

## AXW

### PROVISIONAL ANSWER KEY (CBRT)

Name of the post	Professor, Neuro Surgery, General State Service, Class-1
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THE LINK FOR ONLINE OBJECTION SYSTEM WILL START FROM 04-09-2021; 04:00 PM ONWARDS

### Instructions / સૂચન

**Candidate must ensure compliance to the instructions mentioned below, else objections shall not be considered: -**

- (1) All the suggestion should be submitted through **ONLINE OBJECTION SUBMISSION SYSTEM** only. Physical submission of suggestions will not be considered.
- (2) Question wise suggestion to be submitted in the prescribed format (proforma) published on the website / online objection submission system.
- (3) All suggestions are to be submitted with reference to the Master Question Paper with provisional answer key (Master Question Paper), published herewith on the website / online objection submission system. Objections should be sent referring to the Question, Question No. & options of the Master Question Paper.
- (4) Suggestions regarding question nos. and options other than provisional answer key (Master Question Paper) shall not be considered.
- (5) Objections and answers suggested by the candidate should be in compliance with the responses given by him in his answer sheet. Objections shall not be considered, in case, if responses given in the answer sheet /response sheet and submitted suggestions are differed.
- (6) Objection for each question should be made on separate sheet. Objection for more than one question in single sheet shall not be considered.

**ઉમેદવારે નીચેની સૂચનાઓનું પાલન કરવાની તકેદારી રાખવી, અન્યથા વાંધા-સૂચન અંગે કરેલ રજૂઆતો ધ્યાને લેવાશે નહીં**

- (1) ઉમેદવારે વાંધા-સૂચનો ફક્ત ઓનલાઇન ઓબ્જેક્શન સબમીશન સીસ્ટમ દ્વારા જ સબમીટ કરવાના રહેશે. રૂબરૂ અથવા ટપાલ દ્વારા આયોગની કચેરીએ મોકલવા આવેલ વાંધા-સૂચનો ધ્યાને લેવામા આવશે નહીં જેની ખાસ નોંધ લેવી.
- (2) ઉમેદવારે વાંધા-સૂચનો રજૂ કરવા વેબસાઇટ / ઓનલાઇન ઓબ્જેક્શન સબમીશન સીસ્ટમ પર પ્રસિધ્ધ થયેલ નિયત નમૂનાનો જ ઉપયોગ કરવો.
- (3) ઉમેદવારે પોતાને પરીક્ષામાં મળેલ પ્રશ્નપુસ્તિકામાં છપાયેલ પ્રશ્નક્રમાંક મુજબ વાંધા-સૂચનો રજૂ કરતા તમામ વાંધા-સૂચનો વેબસાઇટ પર પ્રસિધ્ધ થયેલ પ્રોવિઝનલ આન્સર કી (માસ્ટર પ્રશ્નપત્ર)ના પ્રશ્ન ક્રમાંક મુજબ અને તે સંદર્ભમાં રજૂ કરવા.
- (4) માસ્ટર પ્રશ્નપત્રમાં નિર્દિષ્ટ પ્રશ્ન અને વિકલ્પ સિવાયના વાંધા-સૂચનો ધ્યાને લેવામાં આવશે નહીં.
- (5) ઉમેદવારે પ્રશ્નના વિકલ્પ પર વાંધો રજૂ કરેલ છે અને વિકલ્પ રૂપે જે જવાબ સૂચવેલ છે એ જવાબ ઉમેદવારે પોતાની ઉત્તરવહીમાં આપેલ હોવો જોઈએ. ઉમેદવારે સૂચવેલ જવાબ અને ઉત્તરવહીનો જવાબ ભિન્ન હશે તો ઉમેદવારે રજૂ કરેલ વાંધા-સૂચનો ધ્યાનમા લેવાશે નહીં.
- (6) એક પ્રશ્ન માટે એક જ વાંધા-સૂચન પત્રક વાપરવું. એક જ વાંધા-સૂચનો પત્રકમાં એકથી વધારે પ્રશ્નોની રજૂઆત કરેલ હશે તો તે અંગેના વાંધા-સૂચનો ધ્યાને લેવાશે નહીં.

**Website link for online objection submission system : [www.safevaults.in/login](http://www.safevaults.in/login)**

001. All are true regarding Chiari malformation-I, except-  
 (A) Hydrocephalus common.  
 (B) Syringomyelia is seen in 50 to 80% of patients  
 (C) No associated brainstem herniations or supratentorial anomalies.  
 (D) Tonsillar herniation > 5mm inferior to the plane of foramen magnum
002. False about Chiari -2 malformation is  
 (A) Tectal beaking is associated (B) Caudal displacement of cerebellar vermis  
 (C) Meningomyelocele is uncommon (D) Hydrocephalus is common
003. False about Fosphenytoin is  
 (A) Intramuscular form can be given  
 (B) Loading dose is 15-20 mg Phenytoin equivalent/kg  
 (C) Has replaced phenytoin as DOC in Status epilepticus in most centres  
 (D) Higher doses will not cause cardiac arrhythmias
004. Which of following is true regarding pre hospital management of status epilepticus state?  
 (A) Midazolam is better than Lorazepam for seizures as it is more potent  
 (B) Midazolam is better than Lorazepam for seizures as it has less respiratory depression  
 (C) Lorazepam is better than Midazolam as it has lesser respiratory depression  
 (D) Lorazepam is better than Midazolam as it has lesser ICU admissions
005. Which of the following is not a feature of Parinaud's syndrome?  
 (A) Dissociated light-near response (B) Nystagmus retractorius  
 (C) Paralysis of up gaze  (D) Third nerve palsy
006. Which of the following is true of tuberculous meningitis?  
 (A) Headache is usually absent.  
 (B) If untreated, the clinical course is self-limited.  
 (C) The inflammatory exudate is found mainly at the convexities.  
 (D) The protein content of the cerebrospinal fluid (CSF) is almost always elevated
007. True about Lacosamide  
 (A) Older generation AED  (B) Used for treatment of focal seizures  
 (C) Does not cause cardiac toxicity (D) Dose is 300 mg/day
008. Drugs used for Absence seizures are all except?  
 (A) Ethosuximide (B) Valproate  
 (C) Carbamazepine (D) Lamotrigine
009. Internal cerebral vein is formed by-  
 (A) Thalamostriate vein and septal vein  
 (B) Thalamostriate vein and basal vein of rosenthal  
 (C) Septal vein and basal vein of rosenthal  
 (D) Both (A) and (B)

