



MID CNS TEST BANK

DOCTOR 2020

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Anatomy

1- Middle Cerebral Artery supplies:

Answer: lateral part of the orbital surface

2- Anterior Cerebral Artery occlusion cause a problem in:

A-smile

B-whistle

C-climb stairs

D-clench a fist

Answer: C

3- internal capsules separates the (.....) surface of the thalamus from the lentiform:

Answer: Lateral

4- patient doesn't understand spoken words and says weird thing due to lesion in:

Answer: areas 39,40

5- neocerebellum projects to:

Answer: dentate nucleus

6- septum pellucidum situated between:

Answer: The Fornix and the corpus callusom

7- What is the types of fibres that pass through posterior half of the posterior limb of the internal capsule:

Answer: superior thalamus radiation

8- lateral wall of the 3rd ventricle:

Answer: A+B (thalamus & hypothalamus)

9- tail of the caudate participated in:

Answer: the roof of the inferior horn of the lateral ventricle

10- has sth to do with the interruption of CSF flow between the 3rd and 4th ventricles:

Answer: cerebral aqueduct

11- rhombencephalon gives rise to:

Answer: medulla

12- myelination in the PNS

Answer: Schwann cells

13- stimulation of the right FEF (area 8):

Answer: move of both eyes to the left

14- temporal and frontal lobe connection by:

Answer: Uncinate fasciculus

15- Which of the following structures is directly related anatomically to the third ventricle ?

- a- Posterior horn of the lateral ventricle
- b- cerebellum
- c- Amygdala
- d- Calcaravis
- e- lamina terminalis

Answer: E

16- Which of the flowing area lesion is manifested on the ipsilateral side ?

- a- 3.1.2
- b- Corpus striatum
- c- Posterior limb of internal capsule
- d- 8
- e- 4

Answer: D

17- Concerning the internal capsule, Choose the matched pair of the followings :

- a- Retrolentiform part- auditory radiation
- b- Posterior limb- superior thalamic radiation
- c- Anterior limb - inferior radiation
- d- Genu- sensory radiation
- e- Sublentiform part-optic radiation

Answer: B

18- Concerning the hippocampus, Choose the Incorrect statement :

- a- Forms part of the roof of the inferior horn of the lateral ventricle
- b- Is part of the limbic system
- c- Its efferents are forming the fornix
- d- Is situated inside the parahippocampal gyrus
- e- Is supplied by the posterior cerebral artery

Answer: A

19- Choose the matched pairs of the followings :

- a. Premotor area-chorea

- b. Cerebellum- parkinsonism
- c. Area 45-Fluent Aphasia
- d. Posterior parietal association area- Asteriognosis
- e. Basal nuclei- hemianesthesia

Answer: D

20- Regarding the Thalamus, Choose the correct statement :

- a. It is separated from the fornix by the choroid fissure
- b. Forms part of the medial wall of the third ventricle
- c. It is connected to the corpus callosum by the septum pellucidum
- d. Its posterior part forms the posterior boundary of the interventricular foramen
- e. Forms part of the roof of the body of the lateral ventricle

Answer: A

21- which of the following structures is not supplied by the anterior cerebral artery?

- a- Lateral half of the orbital surface
- b- Septum pellucidum
- c- Medial frontal gyrus
- d- Genu of the corpus callosum
- e- Anterior half of corpus striatum

Answer: A

22- Which of the following physical signs is not suggesting the involvement of the left middle cerebral artery ?

- a- Paralysis of the right side of the arm and forearm
- b- Paralysis of the right leg and foot
- c- Conjugate movement of both eyes to the left side
- d- General sensory loss on the right side of the arm and forearm
- e- The presence of aphasia

Answer: B

23- Lesion of the subthalamic nucleus is usually present in which of the following :

- a- Huntington chorea .
- b- Athetosis .
- c- Parkinsons disease
- d- Hemiballism .
- e- More than one of the above

Answer: D

24- An example of apraxia would be which one of the following ?

- a- Patient cannot name colors

- b- Patient can't divide a line in the middle
- c- Patient has inability to show how to cut with imaginary scissors
- d- Patient has difficulty repeating the sounds (ba ba ba., ta ta ta., ga ga ga.)
- e- Patient crowds all the numbers onto the right side of the clock when asked to draw the face of a clock

Answer: C

25- Which one of the following arteries is not supplying the internal capsule :

- a- Anterior cerebral
- b- Posterior choroidal
- c- Middle cerebral
- d- Anterior choroidal
- e- Posterior cerebral

Answer: B

26- Which of the following area lesion is manifested on the ipsilateral side ?

- a- 4
- b- 3.1.2
- c- Spinocerebellum
- d- Corpus striatum
- e- Posterior limb of internal capsule

Answer: C

27- Which of the following structures is not in direct anatomical relation with the caudate Nucleus ?

- a- Anterior horn of the lateral ventricle
- b- Body of the lateral ventricle
- c- Posterior horn of the lateral ventricle
- d- Inferior horn of the lateral ventricle
- e- Amygdala

Answer: C

28- Regarding the Thalamus, Choose the Incorrect statement :

- a- Forms part of the lateral wall of the third ventricle
- b- Forms part of the floor of the body of the lateral ventricle
- c- Its anterior part forms the posterior boundary of the interventricular foramen
- d- It is separated from the fornix by the choroid fissure
- e- It is connected to the fornix through the septum pellucidum

Answer: E

29- Concerning the circle of Willis, choose the correct statement :

- a. It is protected by the Cerebello-Medullary Cisterna
- b. Posterior communicating artery connects between middle and posterior cerebral arteries
- c. Situated over the interpeduncular fossa
- d. Connects between vertebra-basilar system anteriorly and internal carotid system posteriorly
- e. It does not have physiological significance in cerebral circulation

Answer: C

30- Choose the unmatched pairs of the followings :

- a. Cerebellum- Ataxia
- b. Premotor area-Apraxia
- c. Basal nuclei- Parkinsonism
- d. Area 39-Nonfluent Aphasia
- e. Posterior parietal association area-Asteriognosis

Answer: D

31- Concerning the internal capsule, Choose the unmatched pairs of the followings :

- a- Anterior limb - corticospinal fibers
- b- Retrolentiform part-optic radiation
- c- Sublentiform part-auditory radiation
- d- Posterior limb- superior thalamic radiation
- e- Genu- corticobulbar fibers

Answer: A

32- Concerning the glial cells, choose the Incorrect statement :

