TEST BANK

Done by: Qusai Ibraheem

Reviewed by:

SENSORY NERVOUS SYSTEM

1- The sensory system is involved in all the following, except:

a -Initiation of reflex movements

b- Initiation of voluntary movements

c- Learning processes

d- Initiation of emotional responses

answer:B

3-Glial cells:

a- Can produce action potentials.

b- Are supporting cells.

c- Pump Na+ ions to ECF.

d- Pump Ca2+ ions to ECF.

Answer:B

4-Synaptic knobs:

a- Synthesize different types of neurotransmitters

b- Release neurotransmitters by diffusion across their membranes

c- Have ligand-gated Ca 2+

d- Are located at the terminal end of dendrites

answer:a

5-Synaptic transmission depends upon:

a- Direct transmission of impulses from the presynaptic neuron to the postsynaptic neuron

b- Diffusion of neurotransmitters from synaptic knobs into the soma and dendrites of postsynaptic neurons

c- Presence of voltage-gated Ca 2+channels in membrane of synaptic knobs

d- Presence of voltage-gated Ca 2+channels in the postsynaptic membrane

answer:C

6-The release of neurotransmitter at a chemical synapse in the CNS is dependent on:

a-Synthesis of acetylcholinesterase

b- Hyperpolarization of the synaptic terminal

c- Opening of ligand-gated calcium channel

d- Influx of calcium into the presynaptic terminal

answer:D

7-Regarding the mechanism of synaptic transmission:

a- Ca + ions are released from the presynaptic knob.

b- Presynaptic knobs release only an excitatory transmitter.

c- Chemical transmitter causes development of only excitatory post-synaptic potentials.

d- Excitatory transmitters open Na+ channels.

Answer:D

8-Regarding synaptic transmission'

a- Is depressed by alkalosis.

b- Is increased by acidosis.

c- Repetitive stimulation of a single presynaptic neuron leads to development of an action potential in the postsynaptic neuron

d- Is increased by hypoxia.

Answer:C

9-The excitatory or inhibitory action of a neurotransmitter is determined by:

a- Function of its postsynaptic receptor

b- Molecular composition

c- Shape of the synaptic vesicle in which it is contained

d- Distance between the pre- and post-synaptic membranes

answer:A

10-An inhibitory neurotransmitter:

a- Opens channels permeable to Cl

b- Opens channels permeable to Ca+

c- Opens channels permeable to Na+ and K+

d- Closes channels permeable to Na+

e- Closes channels permeable to Cland K+

answer:A

11-Facilitation:

a- Is due to stimulation of 2 input neurons away from each other.

b- Is due to stimulation of 2 input neurons close to each other.

c- Number of action potentials released is less than if each input neuron is stimulated alone.

d- Occurs when the two afferent neurons have a common discharge zone.

Answer:A

13-A specific stimulus produces a receptor potential by:

a- Inhibiting Na + influx into receptor

b- Inhibiting K + efflux from receptor

c- Enhancing Na + influx into receptor

d- Enhancing K + efflux from receptor

answer:C

14-Receptor potential initiated by an adequate stimulus:

a- Develops always at its full magnitudes

b- Undergoes temporal summation only

c- Undergoes spatial summation only

d- Could initiate an action potential

answer:D

15-The receptor potential:

a- Has a long absolute refractory period

b- Amplitude is not related to the strength of the stimulus

c- Always generates an action potential in the receptor

d- Its duration is longer than action potential duration

answer:D

16-Postsynaptic receptors include all the following types, except:

a- G-protein coupled receptors

b- Ligand-gated cation channels

c- G-protein regulated K + channels

d- Voltage-gated Cl channels

answer:d

17-Opening of ligand-gated Cl- channels causes:

a- Inhibition of the postsynaptic neuron

b- Depolarization of the postsynaptic neuron

c- Initiation of an action potential

d- Blockage of ligand-gated cation channels

answer:A

18-An excitatory post-synaptic potential (EPSP):

a- Is the depolarization of a post-synaptic nerve cell membrane that occurs when a presynaptic neuron is stimulated

b- Involves reversal of polarity across the post-synaptic nerve cell membrane

c- May be recorded from a posterior root ganglion cell

d- Is propagated at the same rate as an action potential

answer:A

19-IPSP differs from EPSP in:

