

ANSWER ALL QUESTIONS; CIRCLE ONE CORRECT RESPONSE;

- 1) The clinical relevance of the anterior fontanelle include all the following except?
 - a) It remains wide in some form of malnutrition
 - b) It may be used to grade neonatal dehydration
 - c) Can be used to determine foetal presentation during delivery
 - d) It can be used to withdraw cerebrospinal fluid in a child with meningitis
 - e) In children with aqueductal stenosis, it may bulge
- 2) Supratentorial structures include
 - a) Cerebellum
 - b) Medulla oblongata
 - c) Occipital lobe
 - d) Pons
 - e) Basilar artery
- 3) The middle cranial fossa houses all the following except
 - a) Cavernous sinus
 - b) Trigeminal sensory nucleus
 - c) Uncus
 - d) Pituitary gland
 - e) Temporal lobes
- 4) Leptomeninges refer to which of the following pair:
 - a) Dura and arachnoid
 - b) Arachnoid and pia
 - c) Dura and pia
 - d) All the above
 - e) None of the above
- 5) 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
- 6) The cranial dura is largely innervated by which of the following nerves?
 - a) CN V
 - b) CN VII
 - c) CN IX
 - d) CN X
 - e) CN XII
- 7) The nerve that lies medially within the cavernous sinus is
 - a) Trochlea
 - b) Oculomotor
 - c) Abducens
 - d) Maxillary
 - e) Ophthalmic
- 8) A patient presents with a history of head injury following a hard blow to the head during a boxing contest. Radiological investigations indicate accumulation of blood between the external periosteal layer of the dura mater and the calvaria. What term best describes this hematoma/hemorrhage?
 - a) Intradural hematoma
 - b) Subdural hemorrhage
 - c) Subarachnoid hemorrhage
 - d) Epidural hemorrhage
 - e) None of the above
- 9) The sinuses housed by the tentorium cerebelli include all the following except
 - a) Transverse sinus
 - b) Straight sinus
 - c) Occipital sinus
 - d) Superior petrosal sinus
 - e) Confluence of sinuses
- 10) Tributaries to the cavernous sinus include all the following except?
 - a) Sphenoparietal sinus
 - b) Middle cerebral vein
 - c) Ophthalmic vein
 - d) Superior petrosal sinus
 - e) Pterygoid plexus

- 11) Structures that traverse the carotid canal include:
- Emissary vein
 - External carotid artery
 - Parasympathetic nerve plexus
 - Sympathetic nerve plexus
 - Lesser petrosal nerve
- 12) Which of the following layers of the scalp contain skeletal muscles?
- Dense connective tissue layer
 - Loose connective tissue layer
 - Galeal layer
 - Pericranial layer
 - Skin
- 13) The motor innervation to the posterior part of the scalp is via the:
- Ophthalmic nerve
 - Greater occipital nerves
 - Facial nerve
 - Mandibular nerve
 - Greater auricular nerve
- 14) Choose the true statement regarding venous drainage of the scalp
- Posterior auricular vein drains into facial vein
 - The external jugular vein communicates with the cavernous sinus through an emissary vein that goes through the foramen ovale
 - The angular vein is formed by the union of supratrochlear and supraorbital veins
 - The retromandibular vein drains into the internal jugular vein
 - The occipital vein joins the internal jugular vein
- 15) Postganglionic thoraco-lumbar autonomic fibers include:
- Vasoconstrictor fibers to blood vessels
 - Secretory fibers to sweat glands
 - Dilator fibers to the iris
 - All of the above
 - None of the above
- 16) A reflex arc consists of:
- An afferent nerve fiber
 - A receptor
 - Synapse
 - An effector
 - All the above
- 17) Components of the peripheral nervous system includes the:
- Brain
 - Spinal cord
 - Trigeminal ganglion
 - Motor nucleus of trigeminal
 - Anterior horn cells
- 18) The somatic nervous system is part of the:
- Sympathetic nervous system
 - Parasympathetic nervous system
 - Autonomic nervous system
 - Enteric nervous system
 - None of the above
- 19) Effector organs of the autonomic nervous system include all of the following except:
- Endocrine glands
 - Myometrium
 - Arteriolar smooth muscle
 - Myocardium
 - Detrusor muscle
- 20) Resulting from hemi-section of the spinal cord:-
- Loss of tactile sensibility on same side
 - Loss of sensation from muscles on opposite side
 - Loss of temperature sensation on same side
 - Loss of pain sensation on same side
 - None of the above
- 21) The large fibers in the medial bundle of the dorsal root are concerned with:
- Pain
 - Touch
 - Pressure
 - Proprioception
 - All the above

