

Neuroscience II System

Prepared by [@Medicine is life](#)

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1. All of the following are true of "peripheral nerve cell tumors" EXCEPT
 - A. Mostly show Schwann cell differentiation
 - B. May arise within the dura
 - C. May be associated with "neurofibromatosis syndromes"
 - D. Schwannomas arise directly from nerves
 - E. In the hereditary form Schwannomas arise as a component of "neurofibromatosis type 1"

2. Loss of function of "merlin" protein is frequently encountered in the formation of
 - A. Diffuse neurofibroma
 - B. Superficial cutaneous neurofibroma
 - C. Plexiform neurofibroma
 - D. Schwannoma
 - E. Malignant peripheral nerve sheath tumor

3. Pathologic examination of a mass attached to radial nerve revealed alternating hyper and hypocellular regions, parallel arrangement of the spindle cells nuclei with nuclear "buckling", and positive staining with S100 protein. This neoplasm is expected to show
 - A. continuous active RAS
 - B. increased GTPase activity of RAS
 - C. decreased GTPase activity of RAS
 - D. loss of GAP
 - E. loss of function of "NF2" gene

4. Which of the following cells of neurofibroma secrete factors stimulate the growth of Schwann cells as a response to KIT ligand produced by Schwann cells?

- A. Mast cells**
- B. Fibroblasts**
- C. Perineurial like cells**
- D. CD34+ spindle cells**
- E. T lymphocytes**

5. A 30 years old man has a diagnosis of "plexiform neurofibroma". He is expected to show

- A. 8th nerve schwannoma**
- B. Multiple meningiomas**
- C. Pigmented nodules of the iris**
- D. Spinal cord ependymoma**
- E. Schwannoma**

6. Which of the followings is TRUE of multiple sclerosis?

- A. It's a pure hereditary disorder**
- B. Its more frequent in regions far away from the equator**
- C. Characterized by destruction of both myelin and axons**
- D. Shows well demarcated plaques mainly seen in the grey matter**
- E. Staining of the plaques with "luxol" will reveal abundant blue color.**

7. Which of the following statements is TRUE?

- A. Platinum compounds cause demyelinating neuropathy**
- B. The anatomic pattern of peripheral neuropathy in vasculitis is mononeuropathy**

- C. "Radiculoneuropathy" is the anatomic pattern seen in "Guillain-Barre Syndrome"
- D. Most of the cases of Guillain-Barre Syndrome are preceded by influenza like illness associated with peripheral nerve direct infection by C. jejuni
- E. The inflammatory process in Guillain-Barre Syndrome is more prominent in the distal part of the nerves

8. A 25 years old female presented with the complaint of painless muscle weakness, physical examination revealed no additional findings, by CT scan a 15 cm regular mass was detected in the anterior mediastinum. The expected diagnosis is characterized by

- A. Demyelinating plaques in the cerebral white matter
- B. Dense inflammation of the posterior nerve roots
- C. Destruction of the spinal motor neurons associated with axon degeneration
- D. Autoantibodies against neuromuscular junction elements
- E. Hereditary loss of "neurofibromin"

9. Which type of metabolic disease caused due to Hexosaminidase A enzyme deficiency:

- A. Fabry's disease
- B. Niemann-Pick disease
- C. Gaucher's disease
- D. Tay-Sachs disease

10. Glutamate ionotropic NMDA receptor blocked and inhibit over depolarization by:

- A. Na⁺
- B. K⁺
- C. Mg⁺⁺
- D. Ca⁺⁺

11. The critical enzyme catalysis the conversion of glutamate to GABA

- A. Glutamic acid decarboxylase**
- B. Glutaminase**
- C. Glutamine synthetase**
- D. Adenyl cyclase**

12. GABA receptor activated through increase the action of:

- A. Na⁺**
- B. K⁺**
- C. Mg⁺⁺**
- D. Cl⁻**

13. Neurotransmitters in Parkinson's disease patients would be as:

- A. Increased GABA and decreased glutamate**
- B. Decrease GABA and increase glutamate**
- C. Decrease GABA and glutamate**
- D. Increase GABA and glutamate**

14. Dopamine receptor D2 family inhibit adenyl cyclase enzyme in order to stimulate:

- A. Depolarization**
- B. Hyperpolarization**
- C. K⁺ current**
- D. All of them**

15. Dopaminergic pathway responsible of motor function:

- A. Mesolimbic pathway**

- B. Mesocortical pathway**
- C. Nigrostriatal pathway**
- D. Tuberoinfundibular pathway**

16. Sphingomyelins abundant in brain tissue, composed of:

- A. Glycerol, fatty acids, phosphoric acid, and choline**
- B. Glycerol, sphingosine, choline and fatty acids**
- C. Sphingosine, phosphoric acid, Glycerol and inositol**
- D. Sphingosine, 1 fatty acids, phosphoric acid and 2 choline**

17. One of the following receptors is telereceptor:

- A. Taste receptors.**
- B. Photoreceptors.**
- C. Pain receptors.**
- D. Touch receptors.**
- E. Muscle stretch.**

18. Which statement about peripheral nerve characteristics is correct?

- A. The peripheral nerves are bundles of axons or nerve fibers surrounded by four layers of connective tissue.**
- B. Their outermost covering the nerve fascicles is called epineurium.**
- C. All peripheral nerves are myelinated.**
- D. Conduction velocity of a peripheral nerve is determined only by its diameter.**
- E. Autonomic nerve fibers are 1 myelinated.**

19. The functional modality of the auditory sensation is:

- A. Special somatic afferent.**
- B. General visceral afferent.**
- C. Special visceral afferent fibers.**
- D. General somatic afferent.**
- E. General visceral efferent.**

20. An elderly patient with Alzheimer disease is diagnosed with degenerative changes to the amygdala on both sides. Which one of the following statements about the amygdala is true?

- A. The 2 central part of amygdala regulates the emotional affective response to smell and food.**
- B. It contains tuberculum part.**
- C. In emotional learning, outputs from the amygdala go via the posterior nucleus of the thalamus.**
- D. The basolateral amygdala plays a role in the regulation of visceral responses to stimuli.**
- E. Lesions can lead to lack of emotional responses & docility.**

21. Which of the following cutaneous receptors is unencapsulated and fast adapting?

- A. Meissner's corpuscles.**
- B. Pacinian corpuscles.**
- C. Ruffini's end organs.**
- D. Merkel's complex.**
- E. Hair follicle endings**

22. One of the following structures is part of the subcortical limbic system:

- A. Uncus.**
- B. Subcallosal area.**
- C. Cingulate gyrus.**

D. Amygdala.

E. Parahippocampal gyrus.

23. Damage of what of the following structures results in the inability to form long-term memories?

A. Hippocampus.

B. Amygdala.

C. Cingulate gyrus.

D. Hypothalamus.

E. Central tegmental area.

24. All of the following are parts of Papez Circuit, Except:

A. Hypothalamus.

B. Mammillary bodies.

C. Anterior nuclei of thalamus.

D. Cingulate gyrus.

E. Hippocampus.

25. Which of the following structures is related to subcortical structures of limbic system and basal nuclei?

A. Cingulate gyrus.

B. Fornix.

C. Hippocampus.

D. Septal nuclei.

E. Amygdala.

26. A 37-year-old man complained of recurring episodes of loss of awareness lasting two to three minutes. During these he would stop speaking, stare and smack his lips. He would be unable to finish a sentence. He might drop any object he was holding. Between episodes he was normal. The most probable cause for his symptoms would be:

- A. Tonic seizures "Grand mal epilepsy".**
- B. Absence seizures.**
- C. Simple partial seizures.**
- D. Temporal lobe epilepsy.**
- E. Myoclonic seizures.**

27. What is the characteristic EEG sign of absence epilepsy??

- A. Slow waves activity without spikes.**
- B. Focal 3 Hz spike-and-waves activity**
- C. Generalized 3 Hz spike-and-slow waves activity**
- D. Focal spikes.**
- E. Generalized spikes.**

28. The frontal eye conjugate center is located in the:

- A. Area 4.**
- B. Area 6.**
- C. Area 45.**
- D. Area 8.**
- E. Area 11.**

29. Which of the following structures is responsible for generating a plan for movement?

- A. Supplementary motor area.**
- B. Primary motor cortex.**

- C. Angular gyrus.
- D. Postcentral gyrus.
- E. All of the above.

30. Which immune cell type is primarily responsible for surveying the central nervous system and participating in immune responses within the CNS?

- A. Neutrophils.
- B. Microglia.
- C. Mast cells.
- D. T cells.

31. A 28-year-old woman, presents with a history of recurrent episodes of visual disturbances, numbness, and weakness in her limbs. Her symptoms tend to improve over time but leave her with residual disability. A detailed medical history reveals that 5 years ago she was previously diagnosed with Hashimoto's thyroiditis. Neurological examination shows signs of motor dysfunction and an MRI reveals lesions consistent with demyelination in her brain and spinal cord. Based on her symptoms, examination findings, and MRI results, which class of immune cells is thought to play a central role in the inflammation and demyelination seen in her condition?

- A. Helper T cells (Th cells).
- B. Cytotoxic T cells.
- C. Regulatory T cells (Tregs).
- D. Natural killer (NK) cells.

59. A wide variety of neurotransmitters have been identified in the cell bodies and efferent synaptic terminals in the basal ganglia. A deficiency of which of the following transmitters is typically associated with Parkinson disease?

