

## ASSORTED END OF YEAR MCQ'S FOR REVIEW OF NEUROANATOMY



UNIVERSITY OF NAIROBI MBCHB CLASS OF 2016/2017  
DOCTOR VINCENT KIPKORIR

“Dispel from your mind the thought that an understanding of the human body in every aspect of its structure can be given in words.”

1. During the course of development from embryo to old age, the following are possible terminations of the spinal cord
  - a. 1st sacral vertebra
  - b. Third lumbar vertebra
  - \* c. L1 - L2 disc
  - d. (a), (b) and (c)
  - e. None of the above
  
2. Parasympathetic functions include the following except:
  - a. Stimulation of GI motility
  - b. Relaxation of GI sphincters
  - c. Promotes emptying of urinary bladder
  - \* d. Stimulates secretion of adrenal medulla
  - e. Constricts blood vessels of extremities
  
3. Proprioceptive fibers convey impulses from the following except:
  - a. Surface of the body
  - b. Muscles
  - c. Joints
  - \* d. Organ of Corti in the cochlea.

- e. Eye
4. The ventral roots of the upper lumbar spinal nerves contain:  
\*  
a. Somatic motor fibers  
b. Sensory fibers  
c. Postganglionic visceral afferent fibers  
d. Post ganglionic visceral efferent fibers  
e. None of the above
5. Postganglionic thoraco lumbar autonomic fibers include:  
a. Vasoconstrictor fibers to blood vessels  
b. Secretory fibers to sweat glands  
c. Dilator fibers to the iris  
\*  
d. All of the above  
e. None of the above
6. The cervical spinal cord in cross section shows:  
a. Circular outline  
b. Larger volume of grey matter  
c. Massive posterior grey matter  
d. Well developed reticular process  
\*  
e. A posterior intermediate sulcus
7. A reflex arc consists of:  
a. An afferent nerve fiber  
b. A receptor  
c. Synapse  
d. An effector  
\*  
e. All the above
8. The large fibers in the medial bundle of the dorsal root are concerned with:  
a. Pain  
b. Touch  
c. Pressure  
d. Proprioception  
\*  
e. All the above
9. Pathways crossing the spinal cord:  
a. pain  
b. Temperature  
c. Touch  
\*  
d. All the above  
e. None of the above
10. Resulting from hemisection of the spinal cord:-  
\*  
a. Loss of tactile sensibility on same side  
b. Loss of sensation from muscles on opposite side  
c. Loss of temperature sensation on same side  
d. Loss of pain sensation on same side

- e. None of the above
11. Hemisection of the spinal cord (Brown-Sequard Syndrome) causes:  
\* a. Loss of sensory impulses in the posterior white columns below the lesion on the same side  
b. Bilateral loss of pain within the area of the lesion  
c. Bilateral loss of thermal sense within the area of the lesion  
d. All of the above  
e. None of the above
12. In all transections of the cord;  
a. Bladder function is disturbed  
b. Bowel function is unaffected  
\* c. Extensor spasms are common  
d. There is loss of superficial reflexes  
e. All of the above
13. The spinal cord:  
a. Ends at L2 - L3  
b. has an average length as that of the femur  
c. Contains posterior columns that convey temperature and proprioceptive ascending fibres  
d. Is attached to coccyx  
\* e. (a), (b) and (d)
14. All of the following statements concerning the dorsal columns are true except:  
\* a. They contain first-order neurons which synapse in the contralateral dorsal column nuclei  
b. They contain first-order neurons mediating conscious proprioception from the limbs  
c. Sensation from the lower limb is contained in the fasciculus gracilis while sensation from the upper limb is contained in the fasciculus cuneatus.  
d. A lesion of the fasciculus gracilis may result in ataxia.  
e. They contain fibres mediating either tactile or kinesthetic sensations, but not both.
15. The cauda equina:  
a. Comprises nerve roots L1 - S1  
b. Is suspended in the lumbar cistern extending down to the level of L5  
c. Comprises nerve roots L3 - S5  
\* d. Is suspended in a meningeal sac filled with extracellular fluid  
e. None of the above.
16. Regarding Spinal nerve roots:  
a. Unite to form spinal nerves in the vertebral canal  
b. They contain postganglionic fibres of the autonomic system  
c. Comprise of a lateral and medial root  
\* d. Are sheathed by a pia-glial membrane  
e. All the above are true

17. Regarding posterior columns:
- Fasciculus cuneatus lies medially
  - Fasciculus gracilis contains fibres from the upper limbs
  - Both contain crossed fibres
  - The fibres terminate in the pons
  - None of the above.
- \* 18. The spinal cord:
- Has two enlargements: thoracic and lumbar
  - Develops from the caudal portion of the neural tube
  - Has a central canal which communicates caudally with the sub-arachnoid space at the level of the 2<sup>nd</sup> lumbar vertebral body
  - Gives off 33 pairs of spinal nerves
  - The cervical and thoracic gray matter has a lateral horn where cell bodies for the sympathetic nerves are located.
19. The typical cells of the mammalian spinal ganglion are:
- Unipolar
  - Bipolar
  - Tripolar
  - Multipolar
  - None of these
- \* 20. White substance of the spinal cord consists of:
- bundles of nerve fibers
  - Neuroglia
  - fibrous astrocytes
  - Neuron cell bodies
  - Ependyma
21. The dorsal root contain:
- Only myelinated fibers
  - Only unmyelinated fibers
  - Only small myelinated fibers and large unmyelinated fibers
  - Only small unmyelinated fibers and large myelinated fibers
  - None of the above are correct statements
- \* 22. Spinal reflexes require all those below except:
- Peripheral receptors
  - Sensory neurons
  - Internuncial neurons
  - Motor neurons
  - Terminal effectors
23. Which of these are contents of the cavernous sinus?
- Sixth nerve and internal carotid artery
  - III & IV cranial nerves
  - Pituitary fossa and sella
  - Va, Vb and VI cranial nerves

- e. Internal Carotid artery and sella.
24. The following is true about blood supply to the brain except:
- Arterial blood supply to the brain is derived from the internal carotid and vertebral arteries
  - \* The two internal carotid arteries unite to form the basilar artery
  - Cortical branches of the anterior cerebral artery supply the anterior two thirds of the medial surface of cerebral hemisphere.
  - Middle cerebral artery supplies the temporal pole
  - Posterior cerebral artery supplies associative visual areas
25. The following statement regarding development of CNS is true:
- Anterior neuropore closes in the 4th week
  - Mesoderm of the caudal cell mass gives rise to six lumbar and six sacral somites
  - The lower end of the central canal expands to form the terminal ventricle
  - \* Sulcus terminalis lies between the alar plate and the basal plate.
  - None of the above.
26. The following statements about the blood supply of the hypophysis are true except:
- The superior hypophyseal branches of the internal carotid artery supply the capillary beds of the pituitary stalk.
  - The capillary bed of the median eminence is supplied directly from the inferior hypophyseal branch of the internal carotid artery.
  - The capillary beds of the median eminence and the pituitary stalk are drained by the long and intermediate portal veins.
  - \* The short portal veins form a second capillary bed in the adenohypophysis and provide its entire blood supply.
  - The adenohypophyseal capillary bed drains into the cavernous sinus.
27. The following structures are found in the middle cranial fossa except:
- \* Midbrain
  - Hypothalamus
  - Pituitary gland
  - Internal carotid
  - Cavernous sinus.
28. Regarding the meninges of the brain, find the true statement:
- The space between the dura mater and the skull is occupied by the veins.
  - The pia mater bridges the gap between gyri.
  - The arachnoid granulations project with the inferior sagittal sinus.
  - The subdural space is occupied by the cerebrospinal fluid.
  - \* The arteries are seen in the subarachnoid space.
29. In the developing central nervous system, all the statements are correct except:
- The dorsal lamina produces sensory elements and the basal lamina motor elements.
  - Rhombencephalon gives rise to secondary vesicles: myelencephalon and metencephalon .