- 22) The following reflexes are all autonomic except:
- Salivary secretion
 - Micturition
 - Flexion of the arm following a painful stimulus
 - Acceleration of the heart
 - Fall in blood pressure when you stand
- 23) All of the following statements concerning the dorsal columns are true except:
- They contain first-order neurons which synapse in the contralateral dorsal column nuclei
 - They contain first-order neurons mediating conscious proprioception from the limbs
 - Sensation from the lower limb is contained in the fasciculus gracilis while sensation from the upper limb is contained in the fasciculus cuneatus.
 - A lesion of the fasciculus gracilis may result in ataxia.
 - They contain fibres mediating either tactile or kinesthetic sensations, but not both.
- 24) The sympathetic postganglionic nerve fibers:
- Originate from the autonomic ganglia
 - Arise from lamina VII of the spinal cord
 - Arise from T1-L2 segments of the spinal cord
 - Are shorter than their corresponding preganglionic neurons
 - Are predominantly cholinergic neurons
- 25) The cranial nerves which have parasympathetic function include all the following except?
- Oculomotor
 - Facial nerve
 - Glossopharyngeal nerve
 - Vagus nerve
 - Hypoglossal nerve
- 26) The cauda equina:
- Comprises nerve roots L1 - S1
 - Is suspended in the lumbar cistern extending down to the level of L5
 - Comprises nerve roots L3 - S5
 - Is suspended in a meningeal sac filled with extracellular fluid
 - None of the above.
- 27) Choose the false statement regarding the enteric nervous system:
- It is functionally independent
 - It has no connections to sympathetic and parasympathetic neurons
 - Consists of myenteric and submucosal plexuses
 - Controls gastrointestinal motility and secretions
 - Are of neural crest origin
- 28) The Nissl granule in neurons are from the
- Rough endoplasmic reticulum
 - Secretory granule
 - Mitochondria
 - Chromatin material
 - Golgi apparatus
- 29) 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
- 30) 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.

- 31) Neuronal processes adapted to receive stimuli from receptors or other neurons are:
- Axons
 - Soma
 - Dendrites
 - Terminal boutons
 - Cell body
- 32) A collection of neuronal axons with a common origin and destination found in the CNS is termed a:
- Projection fiber
 - Tract
 - Nucleus
 - Commissure
 - Peduncle
- 33) 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.
- 34) 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.
- 35) Examples of lower motor neurons include:
- Purkinje neurons
 - Pyramidal neurons
 - Anterior horn cells
 - All the above
 - Rubrospinal
- 36) Which of the following structural type of neuron forms the 1st order neuron in the pathway of pain?
- Free nerve endings
 - Apolar neuron
 - Multipolar neuron
 - Bipolar neuron
 - Pseudounipolar neuron
- 37) The cell responsible for myelination of the ventral roots of spinal nerves is?
- Oligodendrocytes
 - Schwann cells
 - Ependymal cells
 - The ventral root is unmyelinated
 - None of the above
- 38) Neural crest derivatives include:
- Adrenal cortex
 - Oligodendrocytes
 - Dura matter
 - Chromaffin cells
 - Keratinocytes
- 39) Which of the following is a primary brain vesicle?
- Diencephalon
 - Telencephalon
 - Metencephalon
 - Rhombencephalon
 - Myelencephalon
- 40) The anterior commissure links the right and the left:
- Thalamus
 - Fornix
 - Olfactory bulb
 - Hypothalamus
 - Dentate nucleus
- 41) Features of cortical module include all the following except?
- Lateral inhibition
 - Thalamic projection to layer V
 - Vertical arrangement
 - Single peripheral stimulus
 - Vertical excitation