a- Being of shorter duration

b- Being unable to summate spatially

c- Moving the membrane potential away from threshold

d- Depending upon opening of voltage K + channels

answer:C

20-When EPSP and IPSP occur simultaneously the postsynaptic membrane:

a- Becomes depolarized

b- Becomes hyperpolarized

c- Initiates an action potential

d- Shows potential changes that depend upon the summation of their effects

answer:D

21-IPSP could result from:

a- Opening of K + channels

b- Opening of ligand-gated cation channels

c- Closure of Cl- channels'

d- Closure of voltage-gated Ca 2+ channels

answer:A

22-AII the following is true about the synaptic potential, except:

a. The Na+ and K+ currents occurs simultaneously

b. Is a graded potential

c. The channel is ligand-gated

d. The post-synaptic potential is inhibitory when depolarizing

e. The post-synaptic potential is inhibitory when GABA binds to post-synaptic receptors.

Answer:D

23-EPSP:

a- Is an all or none response to a presynaptic potential

b- Can be temporarily summated during repetitive presynaptic stimulation

c- Always initiates an action potential

d- Lasts only for the duration of presynaptic action potential

answer:B

24-Synaptic transmission is physiologically terminated by:

a- Block of postsynaptic receptors

b- Elevation of Ca 2+ concentration in synaptic cleft

c- Reuptake of neurotransmitters by postsynaptic neurons

d- Degradation of neurotransmitters by specific enzymes

answer:D

25-Lateral inhibition:

a- Needs only inhibitory neurons

b- Helps sharpening of sensation.

c- Means that inhibited central neurons are surrounded by excitatory neurons.

d- Needs only one type of chemical transmitter

answer:B

26-Renshaw cell:

a- Shows the phenomenon of negative feedback inhibition.

b- Is activated by glycine.

c- Is present in dorsal horn of the spinal cord.

d- Are excitatory neurons

answer:A

27-Presynaptic inhibition is characterized by all the following, except:

a- Increased Cl influx into presynaptic terminals

b- Increased Ca 2+ influx into presynaptic terminals

c- Decreased response of postsynaptic receptors

d- Hyperpolarization of presynaptic terminals

answer:B

28-Presynaptic inhibition depends upon:

a- Augmented release of neurotransmitter from presynaptic terminals

b- Maintained depolarization of presynaptic terminals

c- GABA receptors in presynaptic terminals

d- Opening of voltage-gated Ca 2+channels in presynaptic terminals

answer:C

29-Regarding the events occurring at an excitatory synapse:

a- There is a massive efflux of calcium from the presynaptic terminal

b- Synaptic vesicles bind to the postsynaptic membrane

c- Voltage-gated K+ channels are closed

d- Ligand-gated channels are opened to allow Na+ entry into the postsynaptic neuron

answer:D

30-Regarding synapses:

a- Presynaptic knobs contain vesicles which have t-snare in their membranes

b- v-snare of the vesicles has high affinity to t-snare in the active zone of the presynaptic membrane

c- Ca2+ voltage gated channels of the pre-synaptic knob open during repolarization

d- Synaptic cleft contain high concentration of K.+

Answer:B

31-In chemical synapses, transmission occurs in a forward direction because:

a- Neurotransmitter receptors are found only in the postsynaptic membrane

b- The postsynaptic membrane does not contain neurotransmitter vesicles

c- The postsynaptic membrane is more sensitive than the membrane of synaptic knob to the effect of neurotransmitters

d- The postsynaptic membrane contains both ligand-gated and voltage-gated ionic channels

answer:B

32-Synaptic delay:

a- Is the time needed for release of neurotransmitter from synaptic vesicles

b- The minimal delay time in the central nervous system is about 0.5 msec

c- Is determined by the type of the neurotransmitter

d- Is determined by the number of postsynaptic receptors

answer:B

33-An inhibitory postsynaptic potential:

a- Is due to presynaptic inhibition

b- Is a state of hyperpolarization

c- Is associated with influx of Na+ ions

d- Cannot be summated

answer:B

34-Synaptic transmission is inhibited by all the following, except:

a- Oxygen lack

b- Alkalosis

c- Acidosis

d- Prolonged activity of synapse

answer:B

35-Post-tetanic potentiation in synapses:

a- Is due to increased Ca 2+ concentration in postsynaptic neurons

b- Is due to increased Ca 2+ influx into presynaptic neurons

c- Results from slow prolonged stimulation of synapse

d- Causes fatigue of the synapse

answer:B

36-Post-tetanic potentiation is the result of:

a- Opening of voltage-gated Na + channels

b- Opening transmitter gated K+ channels

c- Accumulation of calcium in the presynaptic terminal

d- Electrotonic conduction

answer:C

37-Long-term potentiation of synaptic transmission:

a- Is involved in pain control system

b- Results from prolonged stimulation of synapses

c- Results from repetitive stimulation of presynaptic neuron

d- Is associated with decreased Ca 2+ concentration in postsynaptic neurons

answer:C

38-Small-molecule neurotransmitters include all the following types, except:

a- Substance P

b- Gamma amino butyric acid (GABA)

c- Acetylcholine

d- Norepinephrine

answer:A

40-Released neurotransmitters are inactivated by all of the following, except:

a- Active reuptake

b- Activation by enzymes

c- Diffusion away in ECF

d- Removal by glial cells

Answer:B

42-Glutamate

a- Is the most common excitatory neurotransmitter in the brain

b- Is synthesized in the cell bodies of neurons

c- Diffuses out of presynaptic neuron and into the postsynaptic neuron

d- Is derived from the amino acid tryptophan

answer:A

45-Regarding sensory receptors:

a- Stimulus energy is converted into a local depolarization

b- The receptor potential is graded and self propagating

c- The receptor potential can be produced by only one form of energy

d- The frequency of action potentials generated doubles when the strength of the stimulus doubles

answer:A

46-The encapsulated receptor that detects pressure and vibration sense is:

a- Pacinian corpuscle

b- Meissner's corpuscle

c- Free nerve endings

d- Ruffini's endings

answer:A

47-Thermal receptors are:

a- Moderately adapting receptors

b- Rapidly adapting receptors

c- Are stimulated at zero C

d- All are encapsulated receptors

answer:A

48-Impulses carrying pain sensation in the left foot are relayed:

a- Across synapses in the left posterior horn cells

b- By fibers in the left spinothalamic tract

c- By the same spinal cord tract which serves heat and cold sensation

d- To the thalamus on the left side

e- Both a and c are correct

Answer:E

49-Pain receptors in the skin are:

a- Encapsulated nerve endings

b- Single class of specialized same structure receptors

c- Same type of receptor that detects position sense

d- Free nerve endings

answer:D

50-The substance that increases the sensitivity of pain receptors but does not directly excite them is:

a- Bradykinin

b- Serotonin

c- K+

d- Prostaglandins

answer:D

51-The most important functional parameter of pain receptors is:

a- Exhibit little or no adaptation

b- Not affected by muscle tension

c- Signal only flexion at joint capsules

d- Can voluntary be inhibited

answer:A

52-Pain receptors are:

a- Similar in structure to paccinian corpuscles

b- Stimulated by a rise in the local tissue K+ concentration

c- Quick to adapt to a constant stimulus

d- Stimulated in the wall of the GIT by sharp cutting

answer:B

53-Pain receptors in the wall of GIT and urinary tract may be stimulated by all of the following, except:

a- Cutting through their wall with a sharp scalpel

b- Distention

c- Inflammation of the wall

d- Acid fluid

e- Very strong contractions behind an obstruction

answer:A

54-Visceral pain:

a- Shows relatively rapid adaptation

b- is transmitted by beta fibers in dorsal root of spinal nerves

c- Can sometimes be relieved by applying irritant to skin

d- Can be produced by prolonged stimulation of touch receptors

answer:C

55-Visceral pain:

a- Is poorly localized compared with pain arising in skin

b- May cause reflex contraction of overlying skeletal muscle

c- May cause reflex vomiting

d- May cause reflex changes in arterial blood pressure

e- All of the above

answer:E

56-Cutaneous pain:

a- Of the fast type is poorly localized

b- Can be caused by excitation of mechanical or thermal receptors

c- Receptors adapt to stimulation more rapidly than touch receptors

d- Transmission at spinal cord level is facilitated by opening of K+ channels in the postsynaptic membrane

answer:B

57-The lateral spinothalamic tract is characterized by all of the following, except:

a- Carries fibres which terminate in the thalamus

b- Contains mainly the second-order neurones.