010. Vein of labbe is the anastomotic vein connecting  
 (A) Superior sagittal sinus with the veins of sylvian fissure.  
 (B) Transverse sinus with the superficial middle cerebral vein.  
 (C) Inferior sagittal sinus with the veins of sylvian fissure.  
 (D) Sigmoid sinus with the veins of sylvian fissure.
011. Which of the following is not a midline sinus  
 (A) Superior sagittal sinus (B) Inferior sagittal sinus  
 (C) Straight sinus  (D) Sigmoid sinus
012. Straight sinus is formed by  
 (A) Inferior sagittal sinus and great vein of Galen.  
 (B) Inferior sagittal sinus and internal cerebral vein.  
 (C) Internal cerebral vein and great vein of Galen.  
 (D) None of the above
013. Cavernous sinus communicates anteriorly with  
 (A) Sphenoparietal sinus (B) Ophthalmic veins  
 (C) Both (A) and (B) (D) None of the above
014. Which of the following is not an anastomotic vein  
 (A) Vein of Labbe (B) Vein of Trolard  
 (C) Superficial sylvian vein  (D) Deep sylvian vein.
015. Subacute combined degeneration of the spinal cord is caused by a deficiency of  
 (A) Cobalamin (B) Folic Acid  
 (C) Nicotinic acid (D) Pyridoxine
016. Present in higher concentration in CSF except  
 (A) Na (B) Cl  
 (C) Mg  (D) K
017. Who performed first ETV  
 (A) MIXTER (B) DANDY  
 (C) L'ESPINASSE (D) CUSHING
018. Which of the following antiepileptic drugs has the shortest half-life?  
 (A) Carbamazepine (B) Phenobarbital  
 (C) Phenytoin  (D) Valproate
019. Thalamostriate vein is  
 (A) Lateral to foramen of Monroe (B) Medial to foramen of Monroe  
 (C) Superior to foramen of Monroe (D) Not related to foramen of Monroe
020. Fornix is related to  
 (A) Posterior part of foramen of Monroe  (B) Ant and medial to foramen of Monroe  
 (C) Lateral to foramen of Monroe (D) None of the above

021. Each of the following is true of radiation myelopathy (delayed progressive type) except  
 (A) Absence of pain is typical early in the course.  
 (B) It occurs 12 to 15 months after radiation.  
 (C) Magnetic resonance imaging (MRI) shows abnormal signal intensity; decreased on T1 and increased on T2.  
 (D) Sensory changes usually develop after motor changes.
022. Fasciculation potentials indicate  
 (A) Motor nerve fibre irritability (B) Motor nerve fibre destruction  
 (C) Motor unit denervation (D) Muscle atrophy
023. Transient memory disturbances following ETV is due to traction of  
 (A) Thalamus (B) Corpus callosum  
 (C) Fornix (D) Infundibular recess
024. Cherry red spot / pinkish orange spot in the third ventricular floor is  
 (A) Mammillary bodies (B) Dorsum sella  
 (C) Lamina terminalis (D) Infundibular recess
025. Modern Neurosurgery marked its beginning with development of the following things except  
 (A) Anaesthesia (B) Asepsis  
 (C) Radiology (D) Cerebral localization.
026. Most common posterior fossa tumor in adults is  
 (A) Metastasis (B) Hemangioblastoma  
 (C) Pilocytic astrocytoma (D) Brain stem glioma
027. Chang staging is used for  
 (A) Ependymoma (B) Medulloblastoma  
 (C) Pilocytic astrocytoma (D) Hemangioblastoma
028. About Hemangioblastoma true is  
 (A) associated with tuberous sclerosis  
 (B) associated with VHL  
 (C) always cystic with mural nodule  
 (D) the cyst wall enhance but mural nodule does not enhance in CT or MRI
029. Craniospinal irradiation is employed in the treatment of:  
 (A) Mixed oligoastrocytoma (B) Medulloblastoma  
 (C) Oligodendroglioma (D) Pilocytic astrocytoma
030. Which of the following is true about posterior fossa tumor  
 (A) Cerebellar Hemangioblastoma show no ring enhancement  
 (B) Ependymoma usually arises from third ventricle  
 (C) Banana sign is characteristic of Ependymoma  
 (D) Astrocytomas are most common malignant cerebellar tumor in adult.
031. The following list of primary malignancies accounts for the majority of metastatic brain tumors  
 (A) Lung, breast, melanoma (B) Testis, ovary, melanoma  
 (C) Lung, prostate, uterus (D) Pancreas, melanoma, ovary

