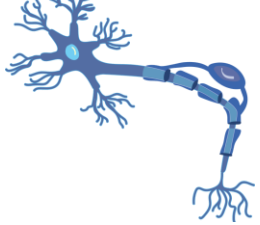

بسم الله الرحمن الرحيم

DOPAMINE SCIENTIFIC TEAM

Past paper Final
ALL Material

﴿إِنِّي تَوَكَّلْتُ عَلَى اللَّهِ رَبِّي وَرَبِّكُمْ ۚ مَا مِن دَابَّةٍ إِلَّا هُوَ آخِذٌ بِنَاصِيَتِهَا ۚ إِنَّ رَبِّي عَلَىٰ صِرَاطٍ مُّسْتَقِيمٍ﴾

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PHYSIOLOGY

Past paper

Answer:

بسم الله الرحمن الرحيم

1-4

Answer:

Q1: Which neurotransmitter stimulates the subthalamus?

A) GABA
B) Glutamate
C) Dopamine
D) Serotonin
E) None of the above

Answer: B

Q2: Which of the following is true?

A) Basket cells are excitatory while stellate cells are inhibitory
B) Weak spike is followed by a complex spike for a prolonged time
C) Climbing fibers directly synapse with Purkinje cells, while mossy fibers act indirectly
D) None of the above
E) All of the above

Answer: C

Q3: Equilibrium disturbances during rapid movement are associated with lesion in:

A) Thalamus
B) Frontal lobe
C) Parietal lobe
D) Flocculonodular lobe
E) Vermis

Answer: D

Q4: Rigidity of the axial and antigravity muscles when cortical control over the brainstem is interrupted (decerebrate) is due to:

A) Overactivity of rubrospinal tract
B) Overactivity of medullary reticulospinal tract
C) Overactivity of pontine reticulospinal tract
D) Disruption of the dorsal spinocerebellar pathway
E) Disruption of the lateral vestibulospinal tract

Answer: C

Q5: A 70-year-old man with a history of hypertension had sudden onset of nausea and vomiting. In the ER he had slurred speech (dysarthria) and dysmetria on finger-to-nose testing on the left side. His gait was normal with normal equilibrium. Where is the lesion?

A) Cerebellar vermis
B) Right cerebellar hemisphere
C) Left cerebellar hemisphere
D) Fastigial nucleus
E) Vestibular nuclei

Answer: C

Q6: A 75-year-old man gradually presented with left-sided tremor especially at rest, and slowness of movement. On clinical examination of this patient, the following is true:

A) Hypotonia
B) The patient exhibits a mask face
C) Power is severely affected
D) Coma
E) Vestibular nystagmus

Answer: B

Q7: The _____ controls the motor orders while the _____ compares the intended movement with actual movement for the improvement of movement skill.

A) Motor cortex, cerebellum
B) Cerebellum, basal ganglia
C) Basal ganglia, motor cortex
D) Basal ganglia, cerebellum
E) Cerebellum, red nucleus

Answer: A

Q8: Regarding the role of the basal ganglia in motor control:

A) Disorders of the basal ganglia produce a marked loss of both sensation and motor control
B) Parkinsonism is caused by neuronal degeneration within the substantia nigra
C) The globus pallidus projects directly to the cerebral cortex
D) Acetylcholine is the predominant neurotransmitter of the substantia nigra
E) Chorea is a speech disorder caused by disease of basal ganglia

Answer: B

Q9: Which of the following is true?

A) Dopamine is secreted from the raphe magnus
B) GABA is secreted from the raphe magnus
C) Acetylcholine is secreted from the raphe magnus
D) Serotonin is secreted from the raphe magnus
E) Glutamate is secreted from the raphe magnus

Answer: D

Q10: Muscle rigidity demonstrated in basal ganglia diseases is caused primarily by:

A) A resting high tonic discharge of globus pallidus to thalamus
B) A resting high tonic discharge of substantia nigra reticulata to thalamus
C) Disinhibition of thalamus output caused by increased striatal (caudate and putamen) output of globus pallidus
D) Disinhibition of subthalamic output caused by increased striatal output to globus pallidus
E) Overstimulation of substantia nigra compacta dopaminergic neurons to striatum

Answer: C (A is correct for many references, but C is more accurate as per our material)

اللهم صل على نبينا محمد

5-8

Answer:

Which of the following best describes the primary function of the muscle spindle?

A) Detects muscle tension
B) Detects muscle length and rate of change
C) Initiates voluntary movement
D) Inhibits alpha motor neurons
E) Detects joint position only

Answer:b

the “limb” regions of the motor homunculus are involved in activating motor neurons that move the arms, hands, and legs primarily on the _____, and the trunk regions of the motor homunculus are primarily involved in activating motor neurons that move the trunk primarily on the _____.