- a- Oligodendrocytes are responsible for myelination of peripheral nerves
- b- Microglia are phagocytic cells of the Central Nervous System
- c- Ependymal cells are lining the ventricles of the brain
- d- Astrocytes are forming the Blood brain barrier
- e- Schwann cells are derived from the neural tube

Answer: 10

33- Regarding the cerebellum and the fourth ventricle, choose the correct statement :

- a. Foramen of magendie lies in the floor of the fourth ventricle
- b. The Cerebellum is supplied by the vertebrobasilar system
- c. Ventral spinocerebellar tract passes through the inferior cerebellar peduncle
- d. Corticopontocerebellar fibers enters the cerebellum through the superiorcerebellar peduncle
- e. The fourth ventricle is connected to the lateral ventricles through the cerebral aqueduct

Answer: B

34- Not supplied by vertebrobasilar system :

- a. Temporal lobe
- b. Pons
- c. Visual cortex

Answer: A

35- Wrong about motor cortex:

Answer: Connected to ipsilateral body

36- Wrong combination

Answer: Activation of gamma motor neuron leads to...faster musclecontraction(maybe)

37- A patient unable to move the left eye out and below and spastic hemiplegia in the right half of the body, obstruction is most likely in:

Answer: Posterior cerebral artery (removed)

38- Wrong about a lesion to the left posterior limb of the internal capsule

Answer: Mouth deviates to the right

39- Wrong about basal ganglia

Answer: When a new task is learned with skill, motor loop has decreased activity

40- Wrong about cerebellum

Answer: Output causes only inhibition of agonist muscle at the end of movement

41- A man who had lost comprehension of written and spoken language, fluent but what he says makes little sense. Lesion is mostly in

Answer: Wernicke's area

42- Wrong about language centres in the brain

Answer: Hemialexia can be due to lesion of the left angular Gyrus

43- Broca's aphasia is usually associated with

Answer: Spastic paralysis

44- Not part of circle of Willis ?

Answer: Middle cerebral artery

45- Post limb of internal capsule is between ?

Answer: Thalamus and lentiform

46- What artery supplies the anterior end of caudate and lentiform nucleus :

Answer: Anterior cerebral artery

47- Superior angle of the 4th ventricle attached to ?

Answer: Cerebral aqueduct

48- CSF is drained by :

Answer: Arachnoid villi and granulations

49- The area responsible of fine movements ?

Answer: Gyrus in front of central sulcus (precentral gyrus)

50- Wernicke's area contributes which part in the cortex :

Answer: Lateral sulcus

Physiology

1- wrong about the vestibule:

Answer: nystagmus is not present when the individual is blind

2- Lesion caused inappropriate social behaviors, occurs in:

Answer: frontal lobes

3- Destruction of cerebellum leads to the following EXCEPT:

a- Impaired learning of coordination of repetitive tasks.

b- Dysmetria

c- Dysdiadochokinesia

d- Hypertonia (rigidity)

e- Ataxia

Answer: D

4- Inability of a person to understand the meaning of spoken words:

a- Results from lesion in primary visual area

b- Results from lesion in the temporal lobe

c- Is a type of sensory aphasia.

d- Results from lesion in Broca's area

e- Is a type of motor aphasia

Answer: C

5- right about muscle spindle:

Answer: innervated by both efferent and afferent fibers

6- right about basal ganglia:

Answer: neural degeneration of the substantia nigra causes Parkinson's disease

7- striatum sends excitatory signals directly to:

Answer: none of the above (sends inhibitory signals through GABA)

8- right about cerebellum:

Answer: ipsilateral muscle control

9- wrong about cerebellum

Answer: Sends direct fibers to the motor neurons of action

10. During a voluntary movement, the Golgi tendon organ provides the central nervous system with information about:

- a- The length of the muscle being moved.
- b- The change in joint angle produced by the movement.
- c- The tension developed by the muscle being moved.
- d- The blood flow of the muscle being moved.
- e- The velocity of movement.

Answer: C

10- Which of the following statements is UNPAIRED:

- a- Cerebellum lesion.....nystagmus and wide gait (drunken gait) .
- b- Prefrontal corte.....personality trait and adjusting behavior .
- c- Retrogarde amnesia.....lesion in the thalamus .
- d- Lower motor neuron lesion.....areflexia .
- e- Basal ganglia lesion.....action tremor (intention tremor) .

Answer: E

12- Which of the following is UNPAIRED?

- a- Dopamine.....Parkinson's disease
- b- Basal ganglia.....dysarthria and dysmetria
- c- GABA.....the major inhibitory transmitters in the basal ganglia

Answer: B

11- Rigidity of the axial and antigravity muscles when cortical control over the brain stem is interrupted (decerebrate) is due to:

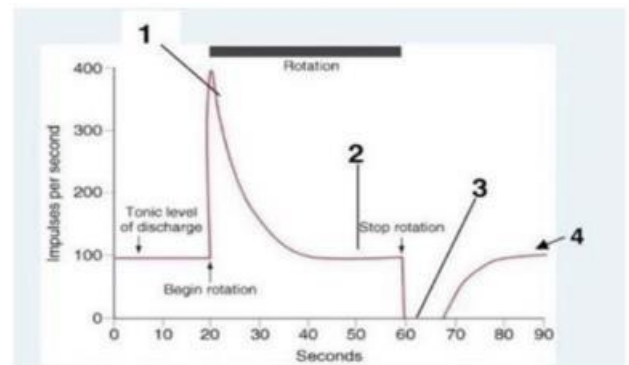
- a- Over activity of pontine reticulospinal tract.
- b- Over activity of medullary reticulospinal tract.
- c- Over activity of corticospinal tract.
- d- Disruption of the lateral vestibulospinal tract.
- e- Disruption of the dorsal spinocerebellar pathway.

Answer: A

The figure above represents the response of a hair cell in the crista ampullaris of the semicircular canal to stimulation by rotation in a human subject. With the subject's eyes closed, the subjective sensation of rotation will be absent at which point/s indicated by the letters 1 through 4?

- a- Point 2 and 4
- b- Point 2 only
- c- Points 1 and 3
- d- Point 1 only
- e- Point 3 only

Answer: A



12- Which of the following about the cerebellum are paired correctly?

- a- Cerebellar dysfunction.....athetosis and hemiballismu .
- b- Spinocerebellum and sequencing.....timing of motor movements .
- c- Lateral cerebellar hemisphere.....coordination of axial muscles .
- d- Purkinje cells.....inhibitory input to deep nuclear cells of cerebellum .
- e- Vestibulocerebellum (flocculonodular lobe).....coordination of voluntary movements of the distal flexors .