- \* c. Metencephalon gives rise to the medulla oblongata in the adult brain.
  - d. Mesencephalon gives rise to the definitive midbrain.
  - e. Derivatives of the diencephalon includes thalamus, hypothalamus, epithalamus and subthalamus.
30. Regarding intra-cranial venous sinuses, all the statements are TRUE except:
- a. The cavernous sinus is traversed by the abducens nerve
  - \* b. The sphenoparietal sinus runs along the greater wing of sphenoid bone.
  - c. The inferior petrosal sinus is a tributary of the internal jugular vein
  - d. The inferior sagittal sinus starts at the foramen caecum
  - e. The confluence of sinuses is located at the inion
31. All the following statements about blood supply to the brain are TRUE except:
- a. Is derived from the first part of the subclavian arteries via the vertebral arteries
  - b. Is mediated via the circle of Willis
  - c. The basilar artery among others gives off labyrinthine arteries
  - d. Artery of cerebral haemorrhage supplies the internal capsule
  - \* e. Is characterized by an effective collateral system.
32. In the Central Nervous System:
- a. The gray matter is only found in the cortex
  - \* b. dorsal spino cerebellar tract courses through the Nestiform body
  - c. The decussation of the internal arcuate fibres is located in the pons
  - d. anterior horn cells serve a sensory function
  - e. lateral horn of the grey matter of the spinal cord is located in the thoracic and cervical region
33. The gray matter is composed of:
- \* a. Nerve cells
  - b. Unmyelinated axons
  - c. Myelinated axons
  - d. Capillaries
  - e. All of these
34. The gray rami are composed of:
- \* a. Postganglionic fibers
  - b. Preganglionic fibers
  - c. Myelinated fibers
  - d. Unmyelinated fibers
  - e. Fibers to skeletal muscles
35. Satellite cells function as:
- \* a. Impulse modifiers
  - b. Nutrient conveyors
  - c. Forerunners of neuroglia
  - d. Source of myelin
  - e. Function obscure

36. In the central nervous system the:
- Telencephalon comprises the two cerebral hemispheres and the mid brain.
  - Rhombencephalon does not include the cerebellum
  - \* Brain stem extends from the midbrain to the medulla
  - d. Thalamus is part of the mesencephalon
37. Which is the deepest layer of cells in the cerebral cortex?
- Lamina zonalis
  - Lamina granularis
  - Lamina pyramidarum
  - Lamina ganglionaris
  - \* e. Lamina multiformis
38. Myelin sheath of the central nervous system is provided by:
- Ependymal cells
  - \* b. Oligodendrocytes
  - c. Fibrous astrocytes
  - d. Microglial cells
  - e. Protoplasmic astrocytes
39. The following statements on Neuroglia are TRUE except:
- \* a. Comprise all the neural cells of the central nervous system
  - b. Are all of ectodermal origin
  - c. Provide both chemical and metabolic support to neurons
  - d. Of the astrocyte type are affected in multiple sclerosis
  - e. Provide both metabolic and mechanical support to neurones.
40. Which of the following is TRUE about pyramidal cells of the cerebral cortex?
- Are pyramidal in shape
  - They are only located in the motor precentral gyrus of the frontal lobe
  - The axons may enter white matter as projection, association or commissural fibres
  - d. All the above
  - \* e. (a) and (c)
41. Which of the following cells of the cerebral cortex are usually located most superficially?
- Pyramidal cells
  - Fusiform cells
  - Horizontal cells of Cajal
  - \* d. Cells of Martinotti
  - e. Betz cells
42. All the statements concerning magnocellular neuroendocrine cells are TRUE except:
- \* a. Found in the amygdaloid complex.
  - b. Responsible for the synthesis of vasopressin and oxytocin.
  - c. Are involved in the release of adrenocorticotrophic hormone (ACTH).
  - d. Connected to the neurohypophysis via the hypothalamo hypophyseal tract.

- e. Thought to have same function in the control of blood pressure and in the regulation of heat loss.
43. Which of the following enters the cerebellum through the inferior cerebellar peduncle:
- \* a. Dorsal spinocerebellar tract  
 b. Lateral spinocerebellar tract  
 c. Pontocerebellar fibres  
 d. Tectocerebellar fibres  
 e. None of the above
44. Which of these is not a cerebellar nucleus:
- a. Fastigial  
 b. Globose  
 c. Emboliform  
 d. Dentate
- \* e. None of these
45. Regarding the cerebellum, find the TRUE statement:
- a. The ventral spinocerebellar tract reaches it via superior cerebellar peduncle  
 b. Climbing fibres originate in inferior olivary nucleus  
 c. Its grey matter is characterized by presence of Purkinje cells  
 d. Its flocculonodular lobe is richly connected to vestibular nucleus
- \* e. All of the above
46. Cerebellar islands or glomeruli of the cerebellum are formed by:
- \* a. One mossy fiber rosette  
 b. Cell bodies of Purkinje cells  
 c. Basket cells of molecular layer. axons  
 d. Cell bodies of outer stellate cells  
 e. None of these
47. In the white matter of the cerebellum, are the following nuclei Except:
- \* a. Nucleus caudatus  
 b. Nucleus fastigius  
 c. Nucleus dentate  
 d. Nucleus emboliformis  
 e. Nucleus globosus
48. Nuclei or fibres present at the level of the cerebellopontine angle include all of the following cranial nerves except:
- a. Cochlear  
 b. Facial  
 c. Vestibular
- \* d. All the above  
 e. None of the above
49. Cerebellar lesions result in all of the following EXCEPT:
- \* a. Muscular paralysis



- b. Muscular hypotonia
  - c. Muscular incoordination
  - d. Ataxia
  - e. Intention tremor
50. The two axons of the Purkinje cells in the cerebellum terminate mainly in the:
- a. Red nucleus
  - b. Substantia nigra
  - c. Thalamus
  - \* d. Dentate nucleus
  - e. Inferior olivary nucleus
51. By three cerebellar peduncles, the cerebrum is attached to the:
- a. Medulla
  - b. Spinal cord
  - c. Pons
  - d. Cerebrum
  - \* e. (a) and (b)
52. The principal neuron of the cerebellum is:
- a. Pyramidal cell
  - b. Stellate cell
  - \* c. Purkinje cell
  - d. Fusiform
  - e. Horizontal cells of Cajal
53. The following is true of the anterior spinocerebellar tract.
- a. It is unconscious proprioception
  - \* b. It is an afferent tract
  - c. It is an efferent tract
  - d. It is a pathway composed of two neurons
  - e. None of the above
54. Concerning the posterior spinocerebellar tract:
- a. Begins in upper thoracic segments
  - b. Consists of large fibers
  - c. Fibers arise from cells of posterior grey column
  - \* d. All of the above
  - e. None of the above.
55. The foramen of Magendie connects:
- a. The lateral ventricles
  - b. Third and fourth ventricles
  - \* c. Fourth ventricle and subarachnoid space
  - d. Fourth ventricle and the central canal
  - e. None of these
56. The fourth ventricle:
- a. Is the cavity of the mid brain
  - b. Is dorsal to the pons and ventral to the medulla oblongata

- c. Is a blind ending recess
  - \* d. Communicates through the foramen of Luschka with the subarachnoid space
  - e. Has the third cranial nerve nucleus in its floor
57. The medulla oblongata:
- a. Has a fourth ventricle but no central canal
  - b. Has fasciculus cuneatus in its ventral aspect
  - c. Has two anterior spinal arteries passing in front of it
  - \* d. Contains spinal tract of trigeminal nerve
  - e. Is the part of the brainstem below the great motor decussation
58. The basilar artery:
- a. Is formed at the inferior border of the pons
  - b. Ends at superior border of the pons
  - c. Is formed by junction of 2 vertebral arteries
  - \* d. All the above
  - e. (b) and (c)
59. Pyramidal fibres:
- a. Run from post central gyrus of the brain
  - b. Pass through the external limb of the internal capsule
  - \* c. Most of them decussate in the lower medulla
  - d. Pass to the basal ganglia
  - e. Form second order neurons of cortico spinal tract.
60. Chemicals identified in neurons situated within the medulla include all of the following except:
- a. Norepinephrine
  - b. Epinephrine
  - c. Acetyl choline
  - \* d. Dopamine
  - e. Methiomine - enkephalin
61. Components of the auditory system include all of the following except:
- a. Spiral ganglia
  - b. Dorsal cochlear nucleus
  - c. Trapezoid body
  - \* d. Inferior olivary nucleus
  - e. Superior olivary nucleus
62. Regarding the medulla oblongata which of the following is false:
- a. Corticospinal fibres cross the midline at the spinomedullary junction.
  - b. The abducent and vestibulocochlear nerves are attached at the pontomedullary junction
  - \* c. The facial nerve is attached behind the olive.
  - d. The olive contains the inferiorolivary nucleus
  - e. All the above.
63. Which structure is not found in the floor of the fourth ventricle?