- A. Norepinephrine
- B. Dopamine

C. Serotonin

D. GABA

E. Substance P¹

60. Hemiballismus, the sudden flailing movements of an entire limb, results when damage occurs to which area of the brain?

A. The subthalamic nucleus²

B. The ventral basal complex of the thalamus

C. The globus pallidus

D. The red nucleus

E. The lateral hypothalamus³

61. Bilateral lesions involving the ventromedial hypothalamus will lead to which of the following deficits?

A. Decreased eating and drinking

B. Loss of sexual drive

C. Excessive eating, rage and aggression, hyperactivity

D. Uterine contractility, mammary gland enlargement

E. Obsessive-compulsive disorder⁴

62. An 83-year-old man is brought to the emergency department by his daughter, who explains that her father started having "fits." The examination reveals⁵ an alert, otherwise healthy, man who frequently has uncontrollable flailing movements of his left arm. Which of the following structures is most likely involved in this lesion?⁶

A. Cerebellar cortex plus nuclei

B. Reticular nucleus

C. Subthalamic nucleus

- D. Ventral lateral nucleus**
- E. Ventral posterolateral nucleus**

63. Which of the following thalamic nuclei has a motor function?

- A. Lateral dorsal nucleus**
- B. Mediodorsal nucleus**
- C. Ventral lateral nucleus⁷**
- D. Lateral posterior nucleus**
- E. Lateral posterior nucleus**

64. Spinothalamic fibers project to which one of the following thalamic nuclei

- A. Ventral posteromedial (VPM) nucleus**
- B. Pulvinar**
- C. Ventral anterior nucleus**
- D. Ventral posterolateral (VPL) nucleus**
- E. Anterior nucleus⁸**

65. Cerebellar fibers project to which one of the following nuclei

- A. Ventral posteromedial (VPM) nucleus**
- B. Lateral dorsal nucleus**
- C. Lateral posterior nucleus**
- D. Ventral lateral nucleus**
- E. Anterior nucleus**

66. Thalamus receives precortical sensory input from all of the following except:

- A. general somatic sense**

B. gustation

C. vision

D. audition

E. olfaction

67. Which of the following is NOT a component of the basal ganglia?

A. Substantia nigra

B. Hippocampus

C. Putamen

D. Globus pallidus

68. The indirect pathway of the basal ganglia:

A. Facilitates movement

B. Inhibits movement

C. Regulates hormone production

D. Controls blood pressure

69. Which structure in the diencephalon serves as a major relay station for sensory information to the cerebral cortex?

A. Thalamus

B. Hypothalamus

C. Pineal gland

D. Pituitary gland

70. The diencephalon is connected to the pituitary gland through the:

A. Corpus callosum

B. Medulla oblongata

C. Optic chiasm

D. Infundibulum

71. Regarding basal ganglia, Striatum consists of:

A. Putamen + Caudate nucleus

B. Putamen + Globus pallidus

C. Subthalamic nucleus + substantia nigra

D. Caudate nucleus + Globus pallidus

72. Simultaneous attention is:

A. type of attention, elicited by attending to multiple events at the same time.

B. characterized by alternating attention and focus between multiple activities.

C. characterized by halting one activity before switching to the next activity.

D. involves interrupted attention to several activities occurring at the same time.

73. In divided attention, all of the following is true EXCEPT:

A. individuals attend or give attention to multiple sources of information

B. driving performance is better while engaged in multiple tasks

C. research shows that when multitasking, people make more mistakes

D. Research shows that when multitasking, people perform their tasks more slowly.

74. All of the following statements regarding attention are true EXCEPT:

A. Exogenous orienting is frequently described as being under control of a stimulus.

B. Orienting is considered to be reflexive and automatic and is caused by a sudden event.

C. Endogenous orienting is the intentional allocation of attention resources to a predetermined goal.

D. Exogenous orienting attention occurs when attention is oriented according to one's goals.

75. If you want to know the shortest way to get to the new coffee shop in town, what type of problem-solving skills would be the most efficient among the following:

A. Working Backward

B. Heuristic, or "rule of thumb"

C. Algorithms

D. Trial and Error

76. Which part of the brain is thought to be mediating executive functions?

A. Limbic system

B. Thalamus

C. Prefrontal cortex

D. Cerebellum

77. Which of the following is considered to be a function of sleep?

A. Restorative/homeostatic

B. Thermoregulation/energy conservation

C. Consolidation of learning and memory

D. Programming of species-specific behaviors

E. All of the answers

78. All of the following are part of sleep hygiene except one:

A. Education about sleep habits and behaviors

B. Eat a heavier diet

C. Limit use of alcohol and tobacco

D. Vigorous exercise just before bed time

E. Set regular sleep and wake times

79. All of the following physiological changes occurs during REM sleep except one:

A. Autonomic slowing

B. Skeletal muscles paralysis

C. Full penile erection

D. Altered thermoregulation

E. Significant vaginal lubrication

80. Perception of an emotion-arousing stimulus leads to the concurrent experience of emotion and physiological response. Thalamus controls processing of sensory1 information. This theory of emotional perception is

A. CANNON-BARD THEORY

B. Osgood shlatter theory

C. JAMES-LANGE THEORY

D. John Bowlby theory

E. Adolph Meyer theory

81. The period of pairing required between an unconditioned stimulus and a conditioned stimulus in Pavlovian experiment for the association to be learned and the conditioned response to occur is called the

A. Extinction

B. acquisition stage

C. delay conditioning

D. classical conditioning

E. Typical response

82. Which of the following divisions of sensory memory is true

- A. echoic is verbal memory**
- B. iconic is gustatory memory**
- C. haptic is visual memory**
- D. echoic is auditory memory**
- E. iconic is touch memory**

83. Which of the following subtype of memory had the ability to store more information (unlimited) for long periods of time

- A. sensory memory**
- B. short term memory**
- C. verbal memory**
- D. visual memory**
- E. long term memory**

84. New learning disrupts the recall of a previously learned item this theory of forgetting is called

- A. decay theory**
- B. interference theory**
- C. proactive forgetting theory**
- D. repression theory**
- E. displacement theory**

85. Which of the following subtypes of memory is the least affected by dementia

- A. semantic memory**
- B. declarative memory**
- C. procedural memory**
- D. episodic memory**
- E. sensory memory**

86. All of the followings about Wernicke area is true except one

- A. Concerned with comprehension of auditory and visual information.**
- B. provides the neural circuitry for word formation**
- C. Located at the posterior end of the superior temporal gyres**
- D. Formation of thought in response to sensory experience**
- E. Interpretations of sensory experience**

87. Which of the followings can be as a result of Broca area damage

- A. Word blindness**
- B. unable to interpret the thought**
- C. fluent aphasia**
- D. Understanding normal but Voice production defective**
- E. conduction aphasia**

88. Disorder in articulation. It happens in some individuals who has no abnormality in the speech center or in its pathways

- A. Dysarthria**
- B. Dysphasia**
- C. Stuttering**
- D. Dysphonia**
- E. Aphasia**

89. According to Maslow hierarchy of human needs, Each individual has needs, or feelings of deficiency that drive their behavior, Once a need is satisfied, then it is no longer motivating. Needs are in a hierarchy that an individual moves up as they satisfy levels of needs. Which of the following needs are listed on the top of this hierarchy

- A. Need for food and water**
- B. Need for safety**
- C. Need to mean less pain and illness**
- D. Need for achievement and self-respect**
- E. Need for love and marriage**

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Dr. Eyad Hussein - CNS 2

1. Which the function of the muscle spindle:

- a) Joint movement.
- b) Pressure sense.
- c) Muscle tension or contraction.
- d) Muscle stretch.
- e) None of the above

2. All of the following are parts of the limbic system except:

- a) Uncus.
- b) Mammillary bodies.
- c) Cingulate gyrus.
- d) Thalamus.
- e) Parahippocampal gyrus.

3. The limbic System includes the following except:

- a) Cingulate gyrus.
- b) Subcalossal gyrus.
- c) Para hippocampal gyrus.
- d) Uncus.
- e) Inferior frontal gyrus.

4. Nuclei of the limbic system include all of the following EXCEPT:

- a) Caudate nucleus.
- b) Hippocampus.
- c) Amygdaloid nucleus.
- d) Mamillary body.
- e) Anterior thalamic nucleus

5. The hippocampus is closely associated with this sense:

- a) Taste
- b) Pain
- c) Vision
- d) Smell
- e) Hearing

6. Which of the following cutaneous receptors fast and unencapsulated for touch sensation?

- a) Merkel's disks
- b) Ruffini's end organs
- c) Hair follicle endings
- d) Meissner's corpuscles
- e) Pacinian corpuscles

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7. Slow pain sensation is transmitted by:

- a) Ventral spinothalamic tract to the cortical sensory area
- b) Neospinothalamic tract to the cortical sensory area.
- c) Paleospinothalamic tract to cortical sensory area.
- d) Neospinothalamic tract to the thalamus and reticular formation
- e) Paleospinothalamic tract to the thalamus and reticular formation

8. Which of the following proprioceptive receptors is play role in control of joint torque?

- a) Muscle spindles.
- b) Golgi tendon organs of the joint.
- c) Ruffini's corpuscles of the joint.
- d) Merkel's disks of the joint.
- e) Pacinian corpuscles of the joint.

9. The sensory functional modality of hearing and vision is:

- a) Special visceral afferent fibers.
- b) Special somatic afferent.
- c) None of the above.
- d) General somatic afferent.
- e) General visceral afferent.