Answer: D

13-A person with hemorrhage that affects the internal capsular fibers and hemiplegia and has aphasia, most probably his/her lesion is located at :

- a- Basal ganglia
- b- Cerebellum
- c- Hypothalamus.
- d- Left cerebral hemisphere
- e- Right cerebral hemisphere

Answer: D

14- Lesions of the speech center in the frontal lobe results in :

- a- Inability to select appropriate words for use in speech-language comprehension .
- b- Failure of coordination of speech muscles .
- c- Inability to understand spoken language .
- d- Sensory aphasia .
- e- Paralysis of speech muscles

Answer: B

15- Which one of the following loops is involved in balance regulation ?

- a- Cerebello-Globose- Emboliform-Rubral-spinal
- b- Cerebello-Clobose- Emboliform-Thalamo- Cortico-Spinal
- c- Cerebello-fastigeo- thalamo-cortico-spinal
- d- Vestibulo-Flocuolo- Nodular-Vestibulo-Spinal
- e- Cortico-Ponto- Cerebello- Dentato- Rubro-Thalamio- Cortical

Answer: D

16- Which of the following IS NOT a sign of basal ganglia disease ?

- a. Ballismus .
- b. Increased muscle tone.
- c. Chorea .
- d. Athetosis .
- e. Nystagmus

Answer: E

17-The area of the motor cortex that is devoted to a particular region of the body is proportional to the :

- a- Distance of the body area from the brain .
- b- Number of sensory receptors in the area of the body .
- c- Size of the body area .
- d- Number of motor units in that region .
- e- Size of the nerves that serve the area of the body .

Answer: D

18- Chief inhibitory neurotransmitter in the basal ganglia is :

- a. Glutamate .
- b. Norepinephrine .
- c. Serotonin .
- d. GABA .
- e. Acetylcholine

Answer: D

19-A patient with an inability to write or to generate meaningful speech i.e language, even though he can understand requesis and make sounds, most likely has a lesion in the :

- a- Left parietal lobe
- b- Left temporal lobe
- c- Right frontal lobe
- d- Left frontal lobe
- e- Right temporal lobe

Answer: D

20- The intermediate zone of the cerebellum

- a- Compares the intentions of the higher motor centers with the actual movement of the muscles and correct any deviations from the intended movement
- b- Plays a role in the planning and initiation of voluntary activity
- c- Inhibit muscle tone
- d- Controls eye movements
- e- Is important for the maintenance of balance

Answer: A

21- Short term memory is characterized by:

- a- Has permanent anatomical and/or chemical changes in the brain areas
- b- Has fast recall time
- c- Does not need registration of information
- d- Needs consolidation of information
- e- It has large capacity

Answer: B

22-12-A middle aged man present with tremors during voluntary action. Incoordinate movements, pendular knee reflex and staggering (drunken) gait. The man is most likely having lesion of:

- a- Hypothalamus
- b- Cerebral cortex
- c- Basal ganglia
- d- Cerebellum
- e- Thalamus

Answer: D

Pathology

1) Choose the correct statement regarding red neurons:

- a) They indicate irreversible injury to neurons.
- b) Their nuclei are small and hyperchromatic.
- c) They are characterized by increased cytoplasmic endoplasmic reticulum.
- d) Their dendrites are the main component of gliosis
- e) They are seen in multiple sclerosis quiescent plaques.

Ans: b

2) A 67 year old lady complained of sudden weakness in her right arm followed by slurred speech and facial asymmetry. No hemorrhage was seen on a CT scan. The most common cause of her symptoms is:

- a) Thrombotic occlusion of the middle cerebral artery.
- b) Embolic occlusion of the middle cerebral artery
- c) embolic occlusion of the middle meningeal artery
- d) Thrombotic occlusion of the middle meningeal artery.
- e) Paradoxical embolus

Answer: b

3) Choose the INCORRECT statement regarding multiple sclerosis (MS):

- a) Axonal damage occurs late in the disease process.
- b) The disease is caused by loss of immune tolerance to a myelin protein
- c) Characterized by grey matter plaques separated in time and space.
- d) T helper cells play a major role in MS pathogenesis
- e) Patients have more IgG in their CSF than in the serum

Ans: c

4) Which of the following is not a feature of Guillain Barrie syndrome?

- a) Respiratory failure is a possible complication.
- b) Asymmetrical paralysis
- c) Acute onset after immunization or infection.
- d) Muscle weakness starts distally then progresses proximally.
- e) The neuropathy resolves within 4 weeks

Answer: b

5) Choose the incorrect combination:

- a) Acute disseminating encephalitis and full recovery in survivors.
- b) Central pontine myelinolysis and sudden change in osmotic pressure.
- c) Hypertrophic neuropathy and proliferation of Schwann cells.
- d) AGE-RAGE interaction and increased anticoagulation

e) Diabetic neuropathy and sensory symptoms in the feet and hands

Ans: d

6) **All of the following are complications of transtentorial herniation except:**

- a) Brain stem hemorrhage
- b) Ischemic damage of the visual cortex
- c) Third cranial nerve compression
- d) Impaired ocular movement
- e) Anterior cerebral artery compression

Answer: e

7) **A 66 year old lady suffered from severe headache. Her radiological imaging revealed an intracerebral hemorrhage. Her past medical history included hypertension and long standing bronchiectasis. Her brain hemorrhage is least likely caused by:**

- a) Ruptured aneurysm
- b) Amyloid angiopathy
- c) Complication of hyaline arteriosclerosis
- d) Autoimmune arteritis
- e) Primary brain hemorrhage

Ans: d

8) **The most common site of embolic obstruction:**

- a) Middle cerebral artery
- b) Anterior cerebral artery
- c) Basilar artery

Answer: a

9) **Choose the incorrect combination :**

- a) Gemistocytes and repair.
- b) Red neurons and loss of Nissl substance.
- c) Rod cells and microglia
- d) Oligodendrocytes and peripheral nervous system myelin production
- e) Lewy bodies and Parkinson disease

Ans: d

10) **Which of the following is a fatal complication of transtentorial herniation?**

- a) Duret haemorrhages
- b) Compressed anterior cerebral artery

- c) Compressed posterior cerebral artery
- d) Compression of the oculomotor nerve
- e) All of the above

Answer: a

11) All of the following are complications of trans-tentorial herniation except :

- a) Compression of the anterior cerebral artery.
- b) Impaired ocular movement
- c) linear bleedings in the midbrain.
- d) Ischemic injury to the visual cortex .
- e) Duret hemorrhage.