- a. Medial eminence
  - b. Facial colliculus
  - \* c. Choroid plexus
  - d. Inferior fovea
  - e. Medullary striate.
64. All of the following components are functionally related to the basal ganglia EXCEPT:
- a. Caudate nucleus
  - \* b. Red nucleus
  - c. Substantial nigra
  - d. Putamen
  - e. Subthalamic nucleus
65. The following statements concerning neural crest tissue are TRUE except:
- a. Is derived from the neural plate
  - \* b. Contributes to the developing alar lamina
  - c. Gives rise to the autonomic ganglia
  - d. Gives rise to the medulla of the suprarenal gland
66. The conscious perception of movement is mediated by which of the following receptors:
- a. Meissner's corpuscles
  - b. free nerve endings
  - c. Merkel's receptors
  - d. joint capsules
  - \* e. Pacinian corpuscles
67. The following statements concerning the hypothalamus are correct except:
- a. It is formed by the lower part of the lateral wall and floor of the third ventricle
  - b. Functionally, it is usual to include with the hypothalamus the area between the lamina terminalis and the optic chiasma
  - \* c. Caudally the hypothalamus merges with the tectum of the midbrain
  - d. The nuclei are divided into medial and lateral zones by the columns of the fornix and the mammillothalamic tract
  - e. The mammillary bodies are part of the hypothalamus
68. Neuro secretion is a phenomenon characteristic of the:
- a. Mamillary body
  - b. Anterior pituitary
  - c. Hippocampus
  - \* d. Posterior pituitary
  - e. (b) and (d)
69. Regarding the mid brain, find the TRUE statement:
- a. Contains four cranial nerve nuclei
  - b. Has two colliculi, left and right
  - c. Is the only part of the brain without a CSF containing cavity
  - \* d. Corticospinal fibres course through its tegmentum

- e. Connects the medulla oblongata to the cerebral hemispheres
70. Which of the following is buried deep in the lateral fissure?
- Cingulate gyrus
  - Thalamus
  - Third ventricle
  - \* Insula
  - Tentorium cerebelli
71. The hypothalamus is a part of the:
- \* Diencephalon
  - Mesencephalon
  - Myelencephalon
  - Yelencephalon
  - Rhombeoncephalon
72. The Edinger Westphal nucleus sends preganglionic fibres to:
- Otic ganglion
  - Pterygopalatine ganglion
  - \* Ciliary ganglion
  - Superior cervical ganglion
  - Sub mandibular ganglion
73. The inferior colliculus brachium consists of fibres from:
- Stratum griseum
  - \* Inferior colliculus
  - Superior colliculus brachium
  - Medial lemniscus
  - None of the above
74. The red nucleus receives fibers from the:
- \* Cerebellum
  - Basal ganglia
  - Pons
  - Medulla
75. All the statements concerning external capsule are TRUE except:
- Is a layer of grey mater lateral to lentiform nucleus
  - \* Is supplied by thalamostriate vessels
  - It is lateral to lentiform nucleus.
  - Is medial to claustrum
  - Does not contain association fibres.
76. Which statement is not true about the thalamostriate arteries?
- Arise from both medial cerebral and anterior cerebral arteries
  - Supply lentiform nucleus, caudate nucleus & Internal capsule
  - \* Thrombosis of these arteries causes paralysis of the same side of the body
  - Pass through the anterior perforated substance
  - Supply the thalamus and hypothalamus.

77. The lentiform nucleus comprises of:
- Neostriatum
  - Caudate and putamen
  - \* Putamen and globus pallidus
  - Paleostriatum
  - Archistriatum
78. The head of the caudate nucleus and the putamen are separated by:
- \* The fibres of the anterior limb of the internal capsule
  - The fibres of the posterior limb of the internal capsule
  - The tail of the caudate nucleus
  - All the above
  - None of the above
79. The overwhelming majority of fibres afferent to the basal ganglia terminate in the:
- Paleostriatum
  - \* Neostriatum
  - Subthalamic nucleus
  - Substantia nigra
  - Clastrum
80. The internal capsule
- Has an anterior limb that contains the general somatic sensory path way.
  - Lies superficial to the basal of ganglia
  - Has auditory and optic radiations coursing through its genu
  - Is largely posterior to the lentiform nucleus
  - \* If injured causes very specific neurological defects.
81. The pineal gland:
- Is a component of the epithalamus involved in circadian\* rhythm
  - Is associated with reproductive behavior
  - Is believed to have evolved from a median third eye
  - Receives information about light levels perceived by the retina through a complex pathway which includes the sympathetic ganglia
  - \* All the above.
82. The following are TRUE about the internal structure of the midbrain except:
- The tectum is the part posterior to the cerebral aqueduct
  - The crus cerebri on each side lies anterior to the Substantia nigra
  - The tegmentum lies posterior to the substantia nigra
  - \* The central gray matter encircles the red nuclei
  - (a), (b) and (c)
83. Which of the following statements is correct concerning the colliculi of the midbrain?
- They are located within the tegmentum
  - The superior colliculi are concerned with sight reflexes

- c. The superior colliculi lie at the level of the trochlear nerve nuclei  
 d. The inferior colliculi are concerned with auditory reflexes  
 \* e. (b) and (d) are correct
84. Substantia nigra:  
 a. Is a large motor nucleus  
 b. Is found throughout the midbrain  
 c. Possesses granules of melanin pigment  
 d. Is concerned with muscle tone  
 \* e. All the above
85. The red nucleus:  
 a. Is located between the cerebral aqueduct and the substantia nigra  
 b. Owes its appearance to the presence an iron containing pigment  
 c. Receives afferent fibres from the lentiform nucleus  
 d. All the above apply  
 \* e. (a) and (b)
86. Regarding the midbrain, find the TRUE statement:  
 \* a. The oculomotor nerves emerge on the medial side of cerebral peduncles  
 b. The glossopharyngeal nerve emerges on its ventral surface  
 c. Supplied by anterior cerebral artery  
 d. Contains the gracile and cuneate nuclei  
 e. None of the above.
87. The following form boundaries of the hypothalamus:  
 a. Hypothalamic sulcus  
 b. Anterior commissure  
 c. Optic tracts  
 \* d. All the above  
 e. None of the above
88. The following are medial zone hypothalamic nuclei are except:  
 a. Mammillary bodies  
 b. Dorsomedial nuclei  
 \* c. Tuberal nuclei  
 d. Paraventricular nuclei  
 e. Infundibular nuclei
89. The following are efferent fibres of the hypothalamus:  
 a. The fornix  
 b. Stria terminalis  
 c. Posterior longitudinal fasciculus  
 \* d. Hypothalamo-hypophyseal tract  
 e. Mammillary peduncle
90. The following statements are true in connection with the adenohipophysis:  
 a. Tancytes synthesize some of the established releasing/inhibiting factors.  
 b. Noradrenergic endings inhibit FSHRF and LHRF release.

- \* c. Dopamine is the prolactin inhibitory factor.
  - d. The normal cyclic release of FSHRF and LHRF is probably controlled by axons from the anterior hypothalamic area.
  - e. The dorsomedial nucleus is the origin of somatostatin.
91. Stimulation of the anterior hypothalamic area produces:
- a. Slowing of the heart.
  - b. Pupillary constriction
  - c. Intestinal peristalsis
  - \* d. All the above
  - e. None of the above
92. The following are specific nuclei of the thalamus except:
- a. Medial geniculate
  - b. Ventral anterior
  - c. Ventral posterior
  - d. Lateral geniculate
  - \* e. Intralaminar
93. The following statements regarding thalamic peduncles are true:
- a. The anterior peduncles link the thalamus with the frontal cortex and cingulate gyrus.
  - b. The superior peduncle passes through the anterior limb of the internal capsule to reach its destination.
  - c. The posterior peduncle carries connections between the thalamus and the parietal, occipital and temporal cortex.
  - \* d. The inferior peduncle descends to reach the orbital and anterior temporal cortex, and the amygdaloid complex.
  - e. The posterior limb of the internal capsule does not carry any of thalamic radiations.
94. The limbic system comprises:
- a. The motor cortex
  - b. The anterior temporal cortex
  - c. The corpus callosum
  - \* d. None of the above
  - e. All the above
95. The following structures make up the hippocampal formation:
- a. The subiculum
  - b. The dentate gyrus
  - c. The hippocampus
  - \* d. The uncus
  - e. The parahippocampal gyrus.
96. The following statements about the insula are correct:
- a. The insular cortex is intermediate in structure between allocortex and isocortex.
  - b. Stimulation of the anterior insula in patients gives rise to hallucinations of taste and smell.
  - c. The posterior insula is interconnected with the primary auditory,