10. Which of the following receptors is chemoreceptor and also teleceptor?

- a) Visual receptors "Cones and Rods".
- b) Auditory receptors.
- c) Taste receptors.
- d) Glucoreceptors in hypothalamus.
- e) Smell receptors.

11. What is the function of golgi tendon organ:

- a) Fine touch
- b) Vibration sense
- c) Muscle tension
- d) Muscle stretch
- e) Pressure sense

12. The function of pacinian corpuscles

- a) Fine touch
- b) Vibration
- c) Muscle contraction
- d) Muscle stretch
- e) Crude touch

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13. The function of merkel's is

- a) Fine touch
- b) Vibration
- c) Muscle contraction
- d) Muscle stretch
- e) Crude touch

14. The function of nerve ending's

- a) Deep sensation
- b) Vibration
- c) Muscle contraction
- d) Crude touch
- e) Pain

15. C-nerve fibers are

- a) Small myelinated fibers
- b) large myelinated fibers
- c) Small unmyelinated fibers
- d) Small unmyelinated fibers
- e) Non of the above

16. Function of c-nerve fibers

- a) Vibration
- b) Muscle stretch
- c) Sharp "fast pain"
- d) Dull and burning sensation "slow pain"
- e) Non of the above

17. Function of A-delta nerve fibers

- a) Vibration
- b) Muscle stretch
- c) Sharp "fast pain"
- d) Dull and burning sensation "slow pain"
- e) Non of the above

18. Pain receptors (nociceptors) are:

- a) Bipolar cells
- b) Free nerve endings
- c) Golgi tendon organ
- d) Pacinian corpuscles
- e) Non of the above

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19. Slow adapting receptors

- a) Pacinian corpuscles
- b) Meissner's corpuscles
- c) Hair follicle ending
- d) Merkel's disc
- e) Non of the above

Pharma - CNS 2

1. A 75-year-old man with moderate Parkinson disease is no longer responding to anticholinergic treatment for his tremors and bradykinesia. Which combination of antiparkinsonian drugs is an appropriate treatment plan?

- a) Amantadine, carbidopa, and entacapone
- b) Levodopa, carbidopa, and entacapone**
- c) Pramipexole, carbidopa, and entacapone
- d) Ropinirole, carbidopa, and selegiline

2. Peripheral adverse effects of levodopa, including nausea, hypotension, and cardiac arrhythmias, can be diminished by including which drug in the therapy?

- a) Amantadine
- b) Ropinirole
- c) Carbidopa**
- d) Entacapone

3. Which antiparkinsonian drug may cause vasospasm?

- a) Amantadine
- b) Bromocriptine**
- c) Entacapone
- d) Ropinirole

4. Modest improvement in the memory of patients with Alzheimer disease may occur with drugs that increase transmission at which receptor?

- a) Adrenergic
- b) Cholinergic**
- c) Dopaminergic
- d) Serotonergic

5. A 70-year-old woman with moderate to severe dementia of the Alzheimer type has been treated with an acetylcholinesterase inhibitor for 6 months at maximum dosing with minimal effect. Which medication is a glutamate receptor antagonist that could provide added benefit for management of her moderate to severe symptoms of Alzheimer disease?

- a) Rivastigmine
- b) Pramipexole
- c) Memantine**
- d) Galantamine

6. Which medication would benefit a 55-year-old female patient recently diagnosed with amyotrophic lateral sclerosis (ALS)?

- a) Pramipexole
- b) Galantamine
- c) Riluzole**
- d) Glatiramer

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Pharma - CNS 2

7. An 80-year-old male patient with moderate Alzheimer disease had a short trial of an oral medication for Alzheimer disease and experienced frequent nausea, along with difficulty swallowing the medication. Which agent is best for management of Alzheimer disease in this patient?

- a) Rivastigmine
- b) Donepezil
- c) Memantine
- d) Rotigotine

8. A 48-year-old woman with relapsing multiple sclerosis has had intolerable adverse reactions to interferon beta (depression) and dimethyl fumarate (angioedema) and now requires an alternative treatment option. Which medication is most appropriate for this patient?

- a) Riluzole
- b) Rotigotine
- c) Teriflunomide
- d) Galantamine

9. patients with Parkinson disease, even though it is also indicated for the treatment of dementia associated with Parkinson disease?

- a) Benztropine
- b) Rotigotine
- c) Rivastigmine
- d) Dimethyl fumarate

10. A 50-year-old male patient with secondary progressive multiple sclerosis reports continued difficulty walking and the distance that he can walk before being overcome by fatigue. Which agent may be beneficial to improve walking speed and disability in this patient?

- a) Dalfampridine
- b) Donepezil
- c) Riluzole
- d) Bromocriptine

11. Which one of the following statements is correct regarding benzodiazepines?

- a) Benzodiazepines directly open chloride channels.
- b) Benzodiazepines show analgesic actions.
- c) Clinical improvement of anxiety requires 2 to 4 weeks of treatment with benzodiazepines.
- d) All benzodiazepines have some sedative effects.

12. Which one of the following is a short-acting hypnotic?

- a) Phenobarbital
- b) Diazepam
- c) Chlordiazepoxide
- d) Triazolam

Pharma - CNS 2

13. Which one of the following statements is correct regarding the anxiolytic and hypnotic agents?

- a) Diazepam and phenobarbital induce the cytochrome P450 enzyme system.
- b) Phenobarbital is useful in the treatment of acute intermittent porphyria.
- c) Phenobarbital induces respiratory depression, which is enhanced by the consumption of ethanol.
- d) Buspirone has actions similar to those of benzodiazepines.

14. A 45-year-old man who has been injured in a car accident is brought into the emergency department. His blood alcohol level at admission is 275 mg/dl. Hospital records show a prior hospitalization for alcohol-related seizures. His wife confirms that he has been drinking heavily for 3 weeks. What treatment should be provided to the patient if he goes into withdrawal?

- a) No pharmacological treatment is necessary.
- b) Lorazepam.
- c) Phenytoin.
- d) Buspirone.

15. A 36-year-old male patient reports difficulty falling asleep for the past 2 weeks but needs to be able to wake up at 6 AM for work and doesn't want any daytime sedation. Which medication is best to recommend for the treatment of his insomnia?

- a) Temazepam
- b) Flurazepam
- c) Zaleplon
- d) Buspirone

16. A 45-year-old woman reports constant daytime anxiety about work and family problems. This is causing difficulties functioning and participating in necessary daily activities. Which of the following agents has a rapid anxiolytic effect and is best for the acute management of her anxiety?

- a) Buspirone
- b) Venlafaxine
- c) Lorazepam
- d) Escitalopram

17. Which of the following sedative-hypnotic agents utilizes melatonin receptor agonist as the mechanism of action to induce sleep?

- a) Zolpidem
- b) Eszopiclone
- c) Estazolam
- d) Tasimelteon

Pharma - CNS 2

18. A 50-year-old man presents with insomnia not responsive to sleep hygiene interventions. He has a long history of alcohol and opioid abuse. He has been successfully sober for 10 years but is very concerned about future addiction and dependence. Which is most appropriate to address insomnia and minimize the risk for dependence in this patient?

- a) Zaleplon
- b) Flurazepam
- c) Doxepin
- d) Zolpidem

19. A 68-year-old female patient is demonstrating signs and symptoms of insomnia, especially difficulty falling asleep. She is afraid of taking a medication that can negatively affect her memory and concentration, as she is still working as a bookkeeper. She has been taking temazepam for the past 4 days and has noticed a memory problem and would like to discontinue this medication. Which medication is most appropriate to treat the insomnia and minimize the risk for cognitive impairment?

- a) Diphenhydramine
- b) Zolpidem
- c) Alprazolam
- d) Ramelteon

20. An 18-year-old woman is admitted to the emergency room after an accidental overdose of alprazolam. She is unconscious and not considered a regular user of any medications or illicit drugs. Which treatment could be used to reverse the effect of the alprazolam overdose?

- a) Diazepam
- b) Ramelteon
- c) Flumazenil
- d) Naloxone

21. A 55-year-old teacher was diagnosed with depression. After 6 weeks of therapy with fluoxetine, his symptoms improved, but he complains of sexual dysfunction. Which of the following drugs might be useful for management of depression in this patient?

- a) Sertraline
- b) Citalopram
- c) Mirtazapine
- d) Lithium

22. A 25-year-old woman has a long history of depressive symptoms accompanied by body aches and pain secondary to a car accident. Which of the following drugs might be useful in this patient?

- a) Fluoxetine
- b) Sertraline
- c) Phenelzine
- d) Duloxetine

Pharma - CNS 2

23. A 51-year-old woman with symptoms of major depression also has angle-closure glaucoma. Which antidepressant should be avoided in this patient?

- a) Amitriptyline
- b) Bupropion
- c) Mirtazapine
- d) Fluvoxamine

24. A 36-year-old man presents with symptoms of compulsive behavior. He realizes that his behavior is interfering with his ability to accomplish his daily tasks but cannot seem to stop himself. Which drug would be most helpful to this patient?

- a) Desipramine
- b) Paroxetine
- c) Amitriptyline
- d) Selegiline

25. Which antidepressant has, as its two proposed principal mechanisms of action, 5-HT_{1A} receptor partial agonism and 5-HT reuptake inhibition?