032. The long thoracic nerve innervates the  
 (A) Latissimus dorsi (B) Levator scapulae  
 (C) Rhomboids (D) Serratus anterior
033. Which of the following complication in transcranial approaches to craniopharyngiomas is commonest ?  
 (A) Frontal Lobe Damage (B) Anosmia  
 (C) Optic Nerve Damage (D) Diabetes insipidus
034. The von Hippel-Lindau disease has been associated with all of the following except  
 (A) Defect on chromosome 3 (B) Dominant inheritance  
 (C) Iris hamartomas (D) Pancreatic cysts
035. Gerstmann's syndrome classically involves a lesion in the  
 (A) Dominant frontal lobe (B) Dominant parietal lobe  
 (C) Dominant temporal lobe (D) Nondominant parietal lobe
036. Hadad-Bassagasteguynaso septal flap in the repair of sellar floor is a vascular flap based on  
 (A) Posterior septal artery (B) Posterior palatine artery  
 (C) Posterior sphenopalatine artery (D) Posterior ethmoidal artery
037. Wernicke's area corresponds most closely to Brodmann's area(s)  
 (A) 17 (B) 19  
 (C) 22 (D) 41 and 42
038. All of the following are radioactive colloid used in intracavitary radiotherapy of craniopharyngiomas except  
 (A) Yttrium-90 (B) Phosphorus-32  
 (C) Rhenium 186 (D) Cobalt-60
039. Atlas is derived from  
 (A) Proatlas (B) 1st cervical sclerotome  
 (C) Both (A) and (B) (D) None of the above
040. Odontoid gets fully ossified by?  
 (A) 8 yrs (B) 10 yrs  
 (C) 5 yrs (D) 12 yrs
041. Dressing apraxia is associated with a lesion in the  
 (A) Dominant frontal lobe (B) Dominant parietal lobe  
 (C) Nondominant frontal lobe (D) Nondominant parietal lobe
042. Displacement of facial nerve in internal acoustic meatus most commonly occur in which direction in a patient of acoustic neuroma  
 (A) Anteriorly. (B) Anterosuperiorly.  
 (C) Anteroinferiorly. (D) Posteriorly.
043. Middle cranial fossa approach was introduced by  
 (A) House in 1961. (B) Fisch and Mattox in 1964.  
 (C) Sir Charles balance in 1894. (D) Olivecrona.

044. Best approach for intracanalicular tumor with preserved hearing is  
 (A) Middle fossa approach. (B) Retromastoid suboccipital.  
 (C) Trans labyrinthine approach. (D) Transpetrosal retro sigmoid
045. Which of the following CSF findings is least consistent with tuberculous meningitis?  
 (A) Glucose of 30 mg/dL  
 (B) Lymphocytic predomination after 1 week of illness  
 (C) Opening pressure of 200 mm CSF  
 (D) Protein of 35 mg%
046. Pan coast tumor is usually associated with  
 (A) Erbs palsy (B) Klumpke's palsy  
 (C) Pan plexus palsy (D) Lesions in continuity
047. Best indicator for intervention in Birth BPI is  
 (A) EMG at 3 months (B) EMG immediately  
 (C) Function of biceps at 3 months (D) Function of biceps immediately
048. Monoplegia without muscular atrophy is most often secondary to a lesion in the  
 (A) Brainstem (B) Cortex  
 (C) Internal capsule (D) Peripheral nerve
049. The most common finding on audiography in patients with acoustic neuromas is  
 (A) Flat loss (B) High-frequency loss  
 (C) Low tone loss (D) Normal audiogram
050. Repetition is least likely to be affected by a  
 (A) Broca's aphasia (B) Conduction aphasia  
 (C) Global aphasia (D) Transcortical sensory aphasia
051. About nerve grafting, false is  
 (A) Sural nerve is most commonly used  
 (B) There should be no tension in approximation  
 (C) Graft should be placed in situ to minimize axonal loss  
 (D) Proximal and distal ends should be resected to remove neuromas
052. Only cranial nerve considered to be intracavernous  
 (A) 3rd (B) 4th  
 (C) 6th (D) 5th
053. Parkinson's triangle formed by all except  
 (A) 3<sup>rd</sup> nerve (B) 4<sup>th</sup> nerve  
 (C) 6<sup>th</sup> nerve (D) Tentorial edge
054. Which of the following statement is false about craniopharyngiomas  
 (A) The papillary subtype occurs in adults at mean age of 40-55 yrs.  
 (B) There is no sex predilection in craniopharyngiomas.  
 (C) Adamantinomataous type arises from buccal mucosa primordia.  
 (D) GH deficiency is most common hormone deficiency.

055. Giant craniopharyngiomas are tumors that have max. diameter more than  
 (A) 3 cm (B) 4 cm  
 (C) 5 cm (D) 6 cm.
056. T.B in CV junction most commonly originates from-  
 (A) Retropharyngeal space. (B) Ligamental complex  
 (C) Primary bony involvement (D) Posterior bony element
057. Well formed visual hallucination suggestive of seizure foci at  
 (A) Temporal lobe (B) Frontal lobe  
 (C) Occipital lobe (D) Parietal lobe
058. All are part of limbic system except  
 (A) Parahippocampal gyrus (B) Amygdaloid nucleus  
 (C) Cingulate gyrus  (D) Hypothalamus
059. True regarding inferior horn of lateral ventricle  
 (A) No choroid plexus in inferior horn  
 (B) Floor formed laterally by amygdaloid nucleus and medially by caudate nucleus  
 (C) Floor formed laterally by collateral eminence and medially by hippocampus  
 (D) Roof formed laterally by amygdaloid nucleus and medially by caudate nucleus
060. All are anticonvulsive mechanisms of DBS except  
 (A) Inactivate neurons by blocking depolarization  
 (B) Neuronal damage due to ischemia  
 (C) Activation of inhibiting neurons and their projections  
 (D) Changes in the properties of networks (desynchronization)
061. Most frequent target of DBS in Parkinson's diseases is-  
 (A) STN (B) Gpi  
 (C) Gpe (D) ViM
062. Chicken wire appearance on histology is characteristic feature described for  
 (A) Schwannoma  (B) Oligodendroglioma  
 (C) Ependymoma (D) Diffuse astrocytoma-gemistocytic
063. All are histological variants of Medulloblastoma except  
 (A) Desmoplastic (B) Nodular  
 (C) Round cell (D) medullomyoblastoma
064. False regarding principles of craniotomy  
 (A) Incision made on hair containing areas.  
 (B) Length of flap > 1.5 times the width of the base.  
 (C) No crossed incisions  
 (D) None of the above
065. Bi coronal flap false is  
 (A) Also called as suttar flap  
 (B) Used for Fronto-temporal lesions and cranial base  
 (C) Based on superficial temporal artery  
 (D) Reflect up to orbit rim