- entorrhinal cortex, and the amygdala.
- \* d. A variety of autonomic effects are produced by stimulation of the posterior insula.
  - e. The insula is thought to be concerned with generating appropriate emotional and autonomic responses to external stimuli.
97. The following are true about the cingulate gyrus:
- a. Stimulation of the anterior cingulate cortex causes passion.
  - b. The anterior cingulate cortex receives large inputs from the specific thalamic nuclei.
  - \* c. Incision of the anterior cingulate cortex (anterior cingulotomy) may relieve intractable pain.
  - d. The connection between the cingulate gyrus and the parietal association area may be responsible for the emotional 'tone' tactile and visual sensations.
  - e. The posterior cingulate cortex is richly interconnected with the temporal cortex.
98. The amygdala:
- a. Is an important part of the subcortical limbic system.
  - b. Has connections with the hypothalamus and medial forebrain bundle.
  - c. Regulates activities of the feeding centre in the lateral hypothalamic nuclei.
  - \* d. All of the above
  - e. None of the above
99. The following structures are part of the Papez circuit:
- a. The hippocampal formation
  - b. The mammillary body
  - c. The anterior thalamus
  - d. The cingulate cortex
  - \* e. All the above
100. The following are associated with visual impulses EXCEPT:
- a. Lateral geniculate body
  - b. Meyer's loop
  - \* c. Medial geniculate body
  - d. Optic chiasma
  - e. Striate cortex
101. The pituitary gland:
- a. Has two parts: Adeno-hypophysis and Neuro-hypophysis
  - b. The Adeno hypophysis originates from the ectodermal Rathke's pouch.
  - c. Releasing factors from the hypothalamus to the anterior pituitary are conveyed by the Hypothalamo-pituitary portal vein.
  - \* d. All of the above
  - e. None of the above
102. Regarding the basal ganglia, all are TRUE except:
- a. The globus pallidum/Putamen and the thalamus are separated by the



- internal capsule.
- b. The head of the caudate nucleus is connected to the Globus pallidum/Putamen across the internal capsule forming the corpus striatum.
- c. External capsule is separated from the insula by the claustrum.
- \* d. The substantia nigra is located in the pons
- e. The red nucleus is traversed by fibres of the 3<sup>rd</sup> cranial nerve.
103. The interpeduncular fossa:
- a. Is a polyhedral space
- b. Contains the basal ganglia
- c. Contains the mamillary bodies and tegmentum
- \* d. None of the above.
- e. All of the above
104. Pain temperature pathway:
- \* a. Has nerve fibres that constitute the lateral spinothalamic tract
- b. Has nerve fibres that constitute the lateral cortico- spinal tract
- c. Has fibres that course in the posterior funiculus
- d. Has fibres that cross at once and course in the anterolateral system
- e. (b) and (d)
105. Vibratory sense is relayed to the brain through:
- a. The lateral funiculus
- b. Posterior funiculus
- c. Anterior funiculus
- d. The dorsal white columns
- \* e. (b) and (d)
106. Extra pyramidal tracts include the following except:
- a. Corticospinal tract
- b. Corticopontine tract
- \* c. Corticobulbar tract
- d. Corticoreticulospinal system
- e. Corticorectal tract
107. Ascending tracts and fibers of the spinal cord include the following except:
- a. Anterior spinothalamic tract
- b. Spinotectal tract
- c. Spinoolivary tract
- d. Spinoreticular fibers
- \* e. Spinopontine fibers
108. The anterior spinothalamic tract conveys impulses of the following except:
- a. Touch
- b. Pain
- c. Heat
- d. cold
- \* e. Stretch
109. The lateral spinothalamic tract conveys impulses of:

- a. Pain
  - b. Thermal sense
  - c. Touch
  - \* d. All of the above
  - e. None of the above
110. The vestibulospinal tract is composed of fibers from the:
- a. Superior vestibular nucleus
  - b. Medial vestibular nucleus
  - c. Inferior vestibular nucleus
  - d. All of these
  - \* e. None of these
111. Characteristics of the lateral vestibulospinal tract include all of the following except:
- a. Arises exclusively from the lateral vestibular nucleus
  - \* b. Is somatotopically organised
  - c. Supplies all levels of the ipsilateral spinal cord
  - d. Powerfully facilitates alpha motor neurons that innervate extensor muscles
112. All of the following statements concerning the corticospinal tract are correct except:
- a. Fibres of this tract arise from precentral gyrus, postcentral gyrus and premotor area
  - b. Fibres of this tract are distributed to all levels of the spinal cord.
  - c. Approximately 80% of corticospinal fibres cross in the pyramidal decussation.
  - \* d. Fibres arising from the post central gyrus terminate upon neurons in the ventral horn.
  - e. Lesions of the corticospinal tract produce an upper motor neuron paralysis.
113. Lateral Spinothalamic tracts carry impulses for:
- a. Pain
  - b. Position sense
  - c. Vibration sense
  - d. Temperature
  - \* e. Only (a) and (d).
114. The following about fibres in the pyramidal tract are TRUE except
- a. Only 30% arise from area 4 in the precentral gyrus
  - b. Traverse the posterior limb of the internal capsule
  - c. Occupy the middle 3/5 of the basis pedunculi of the midbrain
  - \* d. Those that decussate in the medulla oblongata descend as the ventral cortical spinal tract.
115. Which of the following cause hydrocephalus in infants except:
- a. Thrombosis (or blockage) of the superior sagittal sinus
  - \* b. Blockage of aqueduct of sylvius

- c. Thrombosis of the cavernous sinus
  - d. Blockage of foramina of Magendie
116. The choroid plexus:
- a. Is a collection of nerves supplying the choroid layer of the eye
  - b. Extends only into the lateral ventricle
  - c. Is formed entirely by the piamater
  - d. Is avascular
  - \* e. Produces the cerebral spinal fluid
117. Ventricular system of the brain:
- a. The lateral ventricle has two horns and a body
  - \* b. The aqueduct of Sylvius courses through the mesencephalon
  - c. Hydrocephalus is always due to over production of CSF
  - d. The infundibulum of the pituitary contains an extension of the third ventricle on the Foramen of Monro
118. Which of the following statements is true?
- \* a. The primary motor cortex is in the posterior wall of the motor cortex
  - b. The calcarine sulcus is found within the somaesthetic cortex
  - c. Anterior cerebral artery is the continuation of the internal carotid artery in lateral sulcus of Rolando
  - d. Insula cortex is hidden under the brain
  - e. Internal capsule encloses the thalamus
119. All of the following structures contribute to the walls of the lateral ventricle EXCEPT:
- a. Caudate nucleus
  - b. Corpus callosum
  - \* c. Habenula nucleus
  - d. Fornix
  - e. Septum pellucidum
120. All of the following about cerebrospinal fluid (CSF) are true except:
- \* a. Formed in the fourth ventricle, flows through the cerebral aqueduct, third ventricle and lateral ventricles and exits
  - b. The formation of CSF takes place in the choroid plexus
  - c. CSF is absorbed through arachnoid granulations
  - d. The ultimate composition of CSF is dependent to a considerable extent upon the blood brain barrier
  - e. CSF flows into the subarachnoid spaces through Foramen of Magendie and foramina of Luschka
121. All of the following about hydrocephalus are true EXCEPT:
- a. It may result from over secretion of cerebro-spinal fluid (CSF)
  - b. It may result from a failure of absorption of CSF
  - c. It may result from tumor formation within the interventricular foramen.
  - d. It may result from tumor formation in the region of the cerebral aqueduct
  - \* e. Hydrocephalus can result in brain damage in the adult but not in the

infant because the infants cranial sutures have not fused.