- a) Fluoxetine
- b) Aripiprazole
- c) Maprotiline
- d) Vilazodone

26. Which antidepressant is the most sedating?

- a) Bupropion
- b) Duloxetine
- c) Doxepin
- d) Venlafaxine

27. Which mood stabilizer is completely renally eliminated and may be beneficial for patients with hepatic impairment?

- a) Valproic acid
- b) Carbamazepine
- c) Lithium
- d) Risperidone

28. Which antidepressant has, as its two principal mechanisms of action, 5-HT_{2A} receptor antagonism and receptor antagonism?

- a) Fluoxetine
- b) Doxepin
- c) Maprotiline
- d) Mirtazapine

Pharma - CNS 2

29. Which mood-stabilizing agent is most likely to decrease the thyroid function?

- a) Carbamazepine
- b) Lithium
- c) Valproic acid
- d) Chlorpromazine

30. Which antidepressant agent has significant α_1 receptor antagonism and, thus, is a poor choice in an elderly female with depressive symptoms due to a higher risk of falls related to orthostatic hypotension?

- a) Venlafaxine
- b) Bupropion
- c) Escitalopram
- d) Amitriptyline

31. An adolescent male is newly diagnosed with schizophrenia. Which antipsychotic agent may have the best chance to improve his apathy and blunted affect?

- a) Chlorpromazine
- b) Fluphenazine
- c) Haloperidol
- d) Risperidone

32. Which of the following antipsychotics is a partial agonist at the dopamine D2 receptor?

- a) Brexpiprazole
- b) Clozapine
- c) Haloperidol
- d) Risperidone

33. A 21-year-old man has recently begun pimozide therapy for Tourette disorder. He has been having "different-appearing tics," such as prolonged contraction of the facial muscles, and he experiences opisthotonos (extrapyramidal spasm of the body in which the head and heels are bent backward and the body is bowed forward). Which of the following drugs would be beneficial in reducing these symptoms?

- a) Benztropine
- b) Bromocriptine
- c) Prochlorperazine
- d) Risperidone

34. A 28-year-old woman with schizoaffective disorder (combination of mood and psychotic symptoms) reports difficulty falling asleep. Which of the following would be most beneficial in this patient?

- a) Olanzapine
- b) Haloperidol
- c) Paliperidone
- d) Ziprasidone

Pharma - CNS 2

35. Which of the following antipsychotic agents is considered to be the most potent and thus have the highest risk of extrapyramidal symptoms?

- a) Thioridazine
- b) Haloperidol
- c) Quetiapine
- d) Chlorpromazine

36. Which antipsychotic has the most sedative potential and is sometimes, questionably, used as a hypnotic agent in certain clinical settings?

- a) Fluphenazine
- b) Thiothixene
- c) Quetiapine
- d) Haloperidol

37. A 30-year-old male patient is treated with haloperidol for schizophrenia. His psychotic symptoms are well managed with haloperidol; however, he is reporting restlessness, the inability to sit still at the dinner table, and his family notices that he frequently paces the hallway. Which is the best agent to treat this antipsychotic induced akathisia?

- a) Benztropine
- b) Dantrolene
- c) Bromocriptine
- d) Propranolol

38. Which antipsychotic agent is available in an LAI formulation that may be useful for patients with difficulty adhering to therapy?

- a) Asenapine
- b) Chlorpromazine
- c) Clozapine
- d) Aripiprazole

39. Which antipsychotic agent is most associated with the possibility of a hematological dyscrasia such as agranulocytosis in a patient being treated for schizophrenia?

- a) Chlorpromazine
- b) Buspirone
- c) Lithium
- d) Clozapine

Pharma - CNS 2

40. Which antipsychotic agent has been most associated with significant QT interval prolongation and should be used with caution in patients with preexisting arrhythmias or patients taking other drugs associated with QT prolongation?

- a) Thioridazine
- b) Risperidone
- c) Asenapine
- d) Lurasidone

41. A 9-year-old boy is sent for neurologic evaluation because of episodes of apparent inattention. Over the past year, the child has experienced episodes during which he develops a blank look on his face and his eyes blink for 15 seconds. He immediately resumes his previous activity. Which best describes seizures in this patient?

- a) Focal
- b) Tonic-clonic
- c) Absence
- d) Myoclonic

42. A child is experiencing absence seizures that interrupt his ability to pay attention during school and activities. Which therapy is most appropriate for this patient?

- a) Ethosuximide
- b) Carbamazepine
- c) Diazepam
- d) Watchful waiting

43. Which drug is most useful for the treatment of absence seizures?

- a) Topiramate
- b) Tiagabine
- c) Levetiracetam
- d) Lamotrigine

44. A 25-year-old woman with generalized seizures is well controlled on valproate. She indicates that she is interested in becoming pregnant in the next year. With respect to her antiseizure medication, which of the following should be considered?

- a) Leave her on her current therapy.
- b) Consider switching to lamotrigine.
- c) Consider adding a second antiseizure medication.
- d) Decrease her valproate dose.

45. Which is a first-line medication for generalized tonic-clonic seizures?

- a) Ethosuximide
- b) Felbamate
- c) Vigabatrin
- d) Topiramate

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Pharma - CNS 2

46. A woman with generalized seizures is well controlled with lamotrigine. She becomes pregnant and begins to have breakthrough seizures. What is most likely happening?

- a) Her epilepsy is getting worse.
- b) Lamotrigine concentrations are increasing.
- c) Lamotrigine concentrations are decreasing.
- d) Lamotrigine is no longer efficacious for this patient.

47. A 42-year-old man undergoes a neurologic evaluation because of episodes of apparent confusion. Over the past year, the man has experienced episodes during which he develops a blank look on his face and fails to respond to questions. Moreover, it appears to take several minutes before the man recovers from the episodes. Which best describes this type of seizure?

- a) Focal (aware)
- b) Focal (impaired awareness)
- c) Tonic-clonic
- d) Absence

48. A 52-year-old man has had several focal seizures with impaired consciousness over the last year. Which is the most appropriate initial therapy for this patient?

- a) Ethosuximide
- b) Levetiracetam
- c) Diazepam
- d) Carbamazepine plus primidone

49. A patient with focal seizures has been treated for 6 months with carbamazepine but, recently, has been experiencing breakthrough seizures on a more frequent basis. You are considering adding a second drug to the antiseizure regimen. Which of the following drugs is least likely to have a pharmacokinetic interaction with carbamazepine?

- a) Topiramate
- b) Tiagabine
- c) Levetiracetam
- d) Lamotrigine

50. A 75-year-old woman had a stroke approximately 1 month ago. She is continuing to have small focal seizures where she fails to respond appropriately while talking. Which is the most appropriate treatment for this individual?

- a) Phenytoin
- b) Oxcarbazepine
- c) Levetiracetam
- d) Phenobarbital

Pharma - CNS 2

51. A 55-year-old woman with schizophrenia has been taking fluphenazine for 10 years to control her symptoms. At her regular 6-month checkup today, she complains of uncontrollable lip puckering movements. What is the next step the physician should take?

- a) Add another neuroleptic that will help fluphenazine control the twitches
- b) Ask about illicit drug use
- c) Consider discontinuing her medication
- d) Increase the dose of fluphenazine
- e) No change is necessary

52. A 54-year-old man with seizure disorder and chronic neuropathic pain presents to his primary care physician for follow-up. Review of his laboratory studies indicates elevated liver function tests to four times the normal levels. Which of the following agents would be preferred to manage this patient?

- a) Carbamazepine
- b) Phenobarbital
- c) Phenytoin
- d) Pregabalin

53. A 16-year-old boy is brought to the urgent care clinic after suffering an episode of lip smacking followed by stiffness and convulsions. His mother explains that this is the third such attack in the past 2 years and that each attack has lasted about a minute. The pediatrician prescribes carbamazepine to control his seizures. What is the mechanism of action of this agent?

- a) Inhibition of calcium channels
- b) Inhibition of potassium channels
- c) Inhibition of sodium channels
- d) Potentiation of GABA receptors
- e) Stimulation of chloride channels

54. A 72-year-old man is brought to his physician by his son. The son complains that this patient has been becoming forgetful, confused, moody, and aggressive over the past few months. Which of the following neurotransmitter changes is characteristic of Alzheimer's disease?

- a) Decreased acetylcholine
- b) Decreased dopamine
- c) Decreased norepinephrine
- d) Increased acetylcholine
- e) Increased dopamine

Pharma - CNS 2

55. A 21-year-old man complains of depressed mood, lack of pleasure in activities he previously enjoyed, and lack of energy. This has been going on for 2.5 years now. His physician prescribes fluoxetine. Which of the following side effects is most likely to occur in this patient?

- a) Abdominal pain
- b) Peptic ulcers
- c) Impotence
- d) Loss of taste
- e) Pancreatitis

56. A 35-year-old man who is employed as a salesman complains of fatigue. He also mentions that he no longer likes to fly his model airplanes, which has been a hobby of his since childhood and was a major occupier of his free time. The physician prescribes the antidepressant bupropion. What else is bupropion commonly used for?

- a) Alcoholism
- b) Anxiety
- c) Delirium tremens
- d) Opioid overdose
- e) Smoking cessation

57. A 22-year-old man presents to his primary care physician with progressively worsening hallucinations and delusions. His friends describe him as less interested in certain activities and less talkative than he used to be. The physician prescribes clozapine for schizophrenia. Which of the following symptoms will be helped most by clozapine?