077. Branches of vertebral artery all except  
 (A) PICA (B) Labyrinthine artery  
 (C) Medullay branches (D) Spinal artery
078. True about basilar artery all except  
 (A) Formed by two vertebral artery at upper pons  
 (B) Divide into two PCA  
 (C) Gives off pontine branches  
 (D) blood supply to the choroid plexus in lateral ventricle
079. Regarding posterior circulation untrue all except  
 (A) Perforator branches arise from anterior and posterior surface of basilar artery  
 (B) AICA arise from vertebral artery  
 (C) SCA passes between 3rd and 4th CN  
 (D) 3rd CN separates the SCA and PCA
080. Limitation in endovascular aneurysm occlusion  
 (A) Neck width < 4 mm (B) Dome to neck ratio > 2  
 (C) unstable intraluminal thrombus (D) All of the above
081. 4<sup>th</sup> ventricle choroid plexus blood supply is from  
 (A) PICA (B) AICA  
 (C) Posterior cerebral artery (D) Anterior spinal artery
082. Qualitative assessment of Cerebral Blood Flow (CBF) is done by the following except:  
 (A) Laser Doppler Flowmetry (B) Transcranial Doppler  
 (C) Electroencephalography (D) Magnetic Resonance Spectroscopy
083. Normal rate of CBF is  
 (A) 50-60 mL/100g/min (B) 70-90 mL/100g/min  
 (C) 25-30 mL/100g/min (D) 16-20 mL/100g/min
084. Following statement regarding pathophysiology of ischemic stroke are true except:  
 (A) Embolism is the cause of approximately 75% of all ischemic strokes.  
 (B) The severity & permanence of neurological deficit are dependent on cause of intravascular occlusion and degree of intracerebral collateral blood flow.  
 (C) Neuron within area of ischemic penumbra constitute two-thirds of the totallesion volume.  
 (D) In ischemic penumbra, apoptosis occurs through both intrinsic (cytochrome c and caspase-3 mediated) and extrinsic (caspase-8 mediated) apoptotic pathway.
085. Common causes of Haemorrhagic strokes are following except:  
 (A) Chronic hypertension (B) Cerebral venous thrombosis  
 (C) Cerebral amyloid angiopathy (D) Vasculitis
086. ICH score includes the following parameters except:  
 (A) Size of haemorrhage  
 (B) GCS score  
 (C) Location of hematoma  
 (D) Previous episodes of intracranial haemorrhage

087. Role of intravenous t-PA administration for acute ischemic stroke is well established within \_\_\_\_\_ hours of onset of symptoms
- (A) 6 (B) 4.5  
(C) 8 (D) 12
088. Deep Brain Stimulus likely to improves all symptoms of Parkinson disease except:
- (A) Rigidity (B) Tremors  
(C) Autonomic functions (D) Dyskinesia
089. All is true about Duret Haemorrhage except:
- (A) It is due to upward displacement of brainstem  
(B) Also known as secondary haemorrhage of herniation  
(C) Due to dislodge vessels within the midbrain and pons  
(D) Difficult to distinguish from hypertensive pontine bleed
090. Trials related to decompressive surgery for malignant cerebral edema are all except:
- (A) DECIMAL Trial (B) DESTINY Trial  
(C) ESCAPE Trial (D) HAMLET Trial
091. All are true except:
- (A) Cerebral perfusion pressure(CPP) = Mean arterial pressure(MAP) – Intra cranial pressure (ICP)  
(B) In normal adult the CPP > 50 mm Hg  
(C) ICP above 20 mm Hg is a significant independent determinant of outcome  
(D) Decrease cerebral metabolism result in increase in cerebral blood flow as response to auto regulation.
092. All is true in case of head injury except:
- (A) Each degree elevation of body temperature increases cerebral metabolism by 10%  
(B) Hyperglycemia in head injury is mainly due to sympatho-adrenal response to injury  
(C) Severe TBI is associated with increased serum magnesium.  
(D) Duration of in-hospital oxygen desaturation (<90%) is an independent predictor of mortality
093. True regarding management of severe traumatic head injury
- (A) Avoid hyperventilation during first 24 hrs. after injury  
(B) Steroid reduces the Intra Cranial pressure in head injury but does not improve outcome.  
(C) Early tracheostomy in severe head injury does not reduce days of mechanical ventilation.  
(D) Prophylactic anticonvulsants has no effect on the incidence of early posttraumatic seizures
094. All is true for hyperosmolar therapy in head injury except:
- (A) Hypertonic saline has an advantage over mannitol in hypovolemic patients  
(B) Hypertonic saline crosses the blood-brain barrier and may aggravate edema  
(C) Mannitol can cause renal failure  
(D) Hypertonic saline may lead to bleeding secondary to decreased platelet aggregation