122. All of the following are properties of the choroid plexus EXCEPT:
- Under hydrostatic pressure, it produces CSF
  - It consists of a single layer of cuboidal epithelial tissue
  - It contains a barrier to passive exchange of proteins which is formed by tight junctions surrounding apical regions of the epithelial cells
  - \* It contributes to the mechanism governing peptide regulation of the pituitary by the hypothalamus
  - An active  $\text{Na}^+/\text{K}^+$  pump is present which accounts for the relatively higher concentration of  $\text{Na}^+$  in choroidal secretions.
123. The walls that form the cisterns encasing the brain include:
- Ependyma and nerve cells
  - Dura mater and ependyma
  - \* Pia mater and arachnoid
  - Arachnoid and ependyma
  - Pia mater, arachnoid and dura mater
124. Cisterna pontis:
- Is posterior to pons
  - \* Contains basilar artery
  - Contains circulus arteriosus
  - Contains arachnoid villi
  - Is the largest cistern
125. The following statement is false:
- Choroid plexuses secrete about 500 ml. of CSF per day
  - CSF is finally drained into the superior sagittal sinus by way of arachnoid granulations
  - The blood brain barrier is permeable to adrenaline and acetylcholine
  - Net flow of CSF is outward from the ventricles
  - \* None of the above
126. The following statements concerning the third ventricle are true except:
- The choroid plexus receives its arterial supply through the internal carotid and basilar arteries.
  - It is situated between the thalami
  - It is continuous with the fourth ventricle through the cerebral aqueduct
  - \* The choroid plexus is located in the floor
  - It communicates with the lateral ventricles through the interventricular foramina.
127. The ventricular system of the brain:
- Cerebral spinal fluid flows through it from the fourth ventricle through the aqueduct of Sylvius to the third and lateral ventricles.
  - Blockage of the aqueduct by a tubercle in tuberculous meningitis leads to non-communicating hydrocephalus in a child below two years of age.
  - \* The caudate nucleus raises a ridge in the medial wall of the lateral

- ventricle.
- d. The inter-thalamic adhesion separates the two lateral ventricles.
  - e. The fourth ventricle is the cavity running through the centre of the midbrain.
128. The following statements about lateral sulcus of Rolando are TRUE except:
- a. Has two opercula: superior and inferior
  - b. Conceals the insula
  - \* c. Separates two lobes of the cerebrum: parietal and frontal.
  - d. Has the motor speech centre (Broca's area 44) located at its posterior end.
129. The primary sensory cortex is located in:
- \* a. Post central gyrus
  - b. Precentral gyrus
  - c. Brodman's area 44
  - d. Precentral sulcus
  - e. Broca's area.
130. The main motor area of cerebral cortex is located in the:
- a. Parietal lobe
  - \* b. Frontal lobe
  - c. Occipital lobe
  - d. Temporal lobe
  - e. Lips of the lateral sulcus
131. Buried in the lateral sulcus of the cerebral hemisphere is the:
- a. Operculum
  - \* b. Insula
  - c. Tuber cinereum
  - d. Splenium
  - e. Hippocampus
132. The striate cortex is supplied by:
- a. The anterior cerebral artery
  - b. The middle cerebral artery
  - c. The basilar artery
  - \* d. Posterior inferior cerebellar artery
  - e. None of the above
133. The superior sagittal sinus:
- a. Drains into the cavernous sinus
  - b. Lies in the free margin of the falx cerebri
  - c. Is formed between endocranium and the parietal bones
  - \* d. Receives CSF through arachnoid granulations
  - e. None of the above
134. Which of the following statements about the blood- brain barrier is correct?
- a. It has well developed capillary pores that allow for selective diffusion of substances
  - \* b. It is selectively permeable to certain compounds such as biogenic amines

- c. It is found within all structures enclosed by the meninges, including the pineal gland
  - d. Tight junctions associated with the blood brain barrier are formed exclusively by neuronal or glial processes
  - e. The blood brain barrier is generally limited to highly vascular regions of brain such as those present at the level of the ventro-medial hypothalamus
135. In the forebrain, all are TRUE except:
- a. Falx cerebri lies within the median longitudinal fissure
  - b. Tentorium cerebelli lies in the transverse fissure
  - c. Lobes are names after the bones that overlie them
  - \* d. Cortex has a constant pattern of sulci and gyri
136. On the lateral surface of the hemisphere find the TRUE statement:
- a. The lateral sulcus overlies the insula
  - b. The central sulcus does not continue over the superior border on to the medial surface
  - c. Visual function is primarily represented on the lateral aspect of the occipital pole
  - d. Auditory sensation is represented in the inferior frontal gyrus
137. The region of the cortex most closely associated with the conscious perception of smell is:
- \* a. Temporal neocortex
  - b. Posterior parietal lobule
  - c. Cingulate gyrus
  - d. Prefrontal cortex
  - e. Precentral gyrus
138. Which of the following sensory systems is able to utilize a circuit that bypasses the thalamus for the transmission of sensory information from the periphery to the cerebral cortex?
- a. Conscious proprioception
  - b. Taste
  - \* c. Olfaction
  - d. Vision
  - e. Auditory
139. The speech area of Broca:
- a. Is located in inferior frontal gyrus
  - b. Is related to the lateral fissure
  - c. Is in Brodmann's areas 44 and 45
  - d. All the above are true
  - \* e. (a) and (c)
140. The prefrontal cortex is concerned with:
- a. Individual's personality
  - b. One's initiative and judgement

- c. Speech
  - d. All the above
  - \* e. (a) and (b)
141. Which of the following is TRUE about the primary somasthetic area?
- a. Occupies the postcentral gyrus
  - b. It extends into the paracentral lobule on the medial Aspect of the cerebral hemisphere
  - c. It receives projection fibres from the ventral postero- Lateral nucleus of the thalamus
  - \* d. All the above
  - e. (a) and (c)
142. The primary visual area (Brodmann's area 17) is located in:
- \* a. Occipital lobe
  - b. Parietal lobe
  - c. Frontal lobe
  - d. Temporal lobe
  - e. None of the above
143. The sensory speech area of Wernicke:
- a. Is localized in the left dominant hemisphere
  - b. Is mainly in the superior temporal gyrus
  - c. Is connected to Broca's area
  - d. Permits understanding of written and spoken language
  - \* e. All the above
144. Which of the following is true about cerebral dominance?
- a. In all individuals one cerebral hemisphere is dominant
  - b. More than 90% of the adult population are right-handed therefore their right hemispheres are dominant
  - c. Approximately 96% of the adult population have their right cerebral hemispheres dominant for speech
  - d. Perception of language is not controlled by the dominant hemisphere
  - \* e. None of the above
145. The following statements concerning the visual areas of the cortex are true except:
- \* a. The primary visual area is located in the walls of the parieto-occipital sulcus
  - b. The visual cortex receives afferent fibres from the lateral geniculate body
  - c. The right half of the visual field is represented in the visual cortex of the left cerebral hemisphere
  - d. The superior retinal quadrants pass to the inferior portion of the visual Cortex
  - e. The secondary visual area (Brodmann's areas 18 and 19) surrounds the primary visual area on the medial and lateral surfaces of the hemisphere.
146. The parietal cortex receives afferent fibres from the following thalamic nuclei:
- \* a. Ventrolateral

- b. Reticular
  - c. Mediodorsal
  - d. Pulvinar
  - e. Dorsolateral
147. The long association fibres forming bundles running down between the frontal and occipital lobes include:
- a. The long cingulum
  - b. Superior longitudinal bundle
  - c. Fasculus uncinatus
  - d. Inferior longitudinal bundle.
  - \* e. All the above.
148. A lesion in the medulla that involves the nucleus ambiguus results in paralysis of musculature in all the following regions except the:
- a. Larynx
  - \* b. Middle ear
  - c. Nasopharynx
  - d. Oropharynx
  - e. Soft palate.
149. Aphasia (loss of the power of speech) can be caused by thrombosis (clotting) in the:
- a. Left anterior cerebral cavity
  - b. Left posterior cerebral artery
  - \* c. Left middle cerebral artery
  - d. Vertebral arteries
  - e. None of the above
150. A classical sign of cerebellar disease
- a. Rigidity
  - b. Short shuffling gait
  - c. Loss of joint sense
  - d. Spasticity
  - \* e. Intention tremor
151. Neurological examination of a patient reveals right sided hemiparesis, increased tendon reflexes and a Babinski sign. which of the following is the most likely site of lesion?
- a. Left occipital cortex
  - \* b. Left frontal lobe
  - c. Left internal capsule
  - d. Right crus cerebri
  - e. None of the above
152. The lower motor neurone lesions are characterized by:
- a. Flaccidity
  - b. Loss of reflexes at the same segmental level
  - c. Wasting of denervated muscles
  - d. Sensory loss



- \* e. (a), (b) and (c)
153. Upper motor neurone lesions are characterized by:
- Spasticity
  - Increased tendon reflex
  - Babinski sign
  - Absence of abdominal reflexes
- \* e. (a), (b) and (c)
154. Bitemporal hemianopsia is due to damage to the:
- Optic nerves
  - Optic radiations
  - Lateral geniculate bodies
  - Optic tracts
- \* e. Optic chiasma
155. Lesion of the left optic tract
- Involves fibres from the two nasal fields of both eyes
- \* b. Results into right homonymous hemianopsia
- Results into upper right quadrant hemianopsia
  - Bitemporal hemianopsia
  - All of the above
156. Which of these would not be affected by a disease process in the jugular foramen
- Vagus nerve
- \* b. Hypoglossal nerve
- Glossopharyngeal nerve
  - Accessory nerve
  - All of these
157. Destruction of the pyramidal tract produces:
- \* a. Loss of voluntary movement in distal parts of the extremities
- Loss of cremasteric reflex
  - Loss of thermal sensation
  - Loss of tactile sensation
158. Stimulation of the reticular formation of the brain stem can do all those below except:-
- Influence muscle tone
  - Affect respiratory inspiration
  - Affect respiratory expiration
  - Cause pressor effects on the circulatory system
- \* e. Inhibit voluntary movement
159. The tremor associated with cerebellar lesions:
- Occurs at rest and during sleep
- \* b. Has a coarse, irregular quality
- Occurs contra-lateral to the lesion
  - Is seen predominantly in the extremities
  - Is known as a "resting" tremor