c- Carries fibres that carry information on temperature and pain

d- Contains nerve fibres from receptors on the ipsilateral side of the body

answer:D

58-Concerning transmission of pain signals into the CNS:

a- The fast pain fibers that conduct at about 5 to 30 m/sec are classified as type C fibers

b- Type A-delta pain fibers are responsible for the localization of a pain stimulus

c- Upon entering the spinal cord dorsal horn, the fast and slow pain fibers synapse with the same population of neurons

d- The paleospinothalamic tract is specialized to rapidly conduct pain signals to the thalamus

answer:B

59-Habituation of synapses is due to:

a- Decrease release of neurotransmitters from the presynaptic neuron

b- Noxious stimuli

c- Increase Ca2 + influx in presynaptic neuron

d- Gradual decrease of response of the postsynaptic membrane due to inactivation of calcium channels in presynaptic neurons

answer:D

60-All about metabotropic receptors is correct, except that they:

a- Act by changing the level of intracellular cAMP

b- Act by increasing intracellular IP3 and DAG.

c- Are involved in the production of synaptic plasticity

d- Are ligand-gated ion channels.

Answer:D

61-Ionotropic receptors:

a- Act by increasing intracellular IP3

b- NMDA subtype receptors act by increasing K+ efflux.

c- AMPA receptors act by increasing permeability to Ca2 + ions

d- Do not contain a protein binding site.

Answer:C

62-NMDA receptors are:

a- Stimulated by acetylcholine

b- Ligand-gated cation channels.

c- Blocked by Ca2 + at normal membrane potential

d- Inhibited by consequent activation of AMPA receptors.

Answer:B

63-Inhibition of pain signals by tactile stimulation of a skin surface involves:

a- Type A alpha fibers in peripheral nerves

b- Type A beta fibers in peripheral nerves

c- Type A delta fibers in peripheral nerves

d- Type C fibers in peripheral nerves

answer:B

64-After anterolateral cordotomy, relief of pain is due to interruption of:

a- Dorsal column

b- Ventral spinothalamic tract

c- Ventral spinocerebellar tract

d- Lateral spinothalamic tract

answer:D

65-The neurons that release serotonin as chemical transmitter are located in:

a- Periaqueductal gray area

b- Interneurons of the spinal cord

c- Periventricular area

d- Nucleus raphe magnus

answer:D

66-The pathway that crosses in the ventral white commissure of the spinal cord within a few segments of entry and then ascends to the thalamus of the contralateral side is:

a- Anterolateral system

b- Dorsal column

c- Corticospinal system

d- Spinocerebellar system

answer:A

67-Slowly adapting receptors include:

a- Meissner corpuscles

b- Mechanoreceptors for crude touch

c- Free nerve endings for pain

d- Paccinian corpuscle for vibration sense

answer:C

68-Rapidly adapting receptors are involved in:

a- Initiation of muscle tone

b- Detection of joint movements

c- Regulation of heart rate

d- Both 'a' and 'b' are correct

answer:B

69-Receptors detect increased stimulus intensity by:

a- Lowering the threshold for receptor stimulation

b- By generating receptor potentials having higher magnitudes

c- By generating nerve impulses that are transmitted along sensory fibers at higher velocities

d- By enhancing the central effects of sensory impulses

answer:B

70-The ability to localize the site of stimuli depends upon:

a- The type of the stimulated receptor

b- Connections between the receptor and the sensory cortex

c- The rate of adaptation of the stimulated receptors

d- The nature of the stimulus

answer:B

71-Concerning the mechanoreceptive receptor potential:

a- Increase in stimulus energy results in an increase in receptor potential

b- When receptor potential rises above a certain threshold action potentials appear in the neuron attached the receptor

c- Number of action potentials generated in the neuron attached to the receptor is proportional to receptor potential

d- All of the above are correct

answer:D

72-Tactile receptors include the following receptors:

a- Krause receptors

b- Hair follicle receptors

c- Hair cell receptors

d- Muscle spindle

answer:B

73-Fine touch is:

a- Detected by rapidly adapting touch receptors

b- Transmitted by the ventral spinothalamic tract

c- Characterized by it emotional affect

d- Not involved in feeling the texture of touched objects

answer:A

74-A more developed two-point tactile discrimination:

a- Indicates a greater threshold distance for feeling of two points of touch applied simultaneously