- 42) The outermost layer of the cerebral cortex is called the
- Outer granular
 - Outer pyramidal
 - Inner granular
 - Plexiform layer
 - None of the above
- 43) Brodmann's area number 1 corresponds to:
- Primary motor area
 - Primary somatosensory area
 - Frontal pole
 - Premotor area
 - Broca's area
- 44) Which layer of the cerebral cortex largely gives rise to the projection fibers?
- Outer pyramidal
 - Outer granular
 - Inner pyramidal
 - Inner granular
 - None of the above
- 45) Fiber tracts of the limbic system include all the following except?
- Cingulum
 - Fornix
 - Stria medullaris
 - Mammillothalamic
 - Diagonal band
- 46) Components of the hippocampal formation include all the following except?
- Entorhinal cortex
 - Hippocampus proper
 - Dentate nucleus
 - Subiculum
 - All the above are components of the hippocampal formation
- 47) The regions supplied by the middle cerebral artery include all the following except?
- Cingulate gyrus
 - Primary auditory area
 - Primary taste area
 - Wernicke's area
 - Insular cortex
- 48) Occlusion of the posterior cerebral artery is likely to lead to loss of:
- Sphincter control
 - Taste perception
 - Central vision
 - Peripheral vision
 - Touch perception
- 49) The main output center of the basal ganglia is:
- Globus pallidum
 - Caudate nucleus
 - Clastrum
 - Putamen
 - Subthalamus
- 50) Choose one which is part of the diencephalon;
- Caudate nucleus
 - Clastrum
 - Midbrain
 - Pineal body
 - Anterior commissure
- 51) Thalamic functions include all the following except
- Cognitive functions
 - Endocrine functions
 - Motor functions
 - Limbic functions
 - Visual association
- 52) All the following cranial nerves convey taste sensation except?
- Facial nerve
 - Glossopharyngeal nerve
 - Vagus nerve
 - Hypoglossal nerve
 - All the above convey taste sensation
- 53) Which of the following is not in the midbrain?
- Crus cerebri
 - Trigeminal sensory nucleus
 - Internal arcuate
 - Posterior perforated substance
 - GVE nucleus

- 54) Where are the cell bodies of neurons forming the medial lemniscus found?
- Dorsal root ganglion
 - Trigeminal ganglion
 - Gracile nucleus
 - Trigeminal nucleus
 - None of the above
- 55) In the Central Nervous System:
- The gray matter is only found in the cortex
 - Dorsal spinocerebellar tract courses through the Restiform body
 - The decussation of the internal arcuate fibres is located in the pons
 - Anterior horn cells serve a sensory function
 - Lateral horn of the grey matter of the spinal cord is located in the thoracic and cervical region
- 56) The gray rami are composed of:
- Postganglionic fibers
 - Preganglionic fibers
 - Myelinated fibers
 - Fibers to skeletal muscles
 - Somatic fibers
- 57) The following statements on Neuroglia are TRUE except:
- Are largely of ectodermal origin
 - Provide both chemical and metabolic support to neurons
 - Of the astrocyte type are affected in multiple sclerosis
 - Provide both metabolic and mechanical support to neurones
 - Are excitable cells
- 58) Which of the following is true about pyramidal cells?
- Have pyramidal shaped axons
 - They are only located in the precentral gyrus of the frontal lobe
 - The axons may enter white matter as projection, association or commissural fibres
 - Are characteristic of the cerebellar cortex
 - All the above are not true
- 59) Which of the following enters the cerebellum through the inferior cerebellar peduncle:
- Vestibulocerebellar tract
 - Lateral spinocerebellar tract
 - Pontocerebellar fibres
 - Tectocerebellar fibres
 - None of the above
- 60) Regarding the cerebellum, find the TRUE statement:
- The ventral spinocerebellar tract reaches it via superior cerebellar peduncle
 - Climbing fibres originate in inferior olivary nucleus
 - Its grey matter is characterized by presence of Purkinje cells
 - Its flocculonodular lobe is richly connected to vestibular nucleus
 - All of the above
- 61) Cerebellar islands or glomeruli of the cerebellum are formed by:
- One mossy fiber rosette
 - Cell bodies of Purkinje cells
 - Basket cells of molecular layer. axons
 - Cell bodies of outer stellate cells
 - None of these
- 62) Satellite cells primarily function as:
- Impulse modifiers
 - Nutrient conveyors
 - Forerunners of neuroglia
 - Source of myelin
 - Function obscure
- 63) Nuclei or fibres present at the level of the cerebellopontine angle include all of the following cranial nerves except:
- Cochlear
 - Facial
 - Vestibular
 - All the above
 - None of the above

