: Which neurological problem would NOT suggest damage to the flocculus?

a) Loss of the ability to alter the vestibulo-ocular reflex to adjust when new glasses are fitted

b) A vestibulo-ocular reflex that is too large

c) Loss of the ability to smoothly track a moving visual target

d) Inability to suppress saccades

e) Loss of visual pursuit

Lecture #10 Cerebellum

Question 16: Which two tracts convey mainly movement command feedback information to the cerebellum?

a) Ventral and anterior spinocerebellar tracts

b) Propriospinal tracts

c) Dorsal and ventral spinocerebellar tracts

d) Ventral and rostral spinocerebellar tracts

e) Rostral and cuneo cerebellar tracts

Lecture #10 Cerebellum

Question 17: Which two tracts convey mainly lower body information to the cerebellum?

a) Ventral and caudal spinocerebellar tracts

b) Dorsal and cuneo cerebellar tracts

c) Dorsal and ventral spinocerebellar tracts

d) Ventral and anterior spinocerebellar tracts

e) Propriospinal tracts

Lecture #10 Cerebellum

Question 18: Which layer of the cerebellum contains billions of parallel fibers?

a) Middle cerebellar peduncle

b) Molecular

c) Granule cell

d) Purkinje cell

e) Deep nuclear

Lecture #10 Cerebellum

Question 19: What are the inputs to cerebellar deep nuclei and their excitatory (+) or inhibitory (-) effects?

a) Dentate cell axons (+), climbing fiber collaterals (-), Purkinje cell axons (+)

b) Mossy fiber collaterals (-), dentate cell axons (-), Purkinje cell axons (-)

c) Mossy fiber collaterals (+), climbing fiber collaterals (+), Purkinje cell axons (-)

d) Fastigial cell axons (+), climbing fiber collaterals (+), Purkinje cell axons (+)

e) Golgi cell axons (+), mossy fiber collaterals (+), granule cell axons (-)

Lecture #10 Cerebellum

Question 20: Damage to which part of the cerebellum is correlated to decomposition of movement?

a) Vermis

b) Hemispheres

c) Fastigial nucleus

d) Nodulus

e) Uvula

Lecture #10 Cerebellum

Question 21: Which cerebellar neurons are inhibitory to Purkinje cells?

a) Basket and Golgi cells

b) Granule and Golgi cells

c) Stellate and basket cells

d) Granule and basket cells

e) Granule and deep nuclear cells