b- Is seen in the proximal regions of the body compared with the distal regions

c- Is inversely related to the size of the receptive fields of the stimulated sensory units

d- Depends upon the type of the involved touch receptor

answer:C

75-Proprioceptive sensations include all the following, except:

a- Position sense

b- Equilibrium sense

c- Movement sense

d- Kinesthetic sense

answer:b

76-Proprioceptors include all the following types of receptors, except:

a- Muscle receptors

b- Pressure receptors

c- Vestibular receptors

d- Joint receptors

Answer:e

77-Proprioceptive sensations are transmitted by all the following pathways, except:

a- Spinothalamic tracts

b- Spinocerebellar tract

c- Gracile tract

d- Cuneate tract

answer:A

78-Pain sensation:

a- Is evoked by stimulation of chemosensitive pain receptors by bradykinin

b- Produces reactions that block transmission of pain impulses

c- Arises from small encapsulated receptors

d- Occurs when the stimulus causes damage of the sensory receptors

answer:A

79-Fast pain differs from slow pain in:

a- Being transmitted in the dorsal column pathway

b- Evoking a reflex spasm of the muscles

c- Having a sharp quality

d- Arising from encapsulated pain receptors

answer:C

80-Cutaneous pain is:

a- Only sharp in character

b- Transmitted by A delta sensory fibers

c- Always followed by hyperalgesia

d- Transmitted along ventral spinocerebellar tracts

answer:B

81-Primary cutaneous hyperalgesia:

a- Develops in the normal skin region around the area of flare

b- Is an abnormal condition in the skin in which painful stimuli become more severe

c- Is due to changes in threshold of pain receptors

d- Is associated with throbbing type of pain

answer:C

82-Pain produced by muscle spasm results from:

a- mechanical stimulation of pain receptor by muscle spasm

b- Decreased release of lactic acid from the spastic muscle fibers

c- Release of compounds from the spastic muscle which increase the threshold for stimulation of pain receptors

d- Increased oxygen supply to the muscle

answer:A

83-Visceral pain signals are:

a- Transmitted along sensory fibers that travel mainly with sympathetic nerves in abdomen and thorax

b- Not stimulated by ischemia in visceral organs

c- Transmitted only by the myelinated type A delta sensory fibers

d- Typically well localized

answer:A

84-Visceral pain-:

a- Is more common than the other types of pain

b- Arises only from wall of the visceral organs

c- Is often well localized

d- Evokes depressor autonomic reactions

answer:D

85-Visceral pain is usually felt:

a- Deeply in the diseased viscera

b- In deep tissues close to the diseased viscera

c- In skin areas that just overlie the diseased viscera

d- In skin areas which has the same sensory nerve supply as the diseased viscera

answer:D

86-The basis of referred pain is:

a- Visceral pain signals and pain signals from the skin synapse with separate neurons in the dorsal horn

b- Visceral pain transmission and pain transmission from the skin is received by a common set of neurons in the thalamus

c- Visceral pain signals are rarely of sufficient magnitude to exceed the threshold of activation of dorsal horn neurons

d- Some visceral pain signals and pain signals from the skin converge on a common set of neurons in the dorsal horn

answer:D

87-Intracranial headache could result from injurious stimuli applied on:

a- The dura lining the inner surface of the bones of cranial vault

b- The brain tissue

c- Wall of big intracranial veins

d- Arachnoid mater

answer:C

-88Transmitters in pain control system include all the following. except

a- Serotonin

b- Acetylcholine

c- Enkephalin

d- Beta endorphin

answer:B

89-Enkephalin binds best with:

a- delta opiate receptors

b- mu "u" opiate receptors

c- kappa 'K' opiate receptors

d- All opiate receptors with equal affinity

answer:A

90-Which of the following substances is most likely to be associated with production of pain after an injury?