160. Infection may reach the cavernous sinus through the:
- a. Mastoid emissary veins
  - \* b. Ophthalmic veins
  - c. Meningeal veins
  - d. Vertebral venous plexus
  - e. Pterygoid arteries.
161. A subdural haematoma in a 65 year old male over the right precentral gyrus causes:
- a. Paralysis of the whole body
  - b. Paralysis of lower limbs
  - \* c. Paralysis of the contralateral half of the body
  - d. Parkinsonism and chorea
  - e. Reduced intracranial pressure
162. All of the following concerning a lesion of the pyramidal system are most commonly true except:
- a. Loss of volitional movement of the limb(s) contralateral to the lesion
  - b. Spasticity
  - \* c. Hypotonia of the limbs ipsilateral to the lesion
  - d. A positive Babinski sign
  - e. A reduction in the size of the internal capsule on the side ipsilateral to the lesion.
163. Horner's syndrome can be the result of damage to all the following except:
- a. Descending fibres from the hypothalamus
  - b. Postganglionic fibres in the superior cervical ganglion
  - \*c. Preganglionic neurons arising from the region of the intermediolateral cell column of T1.
  - d. Vagal efferent fibres
  - e. Fibres in the ventrolateral medulla which receive hypothalamic afferents
164. Facial pain can be eliminated by destruction of:
- \* a. The descending tract of cranial nerve V
  - b. Carotid sinus
  - c. External cuneate nucleus
  - d. Inferior salivatory nucleus
  - e. Inferior olivary nucleus
165. Unilateral deafness may result from a lesion of:
- a. The auditory cortex of one side
  - b. The lateral lemniscus of one side
  - \* c. Cranial nerve VIII on one side
  - d. Medial geniculate
  - e. Medial lemniscus
166. A patient displays the following constellation of symptoms; upper motor neuron paralysis of the left leg, paralysis of lower half of the left side of the face, and a left homonymous hemianopsia. The lesion is most likely located in the:

- a. Medulla
  - b. Basilar pons
  - \* c. Pontine tegmentum
  - d. Midbrain
  - e. Forebrain
167. A patient is unable to move his eyes downward. The lesion is most likely situated in the:
- a. Medulla
  - b. Basilar aspect of the pons
  - c. Pontine tegmentum
  - \* d. Midbrain
  - e. Cerebellum
168. A patient is capable of displaying pupillary constriction during an accommodation reaction but not in response to a direct light stimulus. The lesion is most likely present in the:
- a. Optic nerve
  - b. Ventral cell column of cranial nerve III
  - \* c. Pretectal area
  - d. Visual cortex
  - e. Edinger - westaphal nucleus of cranial nerve III
169. Spasticity may result from a lesion of:
- a. Ventral horn cells
  - b. Corpus callosum
  - c. Postcentral gyrus
  - \* d. Internal capsule
  - e. Substantia nigra
170. Expressive aphasia - Loss of ability to produce speech is due to destruction of:
- a. Broca's area
  - b. Wernicke's area
  - c. Angular gyrus
  - d. all the above combined
  - \* e. Both (a) and (b) combined
171. Cerebellar lesions result in all of the following except:
- \* a. Muscular paralysis
  - b. Muscular hypotonia
  - c. Muscular inco-ordination
  - d. All the above
  - e. None of the above.
172. Eating activities are controlled by which nuclei of the hypothalamus?
- a. Posterior
  - b. Lateral alone
  - c. Dorsomedial
  - \* d. Lateral and ventromedial
  - e. Periventricular

173. A subdural haematoma or any lesion over the RIGHT precentral gyrus causes:
- Paralysis of the whole body
  - Paralysis of both lower limbs only.
  - \* Paralysis of the left half of the body.
  - Paralysis of the right half of the body.
  - None of the above.
174. The cranial nerves that carry parasympathetics include the following except:
- \* Trigeminal
  - Oculomotor
  - Vagus
  - Glossopharyngeal
  - Facial
175. Which of the following cranial nerve(s) emerge at the medullopontine angle?
- Vestibulocochlear
  - Facial
  - Abducens
  - Trigeminal
  - \* (a), (b) & (c)
176. The autonomic cranial outflow is represented by preganglionic visceral motor fibers within the:
- Oculomotor nerve
  - Facial nerve
  - Glossopharyngeal
  - Vagus nerve
  - \* All the above
177. Parasympathetic preganglionic cell bodies found in the superior salivatory nucleus of the pons, supply the:
- Lacrimal gland
  - Submandibular gland
  - Parotid gland
  - Heart
  - \* All the above
178. Sympathetic functions of the autonomic nervous system include:
- Miosis (constriction of the pupil)
  - Secretion of the lacrimal gland is stimulated
  - Reduced secretion of salivary gland
  - \* Dilates lumen of bronchi
  - Decreases heart rate
179. The nerve cells of the autonomic ganglia are almost all:
- Unipolar
  - Pseudo unipolar
  - Bipolar

- \* d. Multipolar
  - e. None of these
180. Skeletal muscles are innervated by:
- a. Small, myelinated fibers
  - b. Small, unmyelinated fibers
  - c. Large, unmyelinated fibers
  - \* d. Large, myelinated fibers
  - e. Medium unmyelinated fibers
181. The chief sensation elicited by touching the cornea is:
- \* a. Pressure
  - b. Heat
  - c. Cold
  - d. Pain
  - e. Proprioception
182. Some of the general visceral efferent fibers innervate:
- a. Glands
  - b. Meissner's plexus
  - c. Involuntary muscles
  - \* d. All the above
183. Which cranial nerve has the longest intracranial course?
- a. Abducent
  - b. Accessory
  - \* c. Trochlea
  - d. Oculomotor
  - e. Vagus
184. Which nerve does not obtain its preganglionic parasympathetic fibres from the superior salivary nucleus?
- a. Oculomotor
  - b. Accessory (cranial part)
  - c. Glossopharyngeal nerve
  - d. Vagus nerve
  - \* e. All the above
185. Which of the following is odd?
- a. Superior salivatory nucleus
  - b. Greater petrosal nerve
  - c. Chorda tympani nerve
  - d. Submandibular and pterygopalatine ganglia
  - \* e. Ciliary ganglion
186. The motor nuclei of these cranial nerves lies in the pons:
- a. III, IV and V
  - b. VI, VII and X
  - c. IX, X and XI
  - \* d. V, VII and VIII

- e. VII, VIII and IX
187. The cranial nerves:
- Nervus intermedius passes through the internal acoustic meatus to join the facial nerve.
  - The V, V11 and V111 exit the brain through the ponto-medullary junction.
  - The fifth is centrally connected to four nuclei: 3 sensory and 1 motor.
  - Nasal fibres in the optic nerve cross over to the opposite side via the optic chiasma.
  - \* All the above
188. Regarding the pyramidal tract, which of the following is FALSE:
- It terminates on the lower motor neurons of the spinal cord.
  - It passes through the Internal capsule and the pyramid of the medulla.
  - \* It is a 90% uncrossed system.
  - It originates in Betz cells of the motor cortex.
  - It is a none-neuron-pathway.
189. The impulses originating from the contralateral side of the body are mediated by all the following tract except the:
- \* Posterior spino cerebellar tract.
  - Medial lemniscus.
  - Anterior spinothalamic tract.
  - Lateral spinothalamic tract.
  - Anterior spinocerebellar tract.
190. Which of the following findings at neurological examination may agree with a complete crush of the right half of the spinal cord (Brown-sequard syndrome) at the T-12 level.
- \* Ipsilateral motor paralysis with spasticity below the lesion.
  - Contralateral loss of light touch below the lesion.
  - Ipsilateral loss of pain and temperature below the lesion.
  - \* Contralateral loss of position sense and two-point discrimination below the lesion.
  - Contralateral flaccid paralysis at the level of the lesion.
191. Which of the following afferent pathways does not reach the cerebellum by way of the inferior cerebellar penduncle (Restiform body).
- Vestibulocerebellar
  - Olivocerebellar.
  - Cuneocerebellar.
  - \* Anterior spinocerebellar.
  - Posterior spinocerebellar.
192. Regarding the cerebrospinal fluid (C.S.F), which of the following is TRUE:
- It is yellow in colour.
  - \* It is secreted by the choroid plexus located in the ventricles.
  - Has the same concentration of glucose as plasma.