Answer: a

12) Symmetrical ascending motor weakness, areflexia, and mild-to- moderate sensory abnormalities are likely to occur following an infection with one of the following pathogens

- a) Streptococcus pneumoniae
- b) Escherichia coli
- c) Clostridium botulinum.
- d) Campylobacter jejuni .
- e) Herpes simplex type-1 virus.

Answer: d

13) A 33-year-old healthy man underwent a surgical operation, after which he started having symmetric muscle weakness in the legs followed by arm weakness. The symptoms resolved within 4 weeks. This patient most likely has :

- a) Chronic inflammatory demyelinating polyneuropathy
- b) An attack of multiple sclerosis
- c) Central pontine myelinolysis.
- d) Guillian Barrie syndrome .
- e) Distal symmetric sensorimotor polyneuropathy

Answer: d

14) The following combinations are true except :

- a) Multiple sclerosis and oligoclonal bands.
- b) Central pontine myelinolysis and rapid correction of hyponatremia
- c) Quiescent plaques in multiple sclerosis and gliosis
- d) Neuromyelitis optica and aquaporin 4 antibodies
- e) Multiple sclerosis and grey matter plaques

Answer: e

- 15) While examining a histologic slide from the brain tissue of a 77-year-old woman who died after suffering from a road traffic accident you noted shrunken neurons with intense eosinophilic cytoplasm and pyknotic nuclei. You also found occasional extracellular amyloid plaques. Her brain weight was larger than normal with narrow sulci and wide gyri. Which of the following conclusions about her condition is CORRECT ?
- a) Prior to the accident, this lady most likely suffered from dementia .
 - b) The intense eosinophilia in the neurons is a result of increased Nissl substance .
 - c) She died within less than an hour of the accident.
 - d) The narrow sulci and wide gyri suggest that she definitely had a history of hypertension.
 - e) The neurons described are a consequence of hypoxic damage and the brain weight supports this assumption.

Answer: e

- 16) Wrong about brain herniation:
→ Cingulate gyrus herniates in transtentorial herniations
- 17) Wrong about MS:
→ It affects both peripheral and central nerves
- 18) The most common cause of intracranial hemorrhage is:
→ Hypertension
- 19) Choose the correct statement :
→ Neurons are more susceptible to hypoxic injury than oligodendrocytes
- 20) 20-A woman had an ischemic stroke after tonsillectomy, wrong about this:
→ Brain is shrunken with wide gyri and narrow sulci
- 21) Wrong about Alzheimer's disease: (degenerative disease)
→ Increased ICP

قال تعالى:

{هُوَ الَّذِي أَنْزَلَ السَّكِينَةَ فِي قُلُوبِ الْمُؤْمِنِينَ لِيَزْدَادُوا إِيمَانًا مَعَ إِيمَانِهِمْ ۗ وَلِلَّهِ جُنُودُ السَّمَاوَاتِ وَالْأَرْضِ ۗ وَكَانَ اللَّهُ عَلِيمًا حَكِيمًا }

Bahavioral science

Introduction to psychology:

1) Which of the following statements regarding correlational studies is CORRECT?

- a) We can observe and register behavioral changes.
- b) We can measure relationship of variables.
- c) We can explain the effects of therapy on behaviors.
- d) We can interpret causes of certain behaviors.
- e) We can suggest remedies for certain behaviors.

Ans: b

2) Which of the following research methods is used for determining causation?

- a) Correlational studies.
- b) Experimental studies
- c) Cross-sectional studies
- d) Observational studies
- e) Descriptive studies

Ans: b

3) All of the following factors play important roles in behaviour, EXCEPT?

- a) Individual's values
- b) Genetic makeup
- c) Individual's skin colour
- d) Individual's culture
- e) Emotional states

Ans: c

4) Which of the following schools of psychology studied personality through the unconscious**?

- a) Trait school
- b) Biological school
- c) Humanistic school
- d) Psychodynamic school
- e) Social cognitive school

Ans: d

Intelligence:

5) Which of the following statements is true about intelligence?**

- a) Environment has no effect on intelligence.
- b) Intelligence changes overtime while growing up.
- c) The first to assess intelligence through test is Durkheim in 1890.
- d) People score between 90 – 110 in Wechsler intelligence scale.
- e) The average correlation between parents IQ and their children is 90.

Ans: d

6) The following are recognized types of intelligence, EXCEPT?

- a) Musical
- b) Linguistic
- c) Intrapersonal
- d) Historical
- e) Mathematical

Ans: d

7) Which of the followings is true about intelligence?

- a) Good education increases intelligence significantly.
- b) Intelligence is not inherited.
- c) The difference in intelligence is inter-racial.
- d) Intelligence changes significantly over time.
- e) Intelligence difference between sexes is significant.

Ans: a

8) Which of the following statements is true about Wechsler intelligence scale?

- a) Has moderate validity.
- b) Has 6 verbal and 5 performance scales.
- c) It is no more used to assess intelligence.
- d) It is a group test.
- e) Minority of people score between 70 & 110

Ans: b

9) Which of the following factors is irrelevant to the individual's IQ?**

- a) Genetics
- b) Birth order
- c) Socioeconomicclass
- d) Quality of stimulation
- e) Emotionalclimate

Ans: b

10) The following are the most agreed upon aspects of intelligence EXCEPT:

- a) Verbal skills
- b) Problem solving
- c) Adaptation
- d) Ability to learn
- e) Getting rich

Ans: e

11) Which of the following is irrelevant to the individual IQ*?

- a) Uncle's IQ.
- b) Emotional climate.
- c) Quality of stimulation.
- d) Socioeconomic class.
- e) Marital status

Ans: e

12) All the following are false about intelligence except:

- a) Intelligence is the product of stimulation in early childhood only
- b) IQ was calculated according to mental age over chronological age
- c) Intelligence continues growing until age of 25
- d) Successful people are not necessarily highly intelligent
- e) People of are usually low in intelligence

Ans: b

13) Which of the following is wrong about intelligence:

- a) first assessment of intelligence was done by Binet in 1904
- b) IQ is stable over time
- c) there are no IQ differences btw races
- d) education increase intelligence by 30 points in WISC
- e) there is no correlation btw parents IQ and their children.

Ans: E

14) Which of the following statements is true about intelligence ?