- 64) Parkinson's disease results primarily from degeneration of neurons in the:
- Caudate nucleus
 - Subthalamic nucleus
 - Globus pallidum
 - Substantia nigra
 - Cerebral cortex
- 65) Choose the brainstem lemniscal system correctly matched with pathway
- Medial lemniscus – vibration from the head
 - Lateral lemniscus – dorsal column pathway
 - Spinal lemniscus – fine touch from the foot
 - Trigeminal lemniscus – taste pathway
 - None of the above
- 66) The oculomotor nerve:
- Is parasympathetic to the lacrimal gland
 - Contain sympathetic fibers from the Edinger-Westphal nucleus
 - Supplies the lateral rectus muscle
 - Injury causes mydriasis
 - Has a larger somatic component
- 67) General visceral efferent nuclei include:
- Nucleus ambiguus
 - Nucleus of the solitary tract
 - Motor nucleus of vagus
 - Inferior olivary nucleus
 - Hypoglossal nucleus
- 68) Branches of the basilar artery include all the following except?
- Labyrinthine arteries
 - Vertebral arteries
 - Superior cerebellar arteries
 - Posterior cerebral arteries
 - Bulbar branches
- 69) The cerebellar lobe that primarily receives inputs from the vestibular nuclei is the
- Flocculonodular
 - Cerebellar vermis
 - Cerebellar tonsils
 - Cerebellar hemispheres
 - None of the above
- 70) The interposed nuclei of the cerebellum include:
- Dentate
 - Fastigial
 - Emboliform
 - All the above
 - None of the above
- 71) The cell types in the granular layer of the cerebellar cortex include
- Cell bodies of Purkinje neurons
 - Golgi neurons
 - Basket cells
 - Axons of pyramidal neurons
 - Dendrites of Purkinje cells
- 72) The foramen of Magendie connects:
- The lateral ventricles
 - Third and fourth ventricles
 - Fourth ventricle and subarachnoid space
 - Fourth ventricle and the central canal
 - None of these
- 73) The medulla oblongata:
- Has a fourth ventricle but no central canal
 - Has fasciculus cuneatus in its ventral aspect
 - Has two SVE nuclei
 - Contains spinal tract of trigeminal nerve
 - Is the part of the brainstem below the great motor decussation
- 74) Choose the correct statement regarding spinal cord:
- The lumbar enlargement of the spinal cord is found at the vertebral level of L2-S3
 - The spinal cord gives off 33 pairs of spinal nerves
 - It contains propriospinal tracts which may be ascending or descending
 - Its thoracic and cervical gray matter have a lateral horn that gives rise to autonomic nerves
 - The nucleus Onuff is in the sacral segment
- 75) Choose the incorrect match of spinal cord level according to age
- 8 weeks in utero – Coccyx
 - 24 weeks in utero – S1
 - At birth – L2
 - Adult – L1/2 junction
 - None of the above is incorrect