095. Following are treatment options for cerebral venous thrombosis (CVT) based on American Stroke Association guidelines except
- (A) Anticoagulation with intravenous heparin or subcutaneous LMWH.
  - (B) Oral anticoagulants for 3-12 months or lifelong depending on underlying etiology.
  - (C) Decompressive hemicraniectomy for sever mass effect or ICH following CVT.
  - (D) Mechanical thrombectomy is the standard of care.
096. Management in case of head injury all is true except:
- (A) Intracranial pressure (ICP) should be monitored in all salvageable severe head injury patient
  - (B) Goal is to keep ICP < 20 mm Hg and Cerebral perfusion pressure > 50 mm Hg
  - (C) Brain tissue oxygen tension should be maintained > 25 mm Hg
  - (D) Barbiturates helpful due to vasodilatation and mitochondrial stabilization
097. True regarding Growing skull fracture is all except:
- (A) Common after skull fracture in adolescent
  - (B) Mainly due to widely separated fracture and a dural tear
  - (C) Mostly in child below 3 years of age
  - (D) During surgery dural closure is mandatory
098. In relation to craniofacial injury true is:
- (A) Le Fort II fracture is craniofacial dislocation with fracture line including Zygoma
  - (B) Most common mechanism of craniofacial injury is blunt frontal impact
  - (C) Difficulty in management of airway may be due to mandibular collapse
  - (D) Ping pong fracture is common in infancy
099. True regarding traumatic CSF rhinorrhea all except:
- (A) Anosmia is common
  - (B) Target sign may indicate CSF leak
  - (C) May cause meningitis
  - (D) Mostly require surgical repair.
100. True about Hunt & Hess scale are all except
- (A) Grading is from 1-5
  - (B) Grade 5 is deep coma
  - (C) Grade 3 is stupor or moderate hemiparesis
  - (D) Grade 2 has no neurological deficit other than cranial nerve deficit
101. Reversal of vasospasm in SAH is done by all except:
- (A) Triple H therapy.
  - (B) Endovascular Mechanical Balloon Angioplasty
  - (C) Intra-arterial Milrinone
  - (D) Statins
102. Jefferson fracture true is:
- (A) It's a burst fracture of C1
  - (B) Usually occur after sudden deacceleration injury
  - (C) Quadriplegia is most common symptom
  - (D) Rarely associated with C2 fracture

103. Following measures are taken for brain relaxation in cerebrovascular surgery except:  
 (A) Ventriculostomy (B) Opening up of cisterns  
 (C) Intravenous hypertonic saline (D) Keeping patient in Trendelenburg position
104. All is true in Spinal Cord injury without radiographic abnormality except:  
 (A) Mostly occur in children less than 16 years of age  
 (B) May be due to increased elasticity of the spinous ligament  
 (C) Commonly associated with Chiari II malformation  
 (D) Mostly treated with external immobilization
105. Chance Fracture is a type of:  
 (A) Compression fracture (B) Burst Fracture  
 (C) Seat belt fracture (D) Fracture dislocation
106. Which is the false statement in context to “valid informed consent” obtained for Neurosurgery  
 (A) Consent should be obtained from patient, spouse, parents or adult children.  
 (B) Composition of ideal consent form includes site & side of surgery.  
 (C) Implied consent is better than Informed consent.  
 (D) Informed consent should provide information to patient about alternative treatment options.
107. Following aspects of radiographic evaluation of Anterior communicating artery (ACoA) aneurysm are true except:  
 (A) Angiography of ACoA aneurysm has highest false negative rate seen in angiography of any intracranial aneurysm.  
 (B) Cross compression study should always be performed during angiographic evaluation to visualize ACoA region completely.  
 (C) ACoA aneurysm have intimate relationship with 12 vessels and their perforators.  
 (D) CT findings of SAH in interhemispheric fissure or hemorrhage in gyrus rectus is indicative of ruptured ACoA aneurysm.
108. All statements regarding Distal Anterior Cerebral Artery (DACA) aneurysm are true except:  
 (A) DACA aneurysm are fewer than 10% of reported aneurysms.  
 (B) They are often small in size (<5mm) and are associated with presence of multiple cerebral aneurysms.  
 (C) Most common site of origin of DACA aneurysm is A2 segment at the branching point of Callosomarginal artery.  
 (D) Interhemispheric approach is mandatory for DACA aneurysm located at more than 2 cm distal to ACoA.
109. Most common cause of subarachnoid hemorrhage is:  
 (A) Aneurysm (B) Infection  
 (C) Trauma (D) Tumor.
110. Most common cause of subdural hemorrhage is:  
 (A) Bleed from middle meningeal artery (B) Bleed from bridging vein  
 (C) Bleed from internal cerebral vein (D) Bleed from inferior petrosal vein.

111. Papez circuit connect pathway of all except:  
 (A) Caudate nucleus (B) Hippocampal formation  
 (C) Mamillary body (D) Anterior nucleus of thalamus
112. Anterior odontoid screw fixation contraindications is/are:  
 (A) Disruption of the transverse ligament (B) Significant comminution of the C2 body,  
 (C) Osteopenia (D) All of the above
113. Action of mannitol is:  
 (A) Osmotic diuretic (B) Improve blood rheology  
 (C) Free radical scavenger (D) All of the above
114. Which is the most common location of Middle Cerebral Artery (MCA) aneurysm?  
 (A) Proximal M1 segment. (B) Bifurcation of MCA.  
 (C) M3 segment. (D) Distal MCA
115. True about odontoid fracture is:  
 (A) Type 1 fracture is most common  
 (B) Type 2 fracture is mostly unstable  
 (C) Type 3 fracture is through base of dens  
 (D) Neck pain is typically absent
116. False statement about Basilar apex aneurysms among the following is  
 (A) Visualization and preservation of the thalamoperforating arteries is an essential technical nuance of basilar apex aneurysm surgery.  
 (B) Two pure approaches used for basilar apex aneurysms are transsylvian approach and subtemporal approach.  
 (C) Endovascular coiling is limited to aneurysms with neck size less than 4 mm and PCAs that do not arise from the dome.  
 (D) Sub temporal approach is best suited in an acute setting with high grade aneurysm.
117. All is proven risk factor of osteoporosis except:  
 (A) Low serum phosphate level (B) Cigarette smoking  
 (C) Physical inactivity (D) Heavy alcohol consumption
118. Most common location of Infectious aneurysms is  
 (A) Distal ACA. (B) Basilar Artery.  
 (C) Posterior Communicating Artery. (D) Distal MCA.
119. Chronic traumatic encephalopathy all are true except:  
 (A) Younger people tends to have slow progressive course as compared to the older person  
 (B) There is deposition of tau in neurons at the depths of sulci  
 (C) Diagnosis is established only by pathological examination of brain  
 (D) Atrophy is strikingly absent in early-stage disease
120. Revascularization is done with the following vessels except:  
 (A) Saphenous Vein. (B) Radial Artery.  
 (C) Ulnar Artery. (D) Superficial Temporal Artery.