- a) Attention deficit
- b) Delusions
- c) Flat affect
- d) Lack of motivation
- e) Poverty of speech

58. A 53-year-old woman with schizophrenia managed for years with chlorpromazine complains of a dry mouth, constipation, blurred vision, and feeling tired. Low-potency typical antipsychotics such as chlorpromazine are known to interfere with many neurotransmitter receptors aside from their target. Which of the following type of receptors is spared from antagonism by chlorpromazine?

- a) α -Adrenergic receptors
- b) β -Adrenergic receptors
- c) Dopamine receptors
- d) Histamine receptors
- e) Muscarinic cholinergic receptors

Pharma - CNS 2

59. A 44-year-old man with schizophrenia is being treated with a low-potency typical antipsychotic. He complains that his medication's side effects are more than he can handle and wants to try another medication. If he was to switch from a low-potency to a highpotency antipsychotic drug, which of the following side effects would likely diminish?

- a) Anticholinergic effects
- b) Parkinsonism
- c) Perioral tremor
- d) Tardive dyskinesia
- e) Torticollis

60. A 26-year-old man complains of tremors, tachycardia, and diaphoresis when speaking in public. He has started a new job that requires him to give frequent presentations to large audiences and is worried he would not be able to work effectively. His physician prescribes propranolol. How will propranolol help with this patient's anxiety?

- a) CNS sedation
- b) CNS stimulation
- c) Patients with anxiety usually have comorbid heart disease
- d) Propranolol is not used to treat anxiety
- e) Symptomatic relief

61. A 21-year-old male college student complains of difficulty falling asleep at night. He asks if there is anything "mild" he can take to help him get to sleep. Which of the following hypnotics mimics an endogenous hormone?

- a) Diazepam
- b) Lorazepam
- c) Phenobarbital
- d) Ramelteon
- e) Zolpidem

62. A 29-year-old woman who has been diagnosed with multiple sclerosis presents to her primary care physician with muscle rigidity and spasms. She also complains of difficulty sleeping, heartburn, and muscle pain. One of the drugs her physician prescribes is baclofen. Which of the following will baclofen do for this patient?

- a) Anti-inflammatory to decrease muscle pain
- b) Decrease heartburn
- c) Relieve muscle spasms
- d) Reverse the progression of MS
- e) Sleep aid

Pharma - CNS 2

63. A 56-year-old man came to the clinic with complaints of tremor, bradykinesia, and “a feeling of persistent restlessness” after beginning a new antipsychotic regimen 2 months ago. The patient has a history of schizophrenia and depression. He is afraid he may have Parkinson’s syndrome. The doctor recommended cessation of the new regimen and assures the patient the symptoms will clear after a few weeks or months after withdrawal. What antipsychotic was the most likely to have caused the patient’s symptoms?

- a) Aripiprazole
- b) Clozapine
- c) Haloperidol
- d) Olanzapine
- e) Ziprasidone

64. An 83-year-old man is brought to the clinic by his family with complaints stating he can no longer perform his daily activities or be trusted to live on his own. During his neurological exam, he presents with moderate memory loss, apraxia, and anomia. Also, he displays aggressive behaviors throughout the physical exam. He was diagnosed to be in an early stage of Alzheimer’s disease. What class of drugs would be most helpful in treating the patient?

- a) Cholinesterase stimulants
- b) Cholinesterase inhibitors
- c) Dopamine agonists
- d) Muscarinic receptor inhibitors
- e) NMDA glutamate receptor agonists

65. A 72-year-old man is brought to his physician by his son. The son complains that this patient has been becoming forgetful, confused, moody, and aggressive over the past few months. One drug that may be used to treat this patient’s symptoms is donepezil. Which of the following describes an effect of donepezil?

- a) Decreases synaptic acetylcholine
- b) Decreases synaptic dopamine
- c) Decreases synaptic norepinephrine
- d) Increases synaptic acetylcholine
- e) Increases synaptic dopamine

66. A 64-year-old man presents with a shuffling gait, cogwheel rigidity, and a resting tremor. His physician prescribes levodopa and his symptoms greatly improve, supporting a diagnosis of Parkinson’s disease. How does levodopa help this patient’s symptoms?

- a) Increase dopamine production
- b) Inhibit acetylcholinesterase
- c) Stimulate acetylcholine receptors
- d) Stimulate dopamine receptors
- e) Stimulate release of preformed dopamine

Pharma - CNS 2

67. A 68-year-old man with a 6-month history of progressive pill-rolling tremors of the hands, urinary incontinence, and cogwheel rigidity presents to his primary care physician for evaluation. Physical examination confirms the earlier findings. Which of the following is a therapeutic goal for this condition?

- a) Antagonizing the excitatory effect of cholinergic neurons
- b) Dynamic physical and occupational therapy
- c) Lower concentrations of CNS dopamine
- d) Restore dopamine concentration in the cerebellum
- e) Restore epinephrine concentration in the cerebrum

68. A 65-year-old man develops new onset of symptoms of urinary incontinence and cogwheel muscle rigidity. Evaluation of bladder function reveals sphincter bradykinesia. He has begun on treatment with levodopa. Which of the following effects should the physician warn this patient of?

- a) Bradycardia
- b) Hypertension
- c) Increased appetite
- d) Miosis
- e) Salivary gland secretion discoloration

69. A 71-year-old man with gradual impairment in shortterm memory and speech is thought to have Alzheimer's disease. His primary care physician begins him on rivastigmine. This agent will most likely cause which of the following effects?

- a) Improved long-term memory capability
- b) Improved speech and language function
- c) Reduced rate of loss of cognitive function
- d) Tremors similar to that seen with parkinsonism

70. A 73-year-old woman with Alzheimer's disease is in a long-term care facility. She also has a history of hypertension, diabetes mellitus, and mild anxiety. Modest improvement in the memory of patients with Alzheimer's disease may occur with drugs that increase transmission at which of the following receptors?

- a) Adrenergic
- b) Cholinergic
- c) Dopaminergic
- d) GABAergic
- e) Serotonergic

Pharma - CNS 2

71. A 54-year-old man with multiple medical problems and anxiety is placed on diazepam. He has been taking the medication for 6 months. He is concerned that he is having changes in his memory as a result of being on this medication. Which of the following memory effects are likely?

- a) Anterograde amnesia
- b) Long-term memory loss
- c) Loss of ability to taste
- d) Loss of prior negative memories
- e) Short-term memory loss

72. A 28-year-old alcoholic man is brought to the emergency department after a binge drinking. The treating physician is concerned about the risk of alcohol withdrawal and associated risk of withdrawal seizures. Which of the following medications would be most helpful in this patient to decrease these risks?

- a) Alcohol
- b) Clonazepam
- c) Lorazepam
- d) Oxazepam
- e) Tramadol

73. A physician has a choice in benzodiazepines to prescribe for patients. A particular patient (a 53-year-old man with anxiety) has a difficult time with compliance to medications. The physician is concerned about the patient going into withdrawal because of abrupt discontinuation of the antianxiety medication. Which of the following medications would have the least severe withdrawal reaction?

- a) Diazepam
- b) Flurazepam
- c) Temazepam
- d) Triazolam

74. An 8-year-old boy presents to the emergency department after seizure-like activity. During class, the teacher noted that the boy stare off for about 45 s. He has done this three times in the past. He would not respond to her during the episode and was confused for about 1 min following it. What is the most appropriate first-line therapy for this child?

- a) Carbamazepine
- b) Ethosuximide
- c) Lamotrigine
- d) Phenytoin
- e) Valproic acid

Pharma - CNS 2

75. An 83-year-old woman with Parkinson's disease is currently being treated with carbidopa/levodopa, but her Parkinson's symptoms are worsening. She has normal liver function and no history of liver disease. Selegiline is added to her regimen. How does selegiline help in Parkinson's disease?

- a) Increased norepinephrine synthesis
- b) Inhibition of COMT
- c) Inhibition of MAO
- d) Stimulation of acetylcholine release
- e) Stimulation of norepinephrine release

Psycho - CNS 2

1. Which of the following divisions of sensory memory is true

- a) haptic is visual memory
- b) iconic is touch memory
- c) echoic is auditory memory
- d) echoic is verbal memory
- e) iconic is gustatory memory

2. Monthly bonus, weekly payment & salary at the end of the month all those are types of?

- a) Variable ratio reinforcement
- b) Variable interval reinforcement
- c) Continuous reinforcement
- d) Fixed interval reinforcement
- e) Fixed ratio reinforcement

3. Token economy is often used in behavioral management programs for children and depends on which of the following learning processes?

- a) Modeling
- b) Classical conditioning
- c) Observational Learning
- d) Cognitive learning
- e) None of the choices

4. A worker received 20 dollars for every ten pieces of shirts he finished, this is called:

- a) Variable ratio reinforcement
- b) Fixed ratio reinforcement
- c) Variable interval reinforcement
- d) Fixed interval reinforcement

5. In the past, a child has on occasion received money for cleaning his room. Despite the fact that he has not received money for cleaning his room for the past month, the child's room-cleaning behavior continues (is resistant to extinction). This child's room-cleaning behavior was probably learned using which of the following methods?