- 76) The extrapyramidal tracts of the spinal cord include all the following except
- Anterior corticospinal tract
 - Rubrospinal tract
 - Reticulospinal tract
 - Tectospinal tract
 - Vestibulospinal tract
- 77) Pyramidal fibres:
- Run from post central gyrus of the brain
 - Pass through the external limb of the internal capsule
 - Most of them decussate in the lower medulla
 - Pass to the basal ganglia
 - Form second order neurons of corticospinal tract.
- 78) The following statements concerning the hypothalamus are correct except:
- It is formed by the lower part of the lateral wall and floor of the third ventricle
 - Functionally, it is usual to include with the hypothalamus the area between the lamina terminalis and the optic chiasma
 - Caudally the hypothalamus merges with the tectum of the midbrain
 - The nuclei are divided into medial and lateral zones by the columns of the fornix and the mammillothalamic tract
 - The mammillary bodies are part of the hypothalamus
- 79) The basal plate of gives rise to which of the following in the spinal cord?
- Anterior funiculus
 - Lateral horn
 - Dorsal horn
 - Lateral white column
 - Ependymal lining of the central canal
- 80) Which of the following layers form the spinal grey matter?
- Ventricular zone
 - Mantle zone
 - Peripheral zone
 - None of the above
 - All the above
- 81) The structure that aid absorption of CSF back to the venous circulation is
- Choroid plexus
 - Confluence of sinuses
 - Tela choroidae
 - Arachnoid granulations
 - Ependymal cells
- 82) Parasympathetic functions include the following except:
- Stimulation of GI motility
 - Relaxation of GI sphincters
 - Promotes emptying of urinary bladder
 - Stimulates secretion of adrenal medulla
 - Constricts blood vessels of extremities
- 83) Which of the following is buried deep in the lateral fissure?
- Cingulate gyrus
 - Thalamus
 - Third ventricle
 - Insula
 - Tentorium cerebelli
- 84) The blood brain barrier is formed by all the following except?
- Astrocyte foot plates
 - Tight junctions between endothelial cells
 - Myelin sheath
 - Continuous type of capillary
 - All the above contribute
- 85) The Edinger Westphal nucleus sends preganglionic fibres to:
- Otic ganglion
 - Pterygopalatine ganglion
 - Ciliary ganglion
 - Superior cervical ganglion
 - Sub mandibular ganglion
- 86) The anatomical basis of lumbar puncture include:
- Proximal cord termination
 - Presence of lumbar cistern
 - Orientation of lumbar spinous processes
 - Freedom of movement of nerves within a fluid
 - All the above

- 87) The red nucleus receives fibers from the:
- Cerebellum
 - Basal ganglia
 - Pons
 - Medulla
 - Spinal cord
- 88) 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
- 89) 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 gives both motor and sensory neurological deficits
- 90) 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 ventral to the Substantia nigra
 - The tegmentum lies dorsal to the substantia nigra
 - The central gray matter encircles the red nuclei
 - The tegmentum contains ascending tracts
- 91) The amygdala:
- Is an important part of the subcortical limbic system
 - Has connections with the hypothalamus and medial forebrain bundle.
 - Regulates activities of the feeding centre in the lateral hypothalamic nuclei.
 - All of the above
 - None of the above
- 92) The following structures are part of the Papez circuit:
- The hippocampal formation
 - The mammillary body
 - The anterior thalamus
 - The cingulate cortex
 - All the above
- 93) The overwhelming majority of fibres afferent to the basal ganglia terminate in the:
- Paleostriatum
 - Neostriatum
 - Subthalamic nucleus
 - Substantia nigra
 - Clastrum
- 94) The lentiform nucleus comprises of:
- Neostriatum
 - Caudate and putamen
 - Putamen and globus pallidus
 - Paleostriatum
 - Archistriatum
- 95) 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 pupillary reflexes
 - The superior colliculi lie at the level of the trochlear nerve nuclei
 - The inferior colliculi are concerned with auditory reflexes
 - (b) and (d) are correct
- 96) Regarding the floor of the 4th ventricle, choose the correct statement:
- It is partly formed by the medullary veli
 - The facial colliculus is formed by the underlying motor nucleus of facial
 - The closed medulla forms the lower half of the floor
 - The medial portion represents the motor column
 - The cerebellar peduncles contribute to the floor

- 97) 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.
- 98) 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
- 99) Pain temperature pathway:
- a) Has nerve fibres that constitute the lateral spinothalamic tract
 - b) Has nerve fibres that constitute the lateral corticospinal 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)
- 100) The correct path of CSF flow is
- a) Lateral ventricle → 4th ventricle → 3rd ventricle
 - b) 3rd ventricle → 4th ventricle → Lateral ventricle
 - c) Lateral ventricle → 4th ventricle → cerebral aqueduct
 - d) Cerebral aqueduct → 4th ventricle → subarachnoid space