- a) The first to assess intelligence through test is Durkheim in 1890
- b) Intelligence changes overtime while growing up
- c) Environment has no effect on intelligence
- d) Most people score between 90 - 110 in Wechsler intelligence scale

e) The average correlation between parents IQ and their children is 90

Ans: d

15) Which of the following is not a well-known form of intelligence:

- a) mathematical
- b) recreational
- c) musical
- d) kinaesthetic

Ans: b

16) Which of the following is wrong about IQ:

- a) average correlation btw parents IQ and their children is 80
- b) average correlation btw adopted children is 25
- c) average correlation btw MZ twins is 90
- d) average correlation btw DZ twins is 55

Ans: a

17) Which of the following is true about Wechsler intelligence scale:

- a) assess the intelligence of children
- b) contains 9 verbal scales
- c) contains 3 performance scales
- d) high validity and low reliability of the test
- e) most people score btw 90 and 110

Ans: e

18) All the following are true about intelligence except:

- a) Spearman developed the concept of general (g) factor
- b) most people have average IQ
- c) 68% of people lies within one standard deviation of IQ curve
- d) genes are the only determinant of IQ
- e) no difference in IQ among human race

Ans: d

19) Regarding intelligence which of the following statements is false?

- a) Intelligence can be increased by 30 points with good teaching .
- b) Intelligence assessment started by Binet in 1904 .
- c) There is no real IQ differences between races .
- d) IQ is fairly stable over time .
- e) There is correlation between parents IQ and their children

Ans: a

- 20) which factor is not significant in development of intelligence :
- a) genetic factors
 - b) environmental factors
 - c) early childhood mental stimulation
 - d) racial factors
 - e) nutritional factors

Ans: I guess d

- 21) **Nature vs. nurture can be expressed as :** → Genetics vs. learning
- 22) **Wrong about IQ:** → Parent IQ is not related to their offspring's
- 23) **Wrong about intelligence:** → can be increased by 30 points with good education.
- 24) **True about intelligence:** → more differences are intraracial than interracial.

Human development:

- 1) **Which of the following is not part of midlife development?**
- a) Separating psychologically from parents
 - b) NOT accepting the aging process in the body
 - c) Experience intimacy within a committed relationship
 - d) Finding a job
 - e) Becoming a parent

Ans: B

- 2) **wrong about development:** → enuresis more in girls
- 3) **all of the following are included in Erik Erikson's stages of development, EXCEPT?**
- a) Popularity versus self-absorption
 - b) Industry versus inferiority
 - c) Ego integrity versus despair
 - d) intimacy versus isolation
 - e) Trust versus mistrust

Ans: a

4) **the following are included in Erik Erikson's stages of development EXCEPT:**

- a) Industry versus inferiority
- b) Ego integrity versus despair
- c) Trust versus mistrust
- d) Popularity versus self-absorption
- e) Intimacy versus isolation

Ans: D

5) **All of the following are stages of normal grief reaction except:**

- a) Anger
- b) Denial
- c) Regression.
- d) Bargaining.
- e) Acceptance.

Ans: c

6) **All of the following are signs of acceptance of the loss except:**

- a) Talking about the deceased realistically.
- b) Hearing the voice of the deceased.
- c) Establishing new social relationships.
- d) Resuming normal life activities.
- e) Adjusting to a new lifestyle after the loss

Ans: b

7) **Regarding Pica, all of these statements are correct except: (the info of this question isn't present in slide but can be considered extra)**

- a) It is an eating of non nutritive substance
- b) It is typically present in autism
- c) Pregnant women may have this disorder
- d) It is associated with parasitic infection

Ans: d

8) **true about enuresis:**

- a) more common in females
- b) behavioural therapy is the mainstay of treatment

Ans: b

9) Which of the following is not a characteristic of ADHD:

- a) Impulsivity
- b) Increased concentration
- c) Inability to pay attention
- d) Inability to complete task

Ans: b

10) **Approved drug for ADHD:** → methylphenidate

11) **Which is true about autism/ADHD:** → more common in boys

Placebo:

1) Which of the following statements regarding placebo is correct?**

- a) Placebo treatment has no unfavorable effects.
- b) Placebo effect and placebo are the same.
- c) The average placebo effect in medical practice is 35%.
- d) Placebo effect has no role in surgery.
- e) Placebo is effective only on low IQ patients

Ans: c

2) Which of the following statements is not true about placebo:

- a) It is Latin for (I shall please).
- b) Any therapeutic procedure which is given without specific activity for the condition being treated with.
- c) Placebo and placebo effect are the same.
- d) Placebo have side-effects.
- e) Placebo effect accounts for about 30% of active treatments.

Ans: C

3) All the following statements are true about placebo except:

- a) Research indicates that placebo effect is about 30%.
- b) Placebo effect is not entirely psychological.
- c) placebo is commonly used by doctors in every day work.
- d) Expectation is important factor in the placebo effect.
- e) In tooth pain Morphine and placebo have the same efficacy.

Ans: E

4) Which of the following factors play a role in the placebo effect:

- a) The mode of symptoms initiation.
- b) The type of underlying pathology of symptoms.
- c) The age of the patient in the time of consultation.
- d) Neuro-chemical brain substances.

e) Which body organ is involved

Ans: D

5) The following factors play the main role in the placebo effect except one:

- a) The severity of the symptoms.
- b) Expectation of the patient.
- c) The birth order of the patient.
- d) Physicians faith in the treatments they prescribe.
- e) The size and color of medications.

Ans: c

6) ***Laith's mother buys him a sailor's cap before they go to a family fishing trip. On the boat Laith gets nauseated and vomits. The next day he gets nauseated just from looking at the sailor's cap. The sailor's cap has become:

- a) Unconditioned stimulus
- b) Reconditioned stimulus
- c) Unconditioned response
- d) Conditioned response
- e) Conditioned stimulus

Ans: e

7) All affect the placebo effect except: → color and size of the tablet OR patient age

8) True about placebo: → mostly has 35% effectiveness

9) Wrong about placebo effect: → related to patient education

Motivation:

1) all the following are conflicts of approach avoidance type except:

- a) dependence Vs. independence
- b) intimacy Vs. isolation
- c) danger Vs. isolation
- d) competition Vs. cooperation
- e) impulse-expression Vs. moral standards.