a- Acetylcholine

b- Adrenaline

c- GABA

d- Substance P

answer:D

91-Enkephalin blocks pain transmission by:

a- Blocking the response of pain receptors to painful stimuli

b- Slowing down transmission of pain impulses through synapses in the pain pathway

c- Inhibiting the response of the cerebral cortical somatic sensory area to pain signals

d- Blocking Ca 2+ channels in the central terminals of pain sensory fibers

answer:D

92-A lesion of the dorsal column pathway is most likely to affect:

a- Fine touch

b- Hearing

c- Pain sensation

d- Temperature sensation

e- Visual acuity

answer:A

93-A patient complaining of loss of pain and temperature sensation in the left leg is most likely to have a lesion of the:

a- Left corticospinal tract

b- Left anterior spinothalamic tract

c- Left lateral spinothalamic tract

d- Right anterior spinothalamic tract

e- Right lateral spinothalamic tract

answer:E

94-The following sensations are transmitted in the dorsal column of the spinal cord, except:

a- Temperature

b- Vibration

c- Proprioception

.d- Joint position

97-A subject suffers from right hemisection of the spinal cord shows:

a- Upper motor neuron paralysis at the level of the hemisection

b- Loss of pain and temperature on the right side below the level of the section.

c- Loss of fine touch and vibration sense on the left side below the level of the section.

d- Loss of all sensations on the same side at the level of the section

answer:D

98-Tabes doralis is:

a- Due to virus infection of the posterior root ganglia.

b- Accompanied with shuffling gate

c- Accompanied with loss of crude touch.

d- Accompanied with incoordination of voluntary movements

answer:D

99-Regarding secondary hyperalgesia:

a- Pain threshold is low.

b- May be due to sun burn.

c- Skin is reddish in color.

d- May be caused by thalamic syndrome.

Answer:D

100-Concerning primary hyperalgesia:

a- Pain threshold is high.

b- May be due to sun burn.

c- Skin is normal. .

d- May be caused by thalamic syndrome

answer:B

101-Regarding Syrinogomyelia:

a- Fine touch is preserved.

b- Is due to dilatation of the central canal

c- There is dissociated sensory loss.

d- All of the above.

Answer:D

102-Damage of the posterior column may impair the following, except:

a- The abilityto stand steadily with the eyes closed.

b- Pain sensation.

c- Vibration sensation.

d- Kinesthetic sensations.

Answer:B

Motor Nervous System

1-Higher motor commands originate in all the following centers, except:

a- Cerebral cortex

b- Thalamus

c- Caudate nucleus

d- Cerebellum

answer:A

2-A reflex arc includes:

a- At least two sets of sequential neurons

b- At least two sequential sets of central synapses

c- At least two types of sensory receptors

d- At least two types of efferent neurons

answer:A

3-Muscle spindles:

a- Are found in all skeletal muscles

b- Are found only in large skeletal muscles

c- Consist of small numbers of extrafusal muscle fibers

d- Consist of a large number of extrafusal muscle fibers

answer:A

4-The nuclear-bag fibers of muscle spindles are innervated by:

a- A gamma nerve fibers

b- A beta nerve fibers

c- A delta nerve fibers

d- Ia nerve fibers

answer:D

5-The nuclear-chain fibers of spindles are innervated by:

a- A alpha and A delta nerve fibers

b:-A delta and C nerve fibers

c- Ia and II nerve fibers

d- Only type II nerve fibers

answer:C

6-The central ends of afferents from muscle spindles synapse with all the following types of neurons, except:

a- a-motor neurons of the same muscle

b- gamma-motor neurons of the same muscle

c- Local interneurons

d- 2nd order neurons of ascending sensory pathways

answer:B

7-Gamma-motor innervations of muscle spindles produce:

a- Contraction of the central region of the spindle fibers

b- Increased sensory discharge from the central region of the spindle fibers

c- Decreased sensory discharge from the central region of the spindle fibers

d- Relaxation of the peripheral regions of the spindle fibers

answer:B

8-Discharge from muscle spindles could be increased by all the following, except:

a- Increased a-motor neuron discharge

b- Increased gamma-motor neuron discharge

c- Stretch of the intrafusal muscle fibers

d- Stretch of the extrafusal muscle fibers

answer:A

9-Increased gamma-motor neuron discharge stimulates muscle spindles, because it:

a- Produces stretch of the extrafusal muscle fibers

b- Causes stretch of the peripheral regions of the intrafusal fibers

c- Causes stretch of the central region of the intrafusal fibers

d- Stimulates directly the sensory fibers innervating muscle spindles

answer:C

10-The gamma efferent neurons:

a- Controls spindle activity during voluntary movements.

b- Supplies the central zone of intrafusal muscle fibres.

c- Is inhibited by the vestibule-spinal tract.

d- When stimulated, causes less discharge of muscle spindles.