- d. Contains numerous lymphocytes.
  - e. Contained in the subarachnoid space is approximately 4 litres.
193. Concerning the internal capsule, which of the following is FALSE:
- a. Contains fibres going to and from the cerebral cortex.
  - \* b. Is located in the midbrain.
  - c. Is V-shaped in a transverse section.
  - d. Is supplied by branches of the middle cerebral artery.
  - e. Contains fibres going to the thalamus.
194. The following parts of the pituitary develop from Rathkes pouch except:
- \* a. Neurohypophysis
  - b. Par tuberalis
  - c. Intermediate lobe
  - d. Adenohypophysis
  - e. All the above.
195. The 2nd, most frequent neurotube defect is:
- a. Spinabifida ocultin
  - b. Spinabifida cystica
  - \* c. Meningocele
  - d. Mengomyelocele
  - e. Mylocele
196. The following are derivatives of neurocrest cells except:
- a. Melanocytes
  - \* b. Neuroglia
  - c. Suprarenal medulla
  - d. Autonomic and somatic ganglia
  - e. Mesendymal cells of head & neck.
197. Regarding the neurotube, which of these statements is TRUE:
- a. Neurofolds close from caudally.
  - b. Lies dorsal to neuro crest.
  - \* c. Walls contain neuro epithelium
  - d. Failure to close of the caudal pore causes anencephally.
  - e. Its thick layers form 2 pairs of basal plates.
198. The cranial neuropore closes at the level of:
- a. 10 somites
  - b. 20th day
  - c. At level 25-30 somites
  - \* d. Level of 18-20 somites
  - e. 7 weeks.
199. Regarding features appearing on the ventral surface of the medulla oblongata, the following are TRUE except:
- a. Pyramid related to the anterior median fissure.
  - b. Olive lying lateral to the pyramid.
  - c. Rootlets of hypoglossal nerve between pyramid and olive

- \* d. Rootlets of glossopharyngeal between pyramid and olive.
  - e. Abducent nerve at pontomedullary junction.
200. The part of medulla oblongata forming part of the 4th ventricle has the following features except:
- a. Vagal triangle
  - b. Hypoglossal area.
  - c. Striae medullares
  - d. Entrance into central canal.
  - \* e. Cuneate tubercle
201. Medial lemnisci (sensory) decussate at what level?
- a. Spinomedullary junction
  - \* b. Of closed medulla
  - c. Of open medulla.
  - d. At level of decassation of pyramidal fibres.
  - e. None of the above.
202. Nucleus ambiguus.
- \* a. Is motor
  - b. Supplies muscles of larynx, pharynx and face.
  - c. Is sensory.
  - d. Is found at the level of closed medulla.
  - e. Supplies tongue muscles.
203. Ventral surface features include all except:
- a. Midline groove for basilar artery.
  - b. Transversely running ponto cerebellar fibres.
  - c. 5th cranial nerve motor root.
  - d. 5th cranial nerve sensory root.
  - \* e. 6th cranial nerve
204. Direct connection between pons and cerebellum is by:
- a. Superior cerebellar peduncle
  - \* b. Middle cerebellar penduncle
  - c. Inferior cerebellar peduncle
  - d. (a) and (c)
  - e. (b) and (c)
205. Facial colliculus:
- a. Appears at the level of trigeminal nerve.
  - \* b. Is created by fibres of facial nerve around abducens nucleus.
  - c. Is created by fibres of abducens nerve around facial nucleus.
  - d. Is not related to fourth ventricle.
  - e. Is at higher level than the restibular area.
206. Vestibulocochlear nuclei are located:
- a. Entirely in the pons
  - b. Entirely in midbrain.
  - c. Entirely in the medulla oblongata.



- \* d. In the pons and midbrain.
  - e. In the pons and medulla oblongata.
207. Proprioceptive fibres from muscles of facial expression are carried by;
- \* a. Trigeminal nerve
  - b. Facial nerve
  - c. Nucleus ambiguus
  - d. Tractus solitarius.
  - e. Inferior olivary nucleus.
208. Cerebral peduncle consists of:
- a. Tectum and tegmentum
  - b. Tectum and crus cerebri
  - \* c. Tegmentum, substantia nigra and crus cerebri
  - d. Tegmentum, and crus cerebri.
  - e. Tectum, Tegmentum, Substantia nigra and crus cerebri.
209. Which of the following is not part of the midbrain:
- a. Posterior perforated substance
  - b. Crura of cerebral peduncles
  - c. Corpora quadrigemina
  - \* d. Pineal body
  - e. None of the above.
210. Red nucleus:
- a. Is found at the level of inferior colliculus.
  - b. Same level as Edinger-westphal nucleus.
  - c. Has relationship with rubrospinal fibres.
  - d. Plays a role in visual reflexes.
  - \* e. (b) and (c)
211. Substantia nigra, find the TRUE statement:
- a. Does not exist in the pons
  - b. Exists in the medulla oblongata
  - c. Contains melanin
  - d. Damage leads to Parkinson's disease
  - \* e. (c) and (d)
212. Reticular formation is:
- a. Restricted to brain stem
  - \* b. Plays a role in the 'sleep-wake' cycle.
  - c. Consists of neosynaptic neurones.
  - d. Not related to the limbic system.
  - e. Has no known function
213. Which of the following cranial nerves does not have its nuclei in the brain:
- a. Ansa cervicals
  - b. Optic
  - c. Oculomotor
  - d. Hypoglossal

- \* e. Olfactory
214. Regarding the optic nerve, which of these statements is TRUE:
- a. Right optic tract contains fibres from the left half of each retina
  - \* b. Optic chiasma anterior to pituitary gland
  - c. The optic tract relays into the medial genial body
  - d. Lesion in the Edinger westphal nucleus affects the accomodation reflex
  - e. Compression of the optic chasma by the pituitary gland causes contralateral hemianopsia.
215. The following statement about venous sinuses are TRUE except:
- a. Superior sagittal sinus starts at foramen caecum and ends at the inion.
  - b. C.S.F. is drained into the superior sagittal sinus via arachnoid granulations.
  - \* c. The superor sagittal sinus is continuous with the left transverse sinus.
  - d. The superior petrosal sinus drains at the junction between transverse and sigmoid sinuses.
  - e. The inferior sagittal sinus drains into the straight sinus.
216. Which of the following is not a content of cisterna pontis:
- a. Cranial nerve V
  - b. Vertebral artery
  - \* c. Cranial nerve III
  - d. Cranial nerve IX
  - e. Basilar artery
217. Which of the following cisterns does not communicate with the rest:
- a. Cerebral medullary cistern
  - b. Cisterna pontis
  - c. Superior cistern
  - d. Chiasmatic cistern
  - \* e. None of the above
218. The following nuclei lie in the floor of 4th ventricle except:
- a. Facial
  - b. Abducent
  - \* c. Oculomotor
  - d. Hypoglossal
  - e. Auditory nerve.
219. The ventral aperture of the 4th ventricle is the:
- a. Interventricular foramen.
  - \* b. Foramen of Magendi
  - c. Foramen of Lushka
  - d. Central canal
  - e. Foramen of Monro
220. The great cerebral vein unites with the following sinuses to form the straight sinus:

- a. Superior sagittal sinus
  - \* b. Inferior sagittal sinus
  - c. Sigmoid sinus
  - d. Carvenous sinus
  - e. Inferior petrosal sinus
221. The most variable part of the lateral ventricle is:
- a. Anterior Horn
  - b. Body
  - \* c. Posterior Horn
  - d. Inferior Horn
  - e. Floor
222. The ventricular system communicates with the sub arachnoid space through:
- a. Choroid plexus
  - b. Foramen of Monro
  - c. Aqueduct of Sylvius
  - d. Foramen of Magendi
  - \* e. Foramen of Lushka
223. Regarding the ventricles of the brain, which of these statements is FALSE:
- a. Are wider in the elderly
  - b. Are lined by neuroglia
  - c. Can be used to diagnose a shift in the midline.
  - \* d. Produce C.S.F. in equal amounts.
  - e. Enlargement causes suture diastasis in the children.
224. The following statements about meninges are TRUE except:
- a. The falx cerebri lies in the median cerebral fissure separating the right and left cerebral hemispheres.
  - b. The endocranium and dura mater are fused except where the two enclose venous sinuses.
  - c. Arachnoid mater is separated by a potential space from the dura.
  - \* d. The arachnoid mater is also called the vascular layer of the brain.
  - e. The subarachnoid space encloses cerebral spinal fluid.
225. The following are correctly paired:
- a. Cistern magna and cerebellomedullary junction.
  - \* b. Cistern pontis and middle cerebral artery.
  - c. Interpeduncular cistern and circle of Willis.
  - d. Cistern ambiens between occipital lobe and cerebellum.
  - e. Cistern of lateral sulcus and insula.
226. The following are TRUE except:
- a. The cavernous sinus is located on either side of body of sphenoid bone.
  - \* b. The abducent nerve and ophthalmic division of the trigeminal nerve traverse the cavernous sinus
  - c. Superior and inferior ophthalmic veins are afferent to the cavernous sinus.
  - d. The cavernous sinus is drained by inferior and superior petrosal sinuses.
  - e. Cavernous sinus thrombosis is characterised by pulsating exophthalmus.