Ans: c

2) one of the following statements concerning " approach avoidance conflict" is true :

- a) the individual can choose between 2 positive goals
- b) the conflict involve 2 desired goals
- c) the conflict results because the individual can't choose between 2 negative goals
- d) the individual can choose either the positive or the negative aspect in one goal
- e) the individual can choose 2 goals simultaneously

Ans: d

3) Psychological conflicts result from all the following mechanisms except :

- a) Dependence versus independence
- b) Intimacy versus isolation
- c) Denial versus projection
- d) Competition versus cooperation
- e) Impulse expression versus moral standards

Ans: c

"فَتَعَالَى اللَّهُ الْمَلِكُ الْحَقُّ وَلَا تَعْجَلْ بِالْقُرْآنِ مِنْ قَبْلِ أَنْ
يُقْضَىٰ إِلَيْكَ وَحْيُهُ وَقُلْ رَبِّ زِدْنِي عِلْمًا"

سورة طه آية: ١١٤

Biochemistry

1. An excitatory neurotransmitter that leaks to the cytosol to be converted to another neurotransmitter, can be recycled through a presynaptic neuron transporter and degraded by the liver or presynaptic enzymes is:

- a. Gama-aminobutyric acid
- b. Glycine
- c. Norepinephrine
- d. Serotonin
- e. Acetylcholine

Answer: C

2. Deficiency of vitamin B6 (pyridoxal phosphate) will result in the impairment of all the following pathways EXCEPT:

- a. DOPA to dopamine
- b. Norepinephrine to epinephrine
- c. Aspartate to glutamate
- d. Tryptophan to serotonin
- e. Histidine to histamine

Answer: B

3. The 'retrograde' mechanism of NO (nitric oxide) means:

- a. It is produced in the post-synaptic neuron.
- b. It regulates the pre-synaptic neuron.
- c. It activates guanylyl cyclase.
- d. It diffuses to nearby cells.
- e. It binds to post-synaptic receptors.

Answer: B

4. A neurotransmitter that is not deactivated by MAO:

- a. GABA
- b. Histamine

Answer: A

5. Which is true about neuropeptides and small transmitters?

- a. Both released by vesicular mechanism.
- b. Both synthesized in cell body of presynaptic cell.
- c. Both can be released from a site far away from the site of Ca entry.
- d. Both induce a signal that can be terminated by reuptake.

Answer: A

6. SAM is used in all of the following except:

- a. N-methyl trans
- b. Deamination
- c. Methylation of phosphodylether ...
- d. COMT

Answer: B

7. TRUE about Dopamine B-hydroxylase:

Answer: requires O₂ + Ascorbate (vit C)

8. The indicator of Parkinson's disease is:

Answer: homovanillic acid

9. Which one of the following is WRONG about catecholamine synthesis:

Answer: Dopamine and norepinephrine have vesical synthesis

10. TRUE about Histidine to histamine reaction:

Answer: Requires pyridoxal phosphate.

11. Can't cross BBB:

Answer: Glutamate

12. Which one of the following is WRONG about glutamate?

Answer: Cannot be synthesized inside neurons.

Books questions

1. One of the presenting symptoms of vitamin B6 deficiency is dementia. This may result from an inability to synthesize serotonin, norepinephrine, histamine, and GABA from their respective amino acid precursors. This is because vitamin B6 is required for which type of reaction?

- a. Hydroxylation
- b. Transamination
- c. Deamination
- d. Decarboxylation
- e. Oxidation

The answer is D. Vitamin B6 participates in transamination and decarboxylation reactions (and indirectly in deamination reactions). The one common feature in the synthesis of serotonin, GABA, norepinephrine, and histamine is the decarboxylation of an amino acid, which requires vitamin B6. The other reactions are not required in the biosynthesis of these neurotransmitters.

2. A patient is deficient in vitamin B12 and folate. The production of which one of the following would therefore be expected to be impaired in this patient, as compared to a patient with no vitamin deficiencies?

- a. GABA
- b. Serotonin
- c. Dopamine
- d. Norepinephrine
- e. Epinephrine

The answer is E. In order to form epinephrine, a methyl group from SAM is transferred to norepinephrine. SAM production is dependent on adequate levels of both vitamin B12 and folate. Without B12 and folate (and therefore SAM), epinephrine synthesis is blocked. Inactivation of catecholamines (and serotonin) is also dependent on SAM, so a lack of vitamin B12 and folate (and therefore, SAM) would result in a higher level of serotonin, dopamine, and norepinephrine. GABA synthesis is not affected by a B12 or folate deficiency.

3. Lack of vitamin B12 leads to neuropathy. Which one of the following neurotransmitters will exhibit reduced synthesis when this vitamin is deficient?

- a. Serotonin
- b. Glycine
- c. GABA
- d. Nitric oxide
- e. Norepinephrine

The answer is B. A vitamin B12 deficiency leads to tetrahydrofolate (FH4) being trapped as N5-methyl-FH4, thereby producing a functional folate deficiency. Folate is required for the synthesis of glycine from serine. Glycine in circulation cannot pass through the blood-brain barrier, so it must be synthesized from serine within the brain. In the absence of vitamin B12, this reaction will not occur. In addition, owing to the lack of vitamin B12 and functional folate deficiency, levels of SAM will drop. Thus, although norepinephrine synthesis is normal, epinephrine synthesis would be reduced. There is no effect on serotonin synthesis (from tryptophan), nor for GABA and NO synthesis, because none of their biosynthetic steps requires either vitamin B12 or a folate derivative.

4. For Catecholamine biosynthesis the rate-limiting enzyme is:

- a. DOPA decarboxylase
- b. DOPAMINE β -hydroxylase
- c. Tyrosine hydroxylase
- d. Phenylalanine hydroxylase

Answer: C

5. A hormone which cannot cross the blood-brain barrier is:

- a. Epinephrine
- b. Aldosterone
- c. ACTH
- d. TSH

Answer: A

6. Epinephrine is derived from norepinephrine by:

- a. Decarboxylation
- b. Hydroxylation

- c. Oxidation
- d. N-methylation

Answer: D

7. The biosynthesis of both Catecholamine and serotonin requires:

- a. Tyrosine hydroxylase
- b. N-methyl transferase
- c. Aromatic amino acid decarboxylase
- d. Tryptophan pyrrolase

Answer: B

8. Epinephrine is rapidly metabolized by:

- a. Monoamine oxidase
- b. Deaminase
- c. Transaminase
- d. Decarboxylase

Answer: A

9. An enzyme involved in the catabolism of catecholamines is:

- a. Dopa decarboxylase
- b. Aromatic amino acid decarboxylase
- c. Monoamine oxidase
- d. Catechol oxidase

Answer: C

10. Tyrosine hydroxylase is inhibited by:

- a. Catecholamines
- b. α -Methyldopa
- c. Phenylalanine
- d. Vanillyl mandelic acid

Answer: A

Microbiology

1. Which of the following is true regarding infectious causes of peripheral neuropathy?

- a. Postherpetic neuralgia is neuropathic pain in a dermatomal pattern that commonly follows an episode of herpes simplex virus type 2 (HSV-2) infection.
- b. Symptoms of Botulinum toxin ingestion first appear as a descending flaccid paralysis that starts with cranial nerves.
- c. More than 70% of infections with poliovirus will result in flaccid paralysis.
- d. Varicella zoster virus primary site of dormancy is in neuromuscular junctions.
- e. Infectious causes of peripheral neuropathy are more common than vascular and inflammatory causes.