121. Spetzler Martin grading system for AVM is based on all of the following except:  
 (A) Size of AVM (B) Ruptured or Unruptured  
 (C) Location (D) Venous drainage
122. Embolic agents used for embolization of brain AVMs are all except:  
 (A) N-butyl cyanoacrylate (B) Polyurethane  
 (C) Polyvinyl alcohol (D) Ethylene vinyl alcohol copolymer
123. What should be the timing of AVM surgery in a case of ruptured AVM with intracranial haemorrhage and no significant neurological deficits?  
 (A) 4-6 weeks (B) 3 days  
 (C) 1 week (D) Emergency surgery
124. All is true about diffuse axonal injury except:  
 (A) May result in severe impairment despite lack of gross parenchymal contusions  
 (B) In Grade 1 Classification there is lesion in cerebral peduncle  
 (C) Retraction balls seen histologically  
 (D) Often associated with Strich hemorrhages
125. Which statement is true about brain dysfunction after head injury:  
 (A) In ischaemic brain damage Cerebral blood flow (CBF) is low and cerebral metabolic rate of oxygen (CMRO2) is high  
 (B) In dysfunctional but recoverable tissue CBF is high but CMRO2 is low  
 (C) In ischemic and Irreversible damage the CBF is low in both conditions  
 (D) In irreversible damage CBF is high but CMRO2 is low.
126. Normal Perfusion Pressure Breakthrough is a post-operative complication seen in surgery of  
 (A) AVM (B) Aneurysm  
 (C) Cavernous angioma (D) Dural AVF
127. Factors Involved in Closure of Neuroepithelium to Form the Neural Tube is:  
 (A) Surrounding mesodermal tissues  
 (B) Induction of the floor plate by sonic hedgehog  
 (C) Wedge shape of floor plate cells  
 (D) All of the above
128. Which of the following investigation is not indicated for evaluating cerebral cavernous malformation  
 (A) DSA (B) SWI MRI  
 (C) GRE MRI (D) CT Head
129. Which is the most common spinal vascular malformation?  
 (A) Intradural Dorsal Arteriovenous Fistulas  
 (B) Intramedullary Arteriovenous Malformations  
 (C) Extradural-Intradural Arteriovenous Malformations  
 (D) Extradural Arteriovenous Fistulas
130. The spinal "watershed" zone lies in the region of  
 (A) T2-4 (B) T4-6  
 (C) T6-9 (D) C5-7

131. All is true regarding cerebral edema except:  
 (A) Vasogenic edema mostly involves white matter  
 (B) Cerebral infarction and meningitis causes cytotoxic edema  
 (C) Vasogenic edema mainly caused by brain tumor as nascent micro vessels is deficient in tight junctions.  
 (D) Diuretic is not effective at all in cytotoxic edema
132. All is true for Percutaneous Endoscopic Cervical Discectomy except?  
 (A) Recommended for patients with soft disk herniation.  
 (B) Not recommended for disk herniation above C3 because of increased chances of injuring the cervical cord.  
 (C) Injury to the end plates should be avoided to prevent Neuronal injury.  
 (D) Contraindicated in patients with previous anterior surgery.
133. Which fluid is used for irrigation in Neuroendoscopy?  
 (A) 0.9% NS (B) RL  
 (C) ISO-P (D) DNS
134. Early post-operative complications in Neuroendoscopy are all except:  
 (A) Delayed awakening (B) Fever  
 (C) Subdural collection (D) Stoma closure
135. In which year was the Neurological Society of India constituted?  
 (A) 1954 (B) 1953  
 (C) 1952 (D) 1951
136. Who is the only neurosurgeon to have won the Nobel prize?  
 (A) Dr M.G Yasargil (B) Dr Harvey Cushing  
 (C) Dr Egas Moniz (D) Dr Walter Dandy
137. Which of the following sulci is not 100% continuous?  
 (A) The sylvian fissure (B) The callosal sulcus  
 (C) The collateral sulcus (D) The calcarine sulcus
138. In early 19<sup>th</sup> century important developments which takes place in the field of neurosurgery are all except  
 (A) introduction of anaesthesia (B) operating microscope  
 (C) cerebral localization (D) introduction of antisepsis
139. False about slit ventricle syndrome is  
 (A) Intermittent headache (B) Slowly filling reservoir  
 (C) Continuous severe headache (D) Small ventricle
140. True about the surgical management of benign intracranial hypertension  
 (A) Optic nerve sheath fenestration (B) CSF shunting  
 (C) Cranial sinus stenting (D) All of the above

141. Which valve systems are used for CSF shunting  
 (A) Fixed differential pressure valves  
 (B) Flow-regulating valves  
 (C) Programmable differential pressure valves  
 (D) All of the above
142. True about Frazier point is  
 (A) It is 1 cm anterior to the coronal suture and 2 to 3 cm off the midline  
 (B) It is 5 to 7 cm superior to the inion and 3 to 4 cm off the midline  
 (C) It is 2 finger breadth superior and posterior to pinna  
 (D) It is also known as key burr hole point
143. Risk associated with ventriculoatrial shunt is  
 (A) Thromboembolism (B) Pulmonary hypertension  
 (C) Shunt nephritis (D) All of the above
144. Ventriculosubgaleal (VSG) shunt is a good surgical option for  
 (A) Tubercular meningitis with hydrocephalus  
 (B) Preterm neonates with post haemorrhagic ventricular dilation  
 (C) Arrested Hydrocephalus  
 (D) Normal pressure hydrocephalus
145. The shape of insula resembles  
 (A) Pyramid (B) Sphere  
 (C) Oval (D) Pear
146. Following structures form the boundaries of Kawase's triangle except  
 (A) Anterior boundary by arch connecting the foramen ovale and the foramen spinosum  
 (B) Medial boundary by superior and inferior petrosal sinuses  
 (C) Posterior boundary by cochlea and the anterior wall of the internal acoustic canal  
 (D) Lateral boundary by greater superficial petrosal nerve
147. Enlargement of arachnoid cyst is due to  
 (A) Osmotic pressure gradient  
 (B) Active secretion by the cyst wall lining or ectopic choroid-like structures  
 (C) CSF movement into the cyst during venous or arterial pulsations  
 (D) All of the above
148. Most prevalent organism causing CSF shunt infections in neonates is  
 (A) Coagulase-negative Staphylococcus (B) H. influenzae  
 (C) Streptococci (D) E. Coli
149. Most common pediatric CNS tumor in decreasing order of frequency is  
 (A) Pilocytic astrocytomas, Ependymoma, Medulloblastoma  
 (B) Medulloblastoma, Ependymoma, Pilocytic astrocytomas  
 (C) Pilocytic astrocytomas, Medulloblastoma, Ependymoma  
 (D) Medulloblastoma, Ependymoma, Pilocytic astrocytomas