Answer:A

11-Co-activation of alpha and gamma-motor neurons:

a- Increases gamma-motor neuron discharge whenever the activity of a-motor neurons increases

b- Is mediated by interneurons that link the a and gamma-motor neurons

c- Maintains the proprioceptive information to higher centers during muscle contraction

d- Increases the a-motor neuron discharge whenever the activity of gamma-motor neurons increase

answer:C

12-Whenever the position of a joint is stabilized at a certain attitude, the nervous system produces this by:

a- Increasing the alpha-motor neuron discharge to all muscles attached to the joint

b- Increasing the gamma-motor neuron discharge to all muscles attached to the joint

c- Increasing gamma-motor neuron discharge to postural muscles

d- Co-activation of alpha and gamma-motor neurons innervating the involved muscles

answer:D

13-The shortest reflex time is recorded with:

a- A flexor withdrawal reflex

b- An inverse stretch reflex

c- A stretch reflex

d- A scratch reflex

answer:C

14-When a skeletal muscle is suddenly stretched it:

a- Relaxes suddenly

b- Develops a static stretch reflex

c- Develops a dynamic stretch reflex

d- Develops clonic contractions

answer:C

15-Which of the following reflexes is correctly paired with its receptor?

a- Autogenic inhibition - muscle spindle

b- Reciprocal inhibition -: Golgi tendon organ

c- Reciprocal inhibition - Pacinian corpuscle

d- Stretch reflex - muscle spindle

e- Golgi tendon reflex - Meissner corpuscle

answer:D

16-Sensory impulses from spindles of a stretched muscle could inhibit antagonistic muscles by:

a- Directly inhibiting gamma-motor neurons of the antagonistic muscles

b- Directly inhibiting the alpha -motor neurons of the antagonistic muscles

c- Inhibiting the transmitter release from the central terminals of afferents from the spindles of the antagonistic muscles

d- Activation of inhibitory interneurons

answer:D

17-Antigarvity muscles maintain stretch reflex for prolonged periods without fatigue, because they：

a- Are heavily innervated by alpha-motor neurons

b- Obtain their energy needs mainly from anaerobic metabolic processes

c- Contain exceptionally high levels of creatine phosphate

d- Are rich in mitochondria

answer:D

18-The discharge from Golgi tendon organs initiated by excessive stretch of a skeletal muscle produces:

a- Inhibition of alpha -motor neurons of antagonistic muscles

b- Inhibition of gamma-motor neurons of antagonistic muscles

c- Inhibition of alpha -motor neurons of the same muscle

d- Stimulation of gamma-motor neurons of the same muscle

answer:C

19-The stimulation of nerve endings in the Golgi tendon organs leads directly to:

a- Contraction of extrafusal muscle fibers

b- Contraction of intrafusal muscle fibers

c- Increased gamma efferent discharge

d- Increased activity in group II afferent fibers

e- Reflex inhibition of motor neurons

answer:E

20-On overstretching a normally innervated skeletal muscle, it relaxes due to:

a- Decreased discharge from the annul spiral endings.

b- Decreased discharge in the gamma efferent neurons.

c- Increased discharge from the antagonistic muscle.

d- Increased activity of the alpha motor neurons.

e- Increased activity of the Golgi tendon organ

answer:E

21-Inverse stretch reflex:

a- Increases the possibility of avulsion of the excessively stretched muscle from its bony attachments

b- Has no reciprocal innervation circuits

c- Is clinically manifested by lengthening reaction

d- Is clinically tested by examining the tendon jerks

answer:C

22-All the following about muscle tone is true, except:

a- Assessed as a resistance offered by a muscle on a passive stretch.

b- Reduced during sleep

c- Altered during stress.