Answer: B

2. Symmetrical ascending motor weakness, areflexia, and mild-to-moderate sensory abnormalities are likely to occur following infection with one of the following pathogens:

- a. Streptococcus pneumoniae.
- b. Escherichia coli.
- c. Clostridium botulinum.
- d. Campylobacter jejuni.
- e. Herpes simplex type-1 virus.

Answer: D

3. True statement:

Answer: Botulinum toxin inhibits Ach release at neuromuscular junctions.

4. False about polio:

Answer: Non-paralytic form of the disease progress to paralysis within few days.

5. False about polio:

Answer: Epidemic paralytic polio is common worldwide.

6. 7-year-old with acute headache, fever and altered mental status, on examination he is positive for kernig's test and has no signs of increased intracranial pressure, choose the true statement about this case:

- a. Should start treatment before lumbar Puncture.

- b. Meningoencephalitis because of decreased level of consciousness.
- c. Kernig's positive rules out fungal meningitis.
- d. Test for TB is required and done immediately.

Answer: B

7. The least likely found result in the above case:

- a. Gram-positive bacteria.
- b. Gram-negative rod.
- c. Increase CSF: serum glucose level.
- d. Slightly increase in protein level
- e. Increase in WBCs.

Answer: C

8. Choose the right sentence about immunity in CNS:

- a. The immune system is a critical part of a functioning central nervous system (CNS).
- b. Brain parenchyma doesn't have immune cells even if injured.
- c. Microglial cells have a lower threshold than macrophages.
- d. Neutrophils are the main immune cells in CNS.

Answer: A

9. A patient is present with meningitis signs, which of the following is correct?

- a. Antibiotics usage may give false negative results.
- b. Negative kernigs and breduzski signs exclude meningitis.
- c. High glucose level is most likely to be found.

Answer: A

10. Which one of the following causes chronic Meningitis?

- a. S. pneumonia
- b. N. meningitidis
- c. Candida albicans

Answer: C

11. Which of the following is true regarding immunity in the central nervous system (CNS)?

- a. Microglia and complement proteins are immune components found in the brain parenchyma.
- b. The concentration of antibodies in the CSF is higher than in serum.
- c. Polymorphonuclear cells are abundant within the CSF (> 100 cells/microliter).
- d. Pathogen access to the brain parenchyma is not restricted by immunological barriers.
- e. The bacterial microbiota in the CSF is important in the maturity of the immune system.

Answer: A

12. A 7-year-old male presented to the emergency department with a severe headache and fever of a few hours' duration. On physical examination, the patient had a stiff neck and a positive Kernig's sign. A lumbar puncture was performed followed by empiric antibiotic therapy. Gram staining of CSF demonstrated gram-negative diplococci. Which of the following is true regarding this case?

- a. The causative agent can colonize the upper respiratory tract.
- b. A CSF acid-fast stain should be ordered due to high suspicion of Tuberculous meningitis.
- c. Initiation of antibiotic therapy should have been done before lumbar puncture.
- d. A positive kerning's sign indicates involvement of brain parenchyma and meningoencephalitis.
- e. This condition is self-limiting with low mortality and morbidity.

Answer: A

13. False statement about meningitis:

Answer: Brain biopsy is usually acquired for diagnostic purposes.

14. A 60 years old man has chronic meningitis for more than 12 weeks, there is no gram stain and the most abundant immune cells are lymphocytes:

- a. Mycobacterium tuberculosis.
- b. H. Influenza.

Answer: A

15. All of the following are false regarding Haemophilus influenzae EXCEPT:

- a. Does not possess a capsule.

- b. Can withstand dryness.
- c. Is resistant to 3rd-generation cephalosporins.
- d. A rare cause of meningitis now in Jordan.

Answer: D

16. False about polio:

Answer: Hygiene affects the development of paralysis after infection.

17. CSF analysis of a patient that presented with headache, fever and meningeal showed normal glucose and protein levels, an increase in WBC with lymphocyte predominance and a negative gram stain. Which of the following tests is most useful in determining the causative agent?

- a. CSF Polymerase chain reaction (PCR).
- b. Brain biopsy.
- c. CSF culture on chocolate agar.
- d. Testing cranial nerves function.
- e. Serology for arbovirus IgG antibodies.

Book Questions “From Jawtez”

1. Tetanus toxin (tetanospasmin) diffuses to terminals of inhibitory cells in the spinal cord and brainstem and blocks which of the following?

- a. Release of acetylcholine.
- b. Cleavage of SNARE proteins.
- c. Release of inhibitory glycine and gamma-aminobutyric acid.
- d. Release of protective antigen.
- e. Activation of acetylcholine esterase

Answer: C

2. A 45-year-old man who immigrated to the United States 5 years ago sustained a puncture injury to the lower part of his right leg when his rotary lawn mower threw a small stick into his leg. Six days later, he noticed spasms in the muscles of his right leg; on day 7, the spasms increased. Today²day 8²he had generalized muscle spasms, particularly noticeable in the muscles of his jaw. He was unable to open his jaw and came to the emergency department (ED). In the ED, you see a man who is alert and lying quietly in bed. A door slams down the hall, and suddenly he has a general muscle spasm with arching of his back. The correct diagnosis is which of the following?

- a. Botulism.
- b. Anthrax.
- c. Gas gangrene.
- d. Tetanus.
- e. Toxic shock syndrome.

Answer: D

3. Which of the following statements about tetanus and tetanus toxoid is correct?

- a. Tetanus toxin kills neurons.
- b. Tetanus toxoid immunization has a 10% failure rate.
- c. The mortality rate of generalized tetanus is less than 1%.
- d. Double vision is commonly the first sign of tetanus.
- e. Tetanus toxin acts on inhibitor interneuron synapses.

Answer: E

4. Which of the following food items is most frequently associated with infant botulism?

- a. Corn syrup.
- b. Canned infant formula.
- c. Liquid multivitamins.
- d. Honey.
- e. Jarred baby food.

