Lecture #10 Cerebellum

Question 1: Which two tracts convey mainly upper body information to the cerebellum?

a) Rostral and cuneo cerebellar tracts

b) Propriospinal tracts

c) Dorsal and ventral spinocerebellar tracts

d) Ventral and anterior spinocerebellar tracts

e) Ventral and caudal spinocerebellar tracts

Lecture #10 Cerebellum

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

a) Olivocerebellar

b) Reticulocerebellar

c) Ventral spinocerebellar

d) Dorsal spinocerebellar

e) Pontocerebellar

Lecture #10 Cerebellum

Question 3: A cerebellar glomerulus contains which elements?

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

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

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

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

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

Lecture #10 Cerebellum

Question 4: Which neurological problem would be LEAST suggestive of damage to the vermis?

a) Blurred vision due to poor oculomotor control of saccades

b) Reduced hand coordination

c) Loss of balance

d) Reduced tone of postural muscles

e) Drunken gait

Lecture #10 Cerebellum

Question 5: What are the inputs to cerebellar deep nuclei and their excitatory (+) or inhibitory (-) effects?

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

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

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

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

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

Lecture #10 Cerebellum

Question 6: Damage to which part of the cerebellum is correlated to decomposition of movement?

a) Hemispheres

b) Fastigial nucleus

c) Uvula

d) Vermis

e) Nodulus

Lecture #10 Cerebellum

Question 7: Which two tracts convey mainly lower body information to the cerebellum?

a) Ventral and caudal spinocerebellar tracts

b) Dorsal and cuneo cerebellar tracts

c) Ventral and anterior spinocerebellar tracts

d) Dorsal and ventral spinocerebellar tracts

e) Propriospinal tracts

Lecture #10 Cerebellum

Question 8: Which lists the major mossy fiber pathway through the cerebellum via the correct structures in the correct order?

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

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

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

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

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

Lecture #10 Cerebellum

Question 9: Which layer of the cerebellum contains billions of parallel fibers?

a) Granule cell

b) Molecular

c) Middle cerebellar peduncle

d) Deep nuclear

e) Purkinje cell

Lecture #10 Cerebellum

Question 10: Which cerebellar neurons are inhibitory to Purkinje cells?

a) Granule and deep nuclear cells

b) Stellate and basket cells

c) Granule and basket cells

d) Granule and Golgi cells

e) Basket and Golgi cells

Lecture #10 Cerebellum

Question 11: The climbing 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) Purkinje cell dendrites, wrapping all around them

e) The four spinocerebellar tracts

Lecture #10 Cerebellum

Question 12: Which describes the output from cerebellar cortex?

a) It uses the neurotransmitter dopamine

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

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

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

e) It is an entirely excitatory projection of glutamatergic neurons

Lecture #10 Cerebellum

Question 13: How can you best describe and contrast the motor control roles of the cerebellum vs the basal ganglia, respectively?

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

b) Movement punishment vs movement guidance

c) Movement reward vs movement punishment

d) Movement initiation vs resting posture

e) Movement guidance vs movement initiation

Lecture #10 Cerebellum

Question 14: Which neurological problem would NOT suggest damage to the flocculus?

a) A vestibulo-ocular reflex that is too large

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

c) Loss of visual pursuit

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

e) Inability to suppress saccades

Lecture #10 Cerebellum

Question 15: The mossy fiber input to cerebellar cortex goes to which?

a) GABA synapses to cause inhibition

b) The four spinocerebellar tracts

c) Parallel fiber axons rather than dendrites

d) Glomeruli that have granule cell dendrites

e) Purkinje cell dendrites, wrapping all around them

Lecture #10 Cerebellum

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

a) Dorsal and ventral spinocerebellar tracts

b) Propriospinal tracts

c) Ventral and rostral spinocerebellar tracts

d) Rostral and cuneo cerebellar tracts

e) Ventral and anterior spinocerebellar tracts

Lecture #10 Cerebellum

Question 17: Limb ataxia is most closely associated with which cerebellar structure?

a) Intermediate zone

b) Oculomotor vermis

c) Fastigial nucleus

d) Unipolar brush cell

e) Lingula

Lecture #10 Cerebellum

Question 18: Where does the climbing fiber input to cerebellum originate?

a) Medial superior olive

b) Superior olive

c) Dentate gyrus

d) Inferior olive

e) Dentate nucleus

Lecture #10 Cerebellum

Question 19: The cerebellar deep nuclei are which?

a) Numbered from I to X, medial to lateral

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

c) The vermis, intermediate zone, and hemispheres

d) Excited by Purkinje cell axons

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

Lecture #10 Cerebellum

Question 20: Which cerebellar neurons are excitatory?

a) Basket cells

b) Golgi cells

c) Granule cells

d) Stellate cells

e) Purkinje cells

Lecture #10 Cerebellum

Question 21: Which tract travels through the superior cerebellar peduncle?

a) Corticospinal

b) Cuneo spinocerebellar

c) Dorsal spinocerebellar

d) Ventral spinocerebellar

e) Olivocerebellar