- a) Fixed interval reinforcement
- b) Variable ratio reinforcement
- c) Continuous reinforcement
- d) Fixed ratio reinforcement

6. Surprise bonus, pop quiz & listening to the radio waiting your favorite song all these are types of:

- a) Fixed Interval reinforcement
- b) Variable ratio reinforcement
- c) Fixed ratio reinforcement
- d) Variable Interval reinforcement
- e) Continuous reinforcement

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Psycho - CNS 2

7. A dog usually salivates when served with food. After repeated exposure to bell sound paired with food, the dog salivates upon bell sound alone without food. However, after a long while of being given a bell sound without food, the dog gradually reduced, and finally stopped, salivating. According to Pavlov's classical conditioning, which of the following is the unconditioned stimulus?

- a) Saliva
- b) Both saliva and bell sound
- c) Bell sound
- d) Dog
- e) Food

8. In Pavlovian experiment If the conditional stimulus is repeatedly presented without the unconditioned stimulus then the conditioned response gradually disappears, This is called:

- a) Delay conditioning
- b) Typical response
- c) Classical conditioning
- d) Extinction
- e) Acquisition stage

9. Pavlovian and operant conditioning differ in several ways, which of the following is true

- a) Pavlov's experiments are not elicited and thus controlled by the presentation of an antecedent stimulus.
- b) The "response" observed in Skinner's experiment is elicited or compelled by an antecedent stimulus in any obvious way.
- c) The "response" observed in Skinner's experiment is controlled by its consequences.
- d) All of them.

10. A student sometimes got A on his midterm exams last year when he used his green pen to write the exams. Now he always takes his lucky green pens to exams. How did the student's superstitious behavior arise?

- a) Observational learning
- b) Classical conditioning
- c) Operant conditioning
- d) None of the above

11. The period of pairing required between an unconditioned stimulus and a conditioned stimulus in Pavlovian experiment for the association to be learned and the conditioned response to occur is called the

- a) classical conditioning
- b) Typical response
- c) delay conditioning
- d) Extinction
- e) acquisition stage

Psycho - CNS 2

12. All of the followings about Wernicke area is true except one

- a) Concerned with comprehension of auditory and visual information
- b) Formation of thought in response to sensory experience
- c) Interpretations of sensory experience
- d) Located at the posterior end of the superior temporal gyres
- e) provides the neural circuitry for word formation

13. Perception of an emotion-arousing stimulus causes physiological changes which are then mentally interpreted and experienced as the relevant emotion. The emotion is therefore secondary to physiological response. This theory of emotion is described by:

- a) JAMES-LANGE THEORY
- b) Adolf Meyer theory
- c) CANNON-BARD (THALAMIC) THEORY
- d) John Boulby theory
- e) Osgood schlatter theory

14. Perception of an emotion-arousing stimulus leads to the concurrent experience of emotion and physiological response. Thalamus controls processing of sensory information. This theory of emotional perception is:

- a) Osgood shlatter theory
- b) John Boulby theory
- c) CANNON-BARD THEORY
- d) JAMES-LANGE THEORY
- e) Adolf Meyer theory

15. Which of the following is considered to be a function of sleep?

- a) Programming of species-specific behaviors
- b) Thermoregulation/energy conservation
- c) Consolidation of learning and memory
- d) Restorative/homeostatic
- e) All of the answers

16. All of the following physiological changes occurs during REM sleep except one:

- a) Autonomic slowing
- b) Full penile erection
- c) Skeletal muscles paralysis
- d) Altered thermoregulation
- e) Significant vaginal lubrication

Psycho - CNS 2

17. Which of the following neurotransmitters plays an important role in sleep initiation:

- a) Melatonin
- b) Dopamine
- c) Epinephrine
- d) Acetylcholine
- e) Norepinephrine

18. All of the followings are true about nor epinephrine except one:

- a) Plays an important role in arousal and attention
- b) All of the answers
- c) The main neurotransmitter related to depression and mood changes
- d) Plays an important role in sleep wake cycle
- e) None of the answers

19. Which of the following is considered to be the first line to treatment for insomnia?

- a) Sleep hygiene
- b) Psychotropics
- c) Non benzodiazepines hypnotics
- d) Antihistamine
- e) Benzodiazepines

20. Which of the following disorders occur during Non-REM sleep?

- a) Sleep walking
- b) Sleep paralysis
- c) Insomnia
- d) Nightmares
- e) None of the choices

21. All of the following are considered a Dyssomnia type of sleep disorders except one:

- a) Nightmares
- b) Insomnia
- c) Hypersomnia
- d) Circadian sleep disorders
- e) Sleep apnea

22. Is a phenomenon in which an individual temporarily experiences an inability to move, speak, or react. It's a transitional state between wakefulness and sleep, characterized by an inability to move muscles. is it often accompanied by terrifying hallucinations, and physical experience?

- a) Cataplexy
- b) Sleep terror
- c) Sleep paralysis
- d) Sleep horror
- e) All of the choices

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Psycho - CNS 2

23. All of the following are part of sleep hygiene except one?

- a) Education about sleep habits and behaviors
- b) Eat balanced diet
- c) Regular sleep and wake times
- d) Limit use of alcohol and tobacco
- e) Vigorous exercise just before bed time

24. Humans are easiest to be aroused in which of the following sleep stages

- a) stage 4
- b) stage 1
- c) stage 3
- d) stage 2
- e) Non of the answers

25. Sleep intrudes into wakefulness, causing clients to fall asleep almost instantly with REM intrusion sleep is brief (10-20 min) but refreshing, these are signs of

- a) cataplexy
- b) catalepsy
- c) narcolepsy
- d) epilepsy
- e) none of the above

Micro - CNS 2

1. The definitive host of *Echinococcus granulosus* is:

- a) Dogs
- b) Human
- c) Pigs
- d) Fish
- e) Cattle

2. Each of the following statements concerning hydatid cyst disease is correct EXCEPT

- a) The disease occurs primarily in tropical Africa
- b) The disease is caused by *Echinococcus granulosus*
- c) The disease is caused by a parasite whose adult form lives in dogs' intestines
- d) The cysts occur primarily in the liver
- e) None of the answers can be excepted

3. Influenza virus A has all of the following features EXCEPT

- a) Has a helical capsid structure
- b) Has a lipid envelope of cellular origin
- c) Has a segmented negative-stranded RNA genome
- d) Has a hemagglutinin and neuraminidase activity
- e) Contains an RNA-dependent RNA polymerase
- f) None of the answers can be excepted

4. Regarding influenza virus, which one of the following statements is most accurate?

- a) The virion contains an RNA-dependent DNA polymerase.
- b) Its surface proteins, hemagglutinin and neuraminidase, have multiple serologic types.
- c) The protein that undergoes antigenic variation most often is the internal ribonucleoprotein.
- d) Antigenic drift involves major changes in antigenicity that result from reassortment of the segments of its RNA genome.
- e) The neuraminidase on the virion surface mediates the interaction of the virus with the receptors on the respiratory tract epithelium.

5. Which of the following parasitic diseases does not involve an arthropod vector ?

- a) Malaria
- b) Chagas disease
- c) None of the answers is correct
- d) Babesiosis
- e) Schistosomiasis

Micro - CNS 2

6. Regarding influenza virus and the disease influenza, which one of the following statements is most accurate?

- a) Both the killed and the live, attenuated vaccines induce lifelong immunity.
- b) Influenza A virus causes more severe disease and more widespread epidemics than does influenza B virus.
- c) The genome of influenza A virus has eight segments, but the genome of influenza B virus is in one piece.
- d) The classification of influenza viruses into A, B, and C viruses is based on antigenic differences in their hemagglutinin.
- e) Chronic carriers (i.e., patients from whom influenza virus is isolated at least 6 months after the acute disease) are an important source of human infection.
- f) This virus has only one antigenic type, and lifelong immunity occurs in patients who have had measles

7. A 45-year-old man was well until 2 days ago, when he experienced the sudden onset of fever, shaking chills and .1 profuse sweating. Today, he also complains of headache and abdominal pain but no nausea, vomiting, or diarrhea. He does not have a stiff neck, rash, or altered mental status. Blood smear reveals ring-shaped trophozoites within red blood cells and banana-shaped gametocytes were seen in the blood smear. What is your diagnosis ?

- a) Malaria caused by Plasmodium ovale
- b) Malaria caused by Plasmodium malanae
- c) Babesiosis caused by Babesia microti
- d) Malaria caused by Plasmodium vivax
- e) Malaria caused by Plasmodium falciparum

8. Regarding Plasmodium species, which one of the following is most accurate?

- a) These organisms are transmitted by the bite of female Anopheles mosquitoes.
- b) The bite of the vector injects merozoites into the bloodstream that then infect red blood cells.
- c) Both male and female gametocytes are formed in the vector and are injected into the person at the time of the bite.
- d) Hypnozoites are produced by P. falciparum and can cause relapses of malaria after the acute phase is over.
- e) Malaria caused by P. vivax is characterized by a cerebral malaria and blackwater fever more often than malaria caused by the other three species.

9. Which one of the following agents can be used to prevent malaria?

- a) Mebendazole
- b) Chloroquine
- c) Inactivated vaccine
- d) Praziquantel

Micro - CNS 2

10. Regarding drugs used to treat or prevent malaria, which one of the following is most accurate?

- a) The combination of atovaquone and proguanil is useful for the treatment of acute malaria but not for prevention.
- b) Chloroquine is the drug of choice in malaria caused by *P. falciparum* because resistance to the drug is rare.
- c) Mefloquine is useful for the prevention of chloroquine sensitive *P. falciparum* but not for chloroquine-resistant strains.
- d) Artemisinin derivatives, such as artesunate and artemether, are effective in the treatment of multiple-drug resistant *P. falciparum*.
- e) Primaquine is useful in the treatment of infections caused by *P. falciparum* because it kills the hypnozoites residing in the liver.