Answer: D

5. 12-year-old Boy Scout went to summer camp for 2 weeks in late August at a site located just outside Mystic, Connecticut. When he returned home, his mother noticed a bull's-eye shaped rash on the back of her son's left calf. Shortly after Labor Day, the boy developed a flulike illness that resolved after 4 days of bed rest. Three weeks later, the boy complained to his mother that his body hurt all over whenever he moved. This prompted a visit to the pediatrician, who ordered an infectious disease workup. What is the most likely source of the boy's infection?

- a. Respiratory transmission from another sick camper.
- b. Ingestion of urine-contaminated water from a stream.
- c. The bite of a mosquito harboring a parasite.
- d. Ingestion of fecally contaminated food.
- e. The bite of a spirochete-infected tick.

Answer: E

6. A 47-year-old man presents with slowly progressive arthritis in his knees. He enjoys hiking in the coastal areas of Northern California, where the prevalence of *B. burgdorferi* in the *Ixodes* ticks is known to be 1-3% (considered low). The patient is concerned about Lyme disease. He never noticed a tick on his body and did not see an expanding red rash. The result of an EIA for Lyme borreliosis is positive. What should be done now?

- a. A biopsy specimen of the synovium of a knee joint should be examined for *Borrelia burgdorferi*.
- b. The patient should be given an antibiotic to treat Lyme disease.
- c. PCR on the patient's plasma should be done to detect *Borrelia burgdorferi*.
- d. A serum specimen should be submitted for immunoblot assay to detect antibodies reactive with *Borrelia burgdorferi* antigens.
- e. Culture of synovial fluid on blood and chocolate agar.

Answer: D

7. Which one of the following is a recommended therapy for herpes simplex virus genital infection?

- a. Acyclovir.
- b. Attenuated live virus vaccine.
- c. Herpes immune globulin.
- d. Interferon- α .
- e. Ribavirin.

Answer: A

8. The use of live oral polio vaccine has been replaced by inactivated polio vaccine in many countries. Which of the following is the primary reason?

- a. It is more cost-effective to use the inactivated vaccine.
- b. There is a greater risk of vaccine-induced disease than wild virus-induced disease in areas where poliovirus has been eradicated.
- c. Only a single dose of inactivated vaccine is necessary compared with multiple doses of the oral vaccine.
- d. Circulating poliovirus strains have changed and the live vaccine is no longer effective in many countries.

Answer: B

9. The inhabitants of a group of small villages in rural sub-Saharan Africa experienced an epidemic of meningitis. Ten percent of the people died, most of them younger than the age of 15 years. The microorganism that most likely caused this epidemic was:

- a. Streptococcus agalactiae (group B).
- b. Escherichia coli K1 (capsular type 1).
- c. H. influenzae serotype b.
- d. N. meningitidis serogroup A.
- e. West Nile virus.

Answer: D

10. A 6-year-old boy develops a fever and headache. He is taken to the emergency department, where he is noted to have a stiff neck, suggesting meningeal irritation. A lumbar puncture is done, and culture of the cerebrospinal fluid grows N. meningitidis serogroup B. Which of the following should be considered for his family (household) members?

- a. No prophylaxis or other steps are necessary.
- b. They should be given *N. meningitidis* pilin vaccine.
- c. They should be given *N. meningitidis* serogroup B polysaccharide capsule vaccine.
- d. They should be given rifampin prophylaxis.

Answer: D

11. A 48-year-old alcoholic man is admitted to a hospital because of stupor. He is unkempt and homeless and lives in an encampment with other homeless people, who called the authorities when he could not be easily aroused. His temperature is 38.5°C, and his blood pressure 125/80 mm Hg. He moans when attempts are made to arouse him. He has positive Kernig and Brudzinski signs, suggesting meningeal irritation. Physical examination and chest radiography show evidence of left lower lobe lung consolidation. An endotracheal aspirate yields rust-colored sputum. Examination of a Gram-stained sputum smear shows numerous polymorphonuclear cells and numerous Gram-positive lancet shaped diplococci. On lumbar puncture, the cerebrospinal fluid is cloudy and has a white blood cell count of 570/μL with 95% polymorphonuclear cells; Gram-stain shows numerous Gram-positive diplococci. Based on this information, the likely diagnosis is:

- a. Pneumonia and meningitis caused by *S. aureus*.
- b. Pneumonia and meningitis caused by *S. pyogenes*.
- c. Pneumonia and meningitis caused by *S. pneumoniae*.
- d. Pneumonia and meningitis caused by *E. faecalis*.
- e. Pneumonia and meningitis caused by *Neisseria meningitidis*.

Answer: C

12. The patient in Question 12 is started on antibiotic therapy to cover many possible microorganisms. Subsequently, culture of sputum and cerebrospinal fluid yields Gram-positive diplococci with a minimum inhibitory concentration to penicillin G of greater than 2 μg/mL. The drug of choice for this patient until further susceptibility testing can be done is:

- a. Penicillin G.
- b. Nafcillin.
- c. Trimethoprim – sulfamethoxazole.
- d. Gentamicin.
- e. Vancomycin.

Answer: E

Book Questions “From Harrisons”

1. An 87-year-old nursing home resident is brought by ambulance to a local emergency room. He is obtunded and ill-appearing. Per nursing home staff, the patient has experienced low-grade temperatures, poor appetite, and lethargy over several days. A lumbar puncture is performed, and the Gram stain returns gram-positive rods and many white blood cells. *Listeria meningitis* is diagnosed and appropriate antibiotics are begun. Which of the following best describes a clinical difference between *Listeria* and other causes of bacterial meningitis?

- a. More frequent nuchal rigidity.
- b. More neutrophils are present on the cerebrospinal fluid (CSF) differential.
- c. Photophobia is more common.
- d. Presentation is often more subacute.
- e. White blood cell (WBC) count is often more elevated in the CSF.

Answer: D

2. An HIV-positive patient with a CD4 count of 110/ μ L who is not taking any medications presents to an urgent care center with complaints of a headache for the past week. He also notes nausea and intermittently blurred vision. The examination is notable for normal vital signs without fever but mild papilledema. Head CT does not show dilated ventricles. The definitive diagnostic test for this patient is:

- a. cerebrospinal fluid (CSF) culture.
- b. MRI with gadolinium imaging.
- c. ophthalmologic examination including visual field testing.
- d. serum cryptococcal antigen testing.
- e. urine culture

Answer: A

تم بحمد الله

اذكرونا بدعوة 