d- Increased after loss of function of motor area 4

e- More in antigravity muscle

answer:D

23-Skeletal muscle tone is:

a- A dynamic stretch reflex

b- A state of alternative contraction and relaxation

c- Increased during rest

d- Decreased during standing upright

answer:B

24-Gamma-motor neurons control muscle tone by adjusting the:

a- Supraspinal facilitatory discharge

b- a -motor neuron discharge

c- Muscle spindle discharge

d- Activity of interneurons in the reflex arc of muscle

answer:C

25-A tendon jerk is:

a- A dynamic stretch reflex

b- A static stretch reflex

c- Evoked by gradually stretching the muscle

d- Evoked by stimulation of tendon receptors

answer:A

27-Tendon jerks are clinically examined to asses:

a- Integrity of muscle spindles

b- Integrity of reflex pathway

c- The total reflex time of the jerk

d- Central delay time of the jerk

answer:B

28-Absence of a tendon jerk could result from any of the following conditions, except:

a- Lesions of supraspinal facilitatory centers

b- Lesions of the efferent neurons

c- Lesions of the afferent neurons

d- Lesions of the spinal nerve centers

answer:A

29-Exaggeration of tendon jerks could result from any of the following conditions.•. except:

a- Lesions of supraspinal facilitatory centers

b- Lesions of supraspinal inhibitory centers

c- Increased gamma-motor neuron discharge

d- Anxiety

answer:A

30-Concerning the flexor withdrawal reflexes:

a- They involve reciprocal innervations

b- Their central delay equals 0.5 msec.

c- It is a monosynaptic reflex.

d- It provides an example of a deep reflex.

Answer:A

31-The crossed extensor reflex:

a- Provides a typical example of a deep reflex.

b- Is monosynaptic.

c- Does not involve reciprocal inhibition.

d- Supports the body against gravity

answer:D

32-Which of the following is a supraspinal excitatory to the gamma motor neurons?

a- Medullary reticular formation

b- Red nucleus.

c- Neocerebellum

d- Paleocerebellum.

e- Motor area 6

answer:C

33-Decreased muscle tone occurs in:

a- Activation of gamma-fibers

b- Anxiety

c- LMNL

d- Parkinson's disease

e- UMNL

answer:C

24-Clonus:

a- Is a sign of decreased supraspinal facilitation

b- Initiated by briefly stretching the tendon of the muscle

c- Is manifested as oscillating mechanical vibrations following tendon jerks

d- Associates exaggeration of tendon jerks

answer:D

35-Regarding reflexes:

a- A monosynaptic reflex arc involves one or more interneurons

b- The knee jerk reflex is an example of a stretch reflex

c- Interneurons are the final common path for all reflexes

d- Withdrawal reflexes are lost following cervical section of the spinal cord.

Answer:B

36-Regarding the role of muscle spindles and Golgi tendon organs:

a- Muscle spindles measure the tension of skeletal muscle.

b- Golgi tendon organs measure the length of skeletal muscles.

c- Muscle spindles receive both afferent and efferent nerve fibers

d- Muscle spindles are only of importance in the regulation of posture

answer:C

63-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

answer:B

64-Parkinsonism is associated with:

a- Static tremors

b- Staccato speech

c- Hypertonia affecting mainly antigravity muscles

d- Stamping gait

e- Both A and B are correct

answer:A

65-The affected area involved in Parkinsonism is:

a- Basal ganglia

b- Motor cortex

c- Neostriatum

d- Red nucleus

e- Substantia nigra

answer:E

66-Which of the following is the neurotransmitter of the nigrostriatal pathway?

a- Dopamine

b- GABA

c- Glycine

d- Serotonin

e- Noradrenaline

answer:A

67-Which of the following is not a part of the basal ganglia?

a- Caudate nucleus

b- Dentate nucleus

c- Substantia nigra

d- Putamen

e- Globus pallidus

answer:B

68-Hemiballismus is due to lesion in the:

a- Subthalamic nuclei

b- Ventral basal complex of the thalamus

c- Globus pallidus

d- Red nucleus

e- Lateral hypothalamus

answer:A

69-Athetosis is due to dysfunction of:

a- Globus pallidus

b- Substantia nigra

c- Caudate nucleus

d- Putamen

e- Subthalamic nucleus

answer:A

70-Activity of RAS produces:

a- Sleep

b- Awakening

c- Drowsiness.

d- Coma

answer:B

76-Regarding rigidity associated with Parkinsonism, it is:

a- Accompanied with hyperkinesia

b- Lead pipe or cog-wheel rigidity

c- Clasp knife rigidity.

d- Associated with increased tendon jerks

answer:B

77-An abnormal Babinski reflex indicates damage to the:

a. Spinal cord

b. Brainstem

c. Cerebellum

d. Basal ganglia

e. Pyramidal tract

answer:E