11. Regarding *T. gondii*, which one of the following is most accurate?

- a) One way to prevent this infection is to advise pregnant women not to drink unpasteurized milk.
- b) The form of *Toxoplasma* found in the tissue cysts in humans is the rapidly dividing tachyzoite.
- c) The most important definitive host (the host in which the sexual cycle occurs) for *Toxoplasma* is the domestic cat.
- d) Infection in people with reduced cell-mediated immunity, such as AIDS patients, is characterized by persistent watery (nonbloody) diarrhea.
- e) If your patient is a pregnant woman who has IgM antibody to *Toxoplasma* in her blood, then you can tell her that it is unlikely that her fetus is at risk for infection.

12. Your patient is a 55-year-old man with fever and increasing fatigue during the past week. Today, he was so weak he "could barely stand up". He had been working in Cameroon and Chad for 2 months and returned 2 weeks ago. On examination, he was febrile to 40°C, hypotensive, and tachycardic. Pertinent lab work revealed anemia and thrombocytopenia. Blood smear revealed ring-shaped trophozoites within red blood cells. Of the following, which one is the most likely cause?

- a) *Leishmania donovani*
- b) *Plasmodium falciparum*
- c) *Toxoplasma gondii*
- d) *Trypanosoma brucei*
- e) *Trypanosoma cruzi*

13. Your patient is a 35-year-old woman who has just had a seizure. A CT scan shows a ring-enhancing lesion in her brain. History reveals that she is an intravenous drug user and is HIV antibody positive with a CD4 count of 30. Serologic tests confirm that the patient is infected with *Toxoplasma gondii*. Which one of the following is the best choice of drug to treat her cerebral toxoplasmosis?

- a) Artemether
- b) Atovaquone
- c) Mefloquine
- d) Metronidazole
- e) Pyrimethamine and sulfadiazine

Micro - CNS 2

14. Each of the following statements concerning malaria is correct EXCEPT:

- a) The female Anopheles mosquito is the vector.
- b) Early in infection, sporozoites enter hepatocytes.
- c) Release of merozoites from red blood cells causes periodic fever and chills.
- d) The principal site of gametocyte formation is the human gastrointestinal tract

15. Each of the following statements concerning hydatid cyst disease is correct EXCEPT:

- a) The disease is caused by Echinococcus granulosus.
- b) The cysts occur primarily in the liver.
- c) The disease is caused by a parasite whose adult form lives in dogs' intestines.
- d) The disease occurs primarily in tropical Africa

16. Your patient is a 40-year-old man with occasional mild right upper abdominal discomfort but is otherwise well. On examination, his liver is enlarged. An MRI reveals a cystic mass in the liver. On questioning, he says that he was born and raised in rural Argentina on a sheep ranch and came to this country 10 years ago. Of the following, which one is the most likely cause?

- a) Dipylidium latum
- b) Echinococcus granulosus
- c) Taenia saginata
- d) Taenia solium

17. Regarding E. granulosus, which one of the following is most accurate?

- a) The drug of choice for E. granulosus infection is metronidazole.
- b) Dogs are a required part of the life cycle of the causative organism.
- c) Echinococcus granulosus is one of the longest tapeworms, sometimes measuring 10 ft in length.
- d) Echinococcus granulosus larvae typically migrate to skeletal muscle, where they cause an abscess.
- e) The main mode of transmission to humans is ingestion of eggs in food or water contaminated with human feces

18. Regarding influenza virus, which one of the following statements is most accurate?

- a) The virion contains an RNA-dependent DNA polymerase.
- b) Its surface proteins, hemagglutinin and neuraminidase, have multiple serologic types.
- c) The protein that undergoes antigenic variation most often is the internal ribonucleoprotein.
- d) Antigenic drift involves major changes in antigenicity that result from reassortment of the segments of its RNA genome.
- e) The neuraminidase on the virion surface mediates the interaction of the virus with the receptors on the respiratory tract epithelium.

Micro - CNS 2

19. Regarding influenza virus and the disease influenza, which one of the following statements is most accurate?

- a) Both the killed and the live, attenuated vaccines induce lifelong immunity.
- b) Influenza A virus causes more severe disease and more widespread epidemics than does influenza B virus.
- c) The genome of influenza A virus has eight segments, but the genome of influenza B virus is in one piece.
- d) The classification of influenza viruses into A, B, and C viruses is based on antigenic differences in their hemagglutinin.
- e) Chronic carriers (i.e., patients from whom influenza virus is isolated at least 6 months after the acute disease) are an important source of human infection

20. Regarding measles virus and the disease measles, which one of the following statements is most accurate?

- a) The measles vaccine contains killed virus as the immunogen.
- b) One of the main sequelae of measles is autoimmune glomerulonephritis and kidney failure.
- c) Measles is unlikely to be eradicated because there is a significant animal reservoir for this virus.
- d) Fecal–oral transmission during the diaper stage is the main mode of acquisition of measles virus.
- e) This virus has only one antigenic type, and lifelong immunity occurs in patients who have had measles.

21. Regarding rabies virus and the disease rabies, which one of the following statements is most accurate?

- a) Finding intranuclear inclusion bodies within macrophages is presumptive evidence of rabies virus infection.
- b) Lamivudine is used to treat rabies because it inhibits the RNA-dependent DNA polymerase in the virion.
- c) In the United States, skunks and bats are more likely to transmit rabies virus to people than are dogs and cats.
- d) The incubation period of the disease is usually 2 to 4 days, leading to the rapid progression of the encephalitis and death.
- e) After the animal bite, rabies virus enters the bloodstream, replicates in internal organs such as the liver, and then reaches the central nervous system during the secondary viremia.

22. Regarding poliovirus and the disease poliomyelitis, which one of the following is most accurate?

- a) Poliovirus is transmitted primarily by the fecal–oral route.
- b) New antigenic variants arise by coinfection with animal strains of poliovirus.
- c) Paralytic poliomyelitis is the most common manifestation of poliovirus infection.
- d) Poliovirus has single-stranded RNA as its genome and a polymerase in the virion that synthesizes its mRNA.
- e) The current vaccine recommendation is to give the live, attenuated vaccine for the first three immunizations to prevent the child from acting as a reservoir, followed by boosters using the killed vaccine.

Micro - CNS 2

23. A 70-year-old retired carpenter has signed up with a volunteer organization to build houses in a developing country where polio is still endemic. He plans to be there about 9 months. He thinks he has never been immunized against polio. Which one of the following is the most appropriate thing to do?

- a) Give immune serum globulins (ISG).
- b) Give the killed vaccine containing only type 3.
- c) Give the killed vaccine containing types 1, 2, and 3.
- d) Give the live vaccine containing only type 3.
- e) Give the live vaccine containing types 1, 2, and 3.

24. Regarding West Nile virus (WNV), which one of the following is the most accurate?

- a) Rodents are the main reservoir for WNV.
- b) WNV does not cause disease in the United States.
- c) WNV is transmitted primarily by Ixodes ticks.
- d) Most infections are asymptomatic, but the elderly are at risk for encephalitis.
- e) The live, attenuated vaccine should be administered to elderly adults in endemic areas

25. Regarding “slow viruses” and their diseases, which one of the following is the most accurate?

- a) The viruses that cause slow diseases, such as progressive multifocal leukoencephalopathy (PML), have a slow rate of replication that accounts for the long latent period and slow progression of the disease.
- b) PML is caused by a virus that causes widespread inapparent infections early in life but causes the disease PML primarily in people with reduced cell-mediated immunity.
- c) Creutzfeldt-Jakob disease (CJD) is caused by CJ virus, a retrovirus that integrates a DNA copy of its genome into the DNA of brain neurons.
- d) CJD occurs primarily in immunocompromised people, but infection with the virus that causes CJD is common, as evidenced by the presence of antibodies.

26. Regarding prions, which one of the following is the most accurate?

- a) The genome of prions consists of a negative-polarity RNA that has a defective polymerase gene.
- b) Prion proteins are characterized by having changes in conformation from the alpha-helical form to the beta-pleated sheet form.
- c) Prions are very sensitive to ultraviolet (UV) light, which is why UV light is used in hospital operating rooms to prevent their transmission.
- d) The main host defense against prions consists of an inflammatory response composed primarily of macrophages and CD4-positive T cells.

27. Regarding progressive multifocal leukoencephalopathy (PML), which one of the following is the most accurate?

- a) It is caused by a defective mutant of measles virus.
- b) The virus remains latent in hepatocytes for many years.
- c) Lesions occur in several areas of the brain, resulting in diverse symptoms.
- d) Acyclovir is the drug of choice for patients in the early stages of PML.
- e) It is characterized by an inflammatory reaction in the brain containing many neutrophils.