150. True about optic pathway hypothalamic glioma is  
 (A) Majority are high grade glioma  
 (B) Majority are low grade glioma  
 (C) They are more common in middle age group  
 (D) They are more common in elderly population
151. In case of thalamic tumors if the margins are well defined with homogenous contrast enhancement, the histological diagnosis is likely to be  
 (A) High grade glioma (B) Lymphoma  
 (C) Oligodendroglioma (D) Pilocytic astrocytoma
152. The anterior perforated substance (APS) is the entry site for the perforating arteries from  
 (A) Internal carotid artery (B) Anterior cerebral artery  
 (C) Anterior choroidal artery (D) All of the above
153. Factor most closely associated with recurrence of craniopharyngiomas is  
 (A) Extent of resection at initial surgery (B) No adjuvant radiotherapy  
 (C) Lack of postoperative chemotherapy (D) Age of patient
154. Classic fried egg appearance in cranial histopathological examination is most commonly associated with  
 (A) Medulloblastoma (B) Glioblastoma multiforme  
 (C) Acoustic schwannoma (D) Oligodendroglioma
155. All are true about Subependymal giant cell astrocytoma (SEGA) except  
 (A) It is commonly associated with tuberous sclerosis  
 (B) They typically appear within the lateral ventricle  
 (C) Classically present in 6<sup>th</sup> decade of life  
 (D) These are low grade tumor
156. All are Glioneuronal tumors except  
 (A) Ganglioglioma  
 (B) Dysembryoplastic neuroepithelial tumor (DNET)  
 (C) Oligodendroglioma  
 (D) Central neurocytoma
157. All are Primitive neuroectodermal tumors (PNET) except  
 (A) Ependymoma (B) Medulloblastoma  
 (C) CNS ganglioneuroblastoma (D) CNS Neuroblastoma
158. True about ependymoma all except  
 (A) Two third of ependymoma are infratentorial in pediatric age group  
 (B) In adults spinal ependymoma are more common than cranial location  
 (C) Most intracranial pediatric ependymoma are WHO grade 4 tumor  
 (D) Most important determinant of outcome in pediatric ependymoma is the extent of surgical resection

159. Among all histopathological subtypes of medulloblastoma, the most favourable prognosis is that of  
 (A) Classic (B) Anaplastic  
 (C) Large cell (D) **Desmoplastic**
160. Which sub group of Medulloblastoma has the best prognosis?  
 (A) **WNT Medulloblastoma** (B) Sonic Hedgehog (SHH) Medulloblastoma  
 (C) Group 3 (D) Group 4
161. True about cerebellar mutism after posterior fossa surgery is  
 (A) **It is secondary to damage to the dentatothalamocortical pathway**  
 (B) It is due to damage to cerebellar cortex  
 (C) Brainstem injury should not be suspected  
 (D) Managed by giving mannitol to patients
162. Triad of Diffuse Intrinsic Pontine Glioma is all except  
 (A) Cerebellar dysfunction (B) Long tract signs  
 (C) **Irregular respiration** (D) Cranial neuropathy
163. True about intracranial germ cell tumor (GCT) is  
 (A) 40%-60% of GCTs originate in the pineal area  
 (B) 15% of patients having multifocal disease  
 (C) 30%-40% of GCTs originate in suprasellar area  
 (D) **All of the above**
164. Intracranial teratomas are more common in  
 (A) Elderly (B) **Neonates**  
 (C) Adolescents (D) Common in all age group
165. Use of beeswax to stop bleeding was contributed by  
 (A) **Victor Horsley** (B) Harvey Cushing  
 (C) William Macewan (D) Walter Dandy
166. Earliest fundus examination finding in papilledema is  
 (A) Humping of vessels crossing the disc margin  
 (B) Disc hyperemia  
 (C) **Loss of spontaneous venous pulsations**  
 (D) Elevation of disc surface
167. Contralateral incongruous homonymous hemianopia is caused by the lesion of following  
 (A) Optic nerve (B) Optic chiasm  
 (C) **Optic tracts** (D) Visual cortex
168. Schmorl's node is  
 (A) **Herniation of disc through vertebral end plate**  
 (B) Intradural disc herniation  
 (C) Herniation and migration of disc one level above the affected intervertebral disc  
 (D) Herniation and migration of disc one level below the affected intervertebral disc