227. The following statement about the reticular system are TRUE except:
- a. It is found throughout the brain stem.
  - b. The reticular activating system extends into the cerebral cortex.
  - \* c. The raphe nuclei are located in the lateral funiculus.
  - d. The gigantocellular reticular nucleus is a member of the central group.
  - e. Cuneiform nuclei are located in the midbrain.
228. Afferent fibres to the reticular activating system include the following except:
- a. Spinothalamic tract
  - \* b. Hypothalamus
  - c. Sensory cranial nerve nuclei
  - d. Olfactory system
  - e. Cerebral cortex.
229. The following are well matched:
- a. Inspiration centre and gigantocellular reticular nucleus.
  - b. Expiration centre and parvicellular reticular nucleus.
  - c. Pontine reticular formation and pneumotoxic centre.
  - \* d. Sympathetic reticular effects with stimulation of Giganto cellular reticular nucleus.
  - e. RAS is the site of action of general anaesthetic drugs.
230. The following are components of the limbic system except:
- a. Hippocampus
  - b. Parahippocampus
  - c. Cingulate gyrus
  - d. Amygdaloid nucleus
  - \* e. Claustrum.
231. The following bundles are part of the limbic system except:
- \* a. Geniculocalcarine
  - b. Fornix
  - c. Mamillothalamic
  - d. Stria terminalis
  - e. Stria medullaris thalami
232. The limbic system is involved in the following except:
- a. Gastrointestinal movements.
  - b. Pilo erection.
  - c. Pupillary dilatation
  - \* d. Voluntary motor control.
  - e. Sexual behaviour.
233. The Kluver-Bucy syndrome includes the following except:
- a. Lack of emotions
  - \* b. Aggressiveness
  - c. Perverted sexual activity.
  - d. Verocious appetite
  - e. Memory loss

234. The following is correctly matched except:
- a. Precentral gyrus with motor function.
  - \* b. Postcentral gyrus with motor speech.
  - c. Vision with calcarine sulcus.
  - d. Area 4 with cells of Betz.
  - e. Frontal lobe with judgement.
235. The following statement is FALSE about the internal capsule:
- a. The anterior limb lies between caudate and lentiform nuclei.
  - b. The Genu transmits cortico spinal fibres.
  - c. Posterior limb is lateral to the lentiform nucleus.
  - d. The retrolentiform part carries geniculocalcarine fibres
  - \* e. The sublentiform portion carries auditory fibres.
236. The following are association fibres except:
- a. Cingulum
  - b. Superior longitudinal fusciculus.
  - c. Inferior longitudinal fusciculus.
  - \* d. Forceps major
  - e. None of the above.
237. Which of the following are not projecton fibres:
- a. Corticopontine
  - b. Corticospinal
  - c. Spinothalamic
  - \* d. Posterior commissure
  - e. Vestibulospinal
238. The following are parts of the diencephalon except:
- a. Thalamus
  - \* b. Amygdaloid body
  - c. Hypothalamus
  - d. Lateral geniculate body
  - e. Epithalamus
239. The following statement is FALSE about the IIIrd ventricle:
- a. It is the cavity of the diencephalon
  - b. It is drained by the cerebral acqueduct
  - c. It communicates with lateral ventricle via interventricular foramen of Monro
  - \* d. Has choroid plexus and foramen Magendie in its roof.
  - e. Has a pineal recess.
240. The following is the main thalamic nucleus:
- a. Anterior
  - \* b. Ventral posterior
  - c. Medial geniculate body
  - d. Pulvinar
  - e. Lateral geniculate body.

241. The following statement is FALSE:
- The hypothalamo hypophyseal tract links the hypothalamus to the posterior pituitary.
  - Neurohypophysis secretes the following hormones: oxytocin and vasopressin.
  - \* Neurohypophysis is another name for anterior pituitary.
  - The hypothalamo hypophyseal portal vein carries releasing factor to the pituitary gland.
  - The infundibulum is also known as the pituitary stalk.
242. The middle cerebral artery supplies all the following except:
- The whole lateral surface of the cerebral hemisphere.
  - The face area of the cerebrum.
  - \* Lentiform nucleus
  - Caudate nucleus
  - Internal capsule

#### ANSWERS FOR NEUROANATOMY

- |       |       |        |        |
|-------|-------|--------|--------|
| 1. C  | 37. D | 73. E  | 109. C |
| 2. D  | 38. A | 74. A  | 110. A |
| 3. D  | 39. A | 75. D  | 111. B |
| 4. A  | 40. E | 76. C  | 112. D |
| 5. D  | 41. E | 77. D  | 113. D |
| 6. E  | 42. A | 78. C  | 114. B |
| 7. E  | 43. D | 79. D  | 115. D |
| 8. E  | 44. A | 80. E  | 116.   |
| 9. A  | 45. D | 81. D  | 117. A |
| 10. E | 46. C | 82. D  | 118. C |
| 11. A | 47. D | 83. D  | 119. E |
| 12. D | 48. D | 84. C  | 120. E |
| 13. D | 49. D | 85. D  | 121. D |
| 14. E | 50. D | 86. E  | 122. A |
| 15. B | 51. C | 87. C  | 123. E |
| 16. E | 52. D | 88. D  | 124. E |
| 17. A | 53. D | 89. D  | 125. A |
| 18. D | 54. C | 90. E  | 126. A |
| 19. C | 55. C | 91. C  | 127. E |
| 20. A | 56. B | 92. E  | 128. B |
| 21. B | 57. B | 93. E  | 129. C |
| 22. D | 58. E | 94. D  | 130. B |
| 23. D | 59. C | 95. E  | 131. E |
| 24. A | 60. D | 96. B  | 132. E |
| 25. E | 61. D | 97. D  | 133. E |
| 26. C | 62. D | 98. D  | 134. B |
| 27. B | 63. C | 99. B  | 135. B |
| 28. E | 64. A | 100. B | 136. A |
| 29. A | 65. B | 101. A | 137. E |
| 30. A | 66. C | 102. C | 138. B |
| 31. A | 67. A | 103. A | 139. B |

- |        |        |        |        |
|--------|--------|--------|--------|
| 32. C  | 68. B  | 104. E | 140. C |
| 33. E  | 69. E  | 105. D | 141. C |
| 34. B  | 70. E  | 106. C | 142. C |
| 35. A  | 71. D  | 107. B | 143. A |
| 36. E  | 72. E  | 108. D | 144. C |
| 145. D | 160. D | 175. D | 190. D |
| 146. C | 161. E | 176. E | 191. B |
| 147. D | 162. C | 177. B | 192. B |
| 148. E | 163. A | 178. B | 193. D |
| 149. D | 164. D | 179. C | 194. B |
| 150. C | 165. B | 180. C | 195. D |
| 151. A | 166. C | 181. E | 196. B |
| 152. E | 167. B | 182. B | 197. C |
| 153. E | 168. C | 183. C | 198. C |
| 154. D | 169. D | 184. D |        |
| 155. D | 170. D | 185. B |        |
| 156. A | 171. E | 186. B |        |
| 157. D | 172. B | 187. D |        |
| 158. C | 173. D | 188. E |        |
| 159. E | 174. C | 189. A |        |



ALL THE VERY BEST OF GOD'S BLESSINGS AS YOU WORK TOWARDS BEING THE GREAT DOCTORS GOD CREATED YOU TO BE. I HAVE FAITH IN YOU ALL, I ENVISION FORTH A GREAT FUTURE THAT LIES WELL AHEAD OF US. AS WE WORK TOWARDS SAVING LIVES, YOU ARE THE FUTURE OF MEDICINE, I AM THE FUTURE OF MEDICINE, WE ARE THE FUTURE OF MEDICINE.!