Micro - CNS 2

28. Regarding prion-mediated diseases, which one of the following is the most accurate?

- a) Prion-mediated diseases are characterized by vacuoles in the brain called "spongiform changes."
- b) Variant Creutzfeldt-Jakob disease is a disease of cattle caused by the ingestion of sheep brain mixed into cattle feed.
- c) Kuru is a prion-mediated disease for which the diagnosis can be confirmed in the laboratory by a fourfold or greater rise in antibody titer.
- d) In Creutzfeldt-Jakob disease, only neurons latently infected by JC virus produce the prion filaments that disrupt neuronal function.
- e) Creutzfeldt-Jakob disease occurs primarily in children under the age of 2 years because they cannot mount an adequate immune response to the prion protein

29. The feature of the influenza virus genome that contributes MOST to the antigenic variation of the virus is:

- a) A high G + C content, which augments binding to nucleoproteins
- b) Inverted repeat regions, which create "sticky ends"
- c) Segmented nucleic acid
- d) Unique methylated bases

30. Which one of the following viruses possesses a genome of single-stranded RNA that is infectious when purified?

- a) Influenza virus
- b) Rotavirus
- c) Measles virus
- d) Poliovirus

31. Each of the following viruses possesses double-stranded nucleic acid as its genome EXCEPT:

- a) Coxsackie virus
- b) Herpes simplex virus
- c) Rotavirus
- d) Adenovirus

32. Each of the following statements about both measles virus and rubella virus is correct EXCEPT:

- a) They are RNA enveloped viruses.
- b) Their virions contain an RNA polymerase.
- c) They have a single antigenic type.
- d) They are transmitted by respiratory aerosol.

33. Each of the following statements about both influenza virus and rabies virus is correct EXCEPT:

- a) They are enveloped RNA viruses.
- b) Their virions contain an RNA polymerase.
- c) A killed vaccine is available for both viruses.
- d) They each have a single antigenic type

Micro - CNS 2

34. Each of the following statements regarding poliovirus and its vaccine is correct EXCEPT:

- a) Poliovirus is transmitted by the fecal–oral route.
- b) Pathogenesis by poliovirus primarily involves the death of sensory neurons.
- c) The live, attenuated vaccine contains all three serotypes of poliovirus.
- d) An unimmunized adult traveling to countries where there is a known risk of being infected with poliovirus should receive the inactivated vaccine.

35. Which one of the following strategies is MOST likely to induce lasting intestinal mucosal immunity to poliovirus?

- a) Parenteral (intramuscular) immunization with inactivated vaccine
- b) Oral administration of poliovirus immune globulin
- c) Parenteral immunization with live vaccine
- d) Oral immunization with live vaccine

36. Each of the following statements concerning mumps is correct EXCEPT:

- a) Mumps virus is a paramyxovirus and hence has a singlestranded RNA genome.
- b) Meningitis is a recognized complication of mumps.
- c) Mumps orchitis in children prior to puberty often causes sterility.
- d) During mumps, the virus spreads through the bloodstream (viremia) to various internal organs

37. The role of an infectious agent in the pathogenesis of kuru was BEST demonstrated by which one of the following observations?

- a) A 16-fold rise in antibody titer to the agent was observed.
- b) The viral genome was isolated from infected neurons.
- c) Electron micrographs of the brains of infected individuals demonstrated intracellular structures resembling paramyxovirus nucleocapsids.
- d) The disease was serially transmitted to experimental animals.

38. A 64-year-old man with chronic lymphatic leukemia develops progressive deterioration of mental and neuromuscular function. At autopsy the brain shows enlarged oligodendrocytes whose nuclei contain naked, icosahedral virus particles. The MOST likely diagnosis is:

- a) Herpes encephalitis
- b) Creutzfeldt-Jakob disease
- c) Subacute sclerosing panencephalitis
- d) Progressive multifocal leukoencephalopathy
- e) Rabies

39. Scrapie and kuru possess all of the following characteristics EXCEPT:

- a) A histologic picture of spongiform encephalopathy
- b) Transmissibility to animals associated with a long incubation period
- c) Slowly progressive deterioration of brain function
- d) Prominent intranuclear inclusions in oligodendrocytes

Micro - CNS 2

40. A 20-year-old man, who for many years had received daily injections of growth hormone prepared from human pituitary glands, develops ataxia, slurred speech, and dementia. At autopsy the brain shows widespread neuronal degeneration, a spongy appearance due to many vacuoles between the cells, no inflammation, and no evidence of virus particles. The MOST likely diagnosis is:

- a) Herpes encephalitis
- b) Creutzfeldt-Jakob disease
- c) Subacute sclerosing panencephalitis
- d) Progressive multifocal leukoencephalopathy
- e) Rabies

41. Each of the following statements concerning subacute sclerosing panencephalitis is correct EXCEPT:

- a) Immunosuppression is a frequent predisposing factor.
- b) Aggregates of helical nucleocapsids are found in infected cells.
- c) High titers of measles antibody are found in cerebrospinal fluid.
- d) Gradual progressive deterioration of brain function occurs.

42. The slow virus disease that MOST clearly has immunosuppression as an important factor in its pathogenesis is:

- a) Progressive multifocal leukoencephalopathy
- b) Subacute sclerosing panencephalitis
- c) Creutzfeldt-Jakob disease
- d) Kuru

43. Which one of the following is the BEST evidence on which to base a decisive diagnosis of acute mumps disease?

- a) A positive skin test
- b) A fourfold rise in antibody titer to mumps antigen
- c) A history of exposure to a child with mumps
- d) Orchitis in young adult male

44. Each of the following statements concerning measles vaccine is correct EXCEPT:

- a) The vaccine contains live, attenuated virus.
- b) The vaccine should not be given at the same time as the mumps vaccine because the immune system cannot respond to two viral antigens given at the same time.
- c) Virus in the vaccine contains only one serotype.
- d) The vaccine should not be given prior to 15 months of age because maternal antibodies can prevent an immune response

Micro - CNS 2

45. Each of the following statements concerning measles virus is correct EXCEPT:

- a) Measles virus is an enveloped virus with a single-stranded RNA genome.
- b) One of the important complications of measles is encephalitis.
- c) The initial site of measles virus replication is the upper respiratory tract, from which it spreads via the blood to the skin.
- d) Latent infection by measles virus can be explained by the integration of provirus into the host cell DNA.

46. Each of the following statements concerning rabies and rabies virus is correct EXCEPT:

- a) The virus has a lipoprotein envelope and single-stranded RNA as its genome.
- b) The virus has a single antigenic type (serotype).
- c) In the United States, dogs are the most common reservoir.
- d) The incubation period is usually long (several weeks) rather than short (several days).

47. Which one of the following statements concerning viral meningitis and viral encephalitis is CORRECT?

- a) Herpes simplex virus type 2 is the leading cause of viral meningitis.
- b) Herpes simplex virus type 1 is an important cause of viral encephalitis.
- c) The spinal fluid protein is usually decreased in viral meningitis.
- d) The diagnosis of viral meningitis can be made by using the India ink stain on a sample of spinal fluid

48. Each of the following statements concerning herpes simplex virus type 2 (HSV-2) is correct EXCEPT:

- a) Primary infection with HSV-2 does not confer immunity to primary infection with HSV-1.
- b) HSV-2 causes vesicular lesions, typically in the genital area.
- c) HSV-2 can cause alterations of the cell membrane, leading to cell fusion and the formation of multinucleated giant cells.
- d) Recurrent disease episodes due to reactivation of latent HSV-2 are usually more severe than the primary episode.

49. Each of the following statements concerning Epstein–Barr virus is correct EXCEPT:

- a) Many infections are mild or inapparent.
- b) The earlier in life primary infection is acquired, the more likely the typical picture of infectious mononucleosis will be manifest.
- c) Latently infected lymphocytes regularly persist following an acute episode of infection.
- d) Infection confers immunity against second episodes of infectious mononucleosis.

50. Which one of the following statements concerning poliovirus infection is CORRECT?

- a) Congenital infection of the fetus is an important complication.
- b) The virus replicates extensively in the gastrointestinal tract.
- c) A skin test is available to determine prior exposure to the virus.
- d) Oseltamivir is an effective preventive agent

Micro - CNS 2

51. Which one of the following statements concerning mumps is CORRECT?

- a) Although the salivary glands are the most obvious sites of infection, the testes, ovaries, and pancreas can be involved as well.
- b) Because there is no vaccine against mumps, passive immunization is the only means of preventing the disease.
- c) The diagnosis of mumps is made on clinical grounds because the virus cannot be grown in cell culture and serologic tests are inaccurate.
- d) Second episodes of mumps can occur because there are two serotypes of the virus and protection is type-specific

Bio-CNS 2

1. Parkinson's disease is neurodegenerative disorder due to:

- a) Decrease of dopamine level
- b) Defect in dopamine receptors
- c) Defect in dopamine transporter
- d) All of them

2. Glutamate receptor ionotropic NMDA blocked binding channel pore and prevents its excessive activation by:

- a) Na^+
- b) K^+
- c) Mg^{++}
- d) Ca^{++}

3. The rate-limiting enzyme that catalyses the conversion of glutamate to GABA

- a) Glutamic acid decarboxylase
- b) Glutaminase
- c) Glutamine synthetase
- d) Adenyl cyclase

4. Positive allosteric modulation of GABA:

- a) Decrease GABA effect
- b) Increase Glutamate effect
- c) Decrease Glutamate effect
- d) Increase GABA effect

5. GABA A receptor activated through increase the conductance of:

- a) Na^+
- b) K^+
- c) Mg^{++}
- d) Cl^-

6. Neurotransmitters in Parkinson's disease patients would be as:

- a) Increased GABA and decreased glutamate
- b) Decrease GABA and increase glutamate
- c) Decrease GABA and glutamate
- d) Increase GABA and glutamate

7. Dopaminergic pathway defect associated of Parkinson's disease is:

- a) Mesolimbic pathway
- b) Mesocortical pathway
- c) Tuberoinfundibular pathway
- d) Nigrostriatal pathway