A) same side of the body, opposite side of the body
B) opposite side of the body, opposite side of the body
C) same side of the body, same side of the body
D) opposite side of the body, opposite side of the body
E) both sides of the body, both sides of the body

Answer: B=D

short term memories can involve all of the following processes except:

A) Regulation of gene expression
B) Activation of second messenger system
C) Modulation of membrane channels
D) Modulation of transmitter release
E) Change in the sensitivity of the neuronal circuits

Answer: A

microstimulation of which of the following would lead to contraction of individual muscle fibers.

A) primary motor cortex
B) premotor cortex
C) supplementary motor cortex
D) somatosensory association area of the cortex
E) the limbic association area

Answer:A

Which of the following match pairs is true?

A. Wernicke's area: expressive (MOTOR) aphasia
B. Hippocampus: retrograde amnesia
C. Angular gyrus area: unable to read
D. Globus pallidus: Parkinson's disease
E. None of the above

Answer: C

Which of the following match pairs about sleep is true?

A. REM sleep: beta waves
B. REM sleep: dreamless
C. Grand mal seizures: childhood
D. Alpha waves: infancy
E. REM: decreases in peripheral vascular tone

Answer:A

Activation of the Golgi tendon organ leads to:

A) Contraction of the same muscle
B) Excitation of alpha motor neurons
C) Inhibition of the same muscle
D) Activation of flexor muscles only
E) Increased muscle length

Answer:c

Stimulation of the premotor area results in:

A) Isolated muscle contraction
B) Bilateral movements only
C) Movement of muscle groups for specific tasks
D) Loss of speech production
E) No motor response

Answer:c

the corticospinal tract is mainly responsible for:

A) Maintaining posture
B) Reflex movements
C) Fine, discrete voluntary movements
D) Balance control
E) Muscle relaxation

Answer:c

A lesion in the primary motor cortex will most likely cause:

A) Loss of sensation
B) Loss of voluntary fine movement in distal limbs
C) Increased speech ability
D) Loss of balance only
E) Hyperactivity of cerebellum

Answer:B

Which of the following is TRUE regarding the dominant hemisphere?

A) It is the right hemisphere in 95% of people
B) It is unrelated to language
C) Wernicke’s area is more developed in it
D) It controls only motor functions
E) It is equal in size to the non-dominant side

Answer:c

Damage to Broca’s area results in:

A) Inability to understand language
B) Fluent but meaningless speech
C) Impaired speech production (expressive aphasia)
D) Loss of hearing
E) Loss of memory

Answer:c

Which of the following best describes long-term memory?

A) Lasts seconds and depends on Ca^{2+} accumulation
B) Due to temporary synaptic changes
C) Results from structural synaptic changes
D) Independent of protein synthesis
E) Easily disrupted by anesthesia

Answer:c

which of the following is characteristic of REM sleep?

A) High muscle tone
B) No dreaming
C) Decreased cortical activity
D) Brain waves similar to wakefulness
E) Regular heart rate

Answer:D

the main function of the reticular activating system (RAS) is:

A) Initiate voluntary movement
B) Maintain cortical arousal and wakefulness
C) Control memory storage
D) Inhibit sensory input completely
E) Produce REM sleep only

Answer:B

Which EEG wave is most associated with deep sleep (slow-wave sleep)?

Alpha waves
Beta waves
Theta waves
Delta waves
Gamma waves

Answer:D

Which of the following is true:

Serotonin is secreted from the raphe magnus

Lab Questions

Q1: True about rigidity:

A) Velocity-dependent only
B) Direction-dependent only
C) Independent of the velocity and direction
D) Increased in the initial part of movement then suddenly reduces past a certain point
E) Worse with faster moving the limb

Very Important Question !!

Answer: C

Q2: A test used to assess lower limb coordination:

A) Finger-to-nose test
B) Rapid alternating movement test
C) Knee-jerk reflex
D) Heel-to-shin test
E) Romberg test

Answer: D

Q3: A 49-year-old woman came to the clinic; finger-to-nose test showed dysmetria, and she also had intention tremor. What is the most convenient diagnosis?

A) Cerebellar disease
B) Huntington's disease
C) Parkinson's disease
D) You need more tests to diagnose the case
E) Lower motor neuron injury

Answer: A

Q4: Which of the following is incorrect regarding a lower motor neuron lesion?

A) Decreased muscle tone
B) Muscle atrophy
C) Fasciculations
D) Increased reflexes
E) Flaccid weakness

Answer: D

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Corrections from previous versions:

Versions	Slide # and Place of Error	Before Correction	After Correction
V0 → V1	-- Slide 13 Slide 16	-- Answer: A Answer: D	6 questions were added Answer: C Answer: B=D
V1 → V2			