169. Most common location of germinal matrix in developing brain is  
 (A) Cerebellar Vermis (B) Subependyma of the ventricular walls  
 (C) Sub cortical area of cerebral cortex (D) Cervico medullary junction
170. Best modality to detect intra ventricular haemorrhage (IVH) in preterm newborn is  
 (A) CT head (B) Ventricular tapping  
 (C) Cranial ultrasound (D) Transcranial Doppler
171. True about adult onset congenital hydrocephalus is all except  
 (A) Usually patients have macrocephaly  
 (B) Pressure symptoms are more common in young adults  
 (C) Cognitive symptoms are more frequent in older population  
 (D) Most common cause of adult onset congenital hydrocephalus is repeated cranial infection
172. Rate of CSF production is  
 (A) 0.37 ml/min (B) 0.27 ml/min  
 (C) 0.33 ml/min (D) 0.43 ml/min
173. Dural tail can be visible in which of the following tumor  
 (A) Meningioma (B) Lymphoma  
 (C) Exophytic gliomas (D) All of the above
174. Extra-axial masses frequently exhibit the following characteristics on MRI, except  
 (A) Expansion of the cortex  
 (B) Displacement or compression of adjacent cortex  
 (C) Contrast enhancement and thickening of dura, leptomeninges, or cranial nerves  
 (D) Invasion of adjacent bone
175. After a carotid endarterectomy procedure, which vessels occlusion is opened last?  
 (A) The Sup. Thyroid artery (B) The ICA  
 (C) The ECA (D) The CCA
176. Transient memory disturbance following ETV is due to traction of?  
 (A) Thalamus (B) Corpus Callosum  
 (C) Fornix (D) Infundibular recess
177. Basilar complex is  
 (A) Anterior to mammillary bodies (B) Posterior to mammillary bodies  
 (C) Lateral to mammillary bodies (D) None of the above
178. Cherry red spot / pinkish orange spot in the third ventricular floor is  
 (A) Mammillary bodies (B) Dorsum sella  
 (C) Lamina terminalis (D) Infundibular recess
179. Most common posterior fossa tumor in adults  
 (A) Metastasis (B) Hemangioblastoma  
 (C) Pilocytic astrocytoma (D) Brain stem glioma
180. Chang staging is used for  
 (A) Ependymoma (B) Medulloblastoma  
 (C) Pilocytic astrocytoma (D) Hemangioblastoma

181. All are features of Perinaud's syndrome except  
 (A) Pupillary accommodative paresis (B) Light-near dissociation  
 (C) Retraction nystagmus (D) Respiratory irregularity
182. Diagnostic Criteria for Type 1 Neurofibromatosis includes all except  
 (A) One or more café au lait macules  
 (B) Two or more neurofibromas or one plexiform neurofibroma  
 (C) Freckling of the axilla or groin  
 (D) Optic pathway glioma
183. Triad of Tuberous Sclerosis is all except  
 (A) Seizures (B) Cataract  
 (C) Developmental delay (D) Facial angiofibromas
184. True about central neurocytoma is all except  
 (A) predominantly in young adults  
 (B) prototypically occurs in the lateral and third ventricles  
 (C) It is a high grade tumor  
 (D) Intratumoral calcifications are commonly identified on CT
185. True about Pineoblastoma is  
 (A) Highly malignant  
 (B) Common in elderly population  
 (C) Spinal dissemination is common  
 (D) On MRI these tumors are typically heterogeneous
186. Craniospinal irradiation is employed in the treatment of  
 (A) Mixed oligoastrocytoma (B) Medulloblastoma  
 (C) Oligodendroglioma (D) Pilocytic astrocytoma
187. The following are the causes of cytotoxic oedema except:  
 (A) Anoxia (B) Brain tumors  
 (C) Infarction (D) Trauma
188. The most common benign spinal axis tumour (primary spinal tumour) is  
 (A) Aneurysmal bone cyst (B) Haemangioma  
 (C) Plasmacytoma (D) Multiple myeloma
189. Most common site of extraneural metastasis of Medulloblastoma occurs in  
 (A) Subarachnoid space (B) Bone marrow  
 (C) Lungs (D) Liver
190. The most important predictor of 5-year survival in a patient of Medulloblastoma is  
 (A) Patients older than 3 years  
 (B) Patients younger than 3 years  
 (C) Residual tumour more than 1.5 cms<sup>2</sup> area (as measured on MRI)  
 (D) Microscopic tumour cells on CSF fluid cytology

191. Regarding tuberculoma of the brain, which of the following statement is true?  
 (A) They may infrequently follow TBM  
 (B) Can occur in patients without any history of TBM  
 (C) Can also appear during or after completion of antitubercular treatment  
 (D) All of the above
192. Acoustic neuroma most commonly arise from  
 (A) Superior vestibular nerve. (B) Inferior vestibular nerve.  
 (C) Cochlear nerve. (D) None of the above.
193. All the first line antitubercular drugs cross the blood brain both in presence and absence of inflammation except  
 (A) Rifampicin (B) Isoniazid  
 (C) Pyrazinamide (D) Ethambutol
194. In stages of abscess formation day 10-13 corresponds to  
 (A) Early cerebritis (B) Late cerebritis  
 (C) Early capsule formation (D) Late capsule formation.
195. Which of the following malignant tumours can have mixed dural and pial vascular supply  
 (A) Anaplastic astrocytoma (B) Gliosarcoma  
 (C) Glioblastoma (D) None of the above
196. % of space occupied by CSF in intracranial cavity is  
 (A) 6% (B) 9%  
 (C) 15% (D) 20%
197. The following MRI sequences help to differentiate between arachnoid cyst and epidermoid cyst  
 (A) T1 weighted (B) T2 weighted  
 (C) T1 contrast (D) Diffusion weighted
198. Somites/sclerotomes are derived from  
 (A) Endoderm (B) Ectoderm  
 (C) Mesoderm (D) None of the above
199. Most common cause of space occupying lesion of the CNS in patients with HIV is  
 (A) Primary CNS lymphoma  
 (B) Toxoplasmosis  
 (C) Progressive multifocal leukoencephalopathy  
 (D) Carcinomatous meningitis
200. Which of the following surgical procedure would be classified into clean contaminated according to Centres for Disease Control and Prevention classification  
 (A) Craniotomy for tumour (B) Trans Nasal hypophysectomy  
 (C) Dropped bone flap (D) Brain abscess