

M.Ch Neurosurgery-Final key

1 Hermann von Helmholtz invented

- A) Laryngoscope
- B) Endoscope
- C) Ophthalmoscope**
- D) Microscope

2 Pneumoencephalography and ventriculography was invented by

- A) Harvey Cushing
- B) Walter Dandy**
- C) Wilder Penfield
- D) Gazi Yasargil

3 MRI scan was based on the Noble Prize winning work of

- A) Egas Moniz
- B) Godfrey Hounsfield
- C) Block and Purcell**
- D) Robert Edwards

4 Surgical clipping of an intracranial aneurysm was performed for the first time by

- A) Norman Dott
- B) Harvey Cushing
- C) Walter Dandy**
- D) Gazi Yasargil

5 Human motor and sensory homunculus was outlined by

- A) Sir Victor Horsley
- B) Walter Dandy
- C) Wilder Penfield**
- D) Theodore Rasmussen

6 The aim of nerve conduction study and EMG in the Carpal tunnel syndrome is to demonstrate a lesion of the

- A) Brachial Plexus
- B) C6-7 radiculopathy
- C) High median neuropathy
- D) Distal median nerve**

7 One of the following activation procedure is not utilized in the electroencephalography

- A) Hyperventilation
- B) Photic stimulation
- C) Sleep deprivation
- D) Starvation**

8 The average normal Cerebral blood flow is

- A) 25ml/100g/min
- B) 50ml/100g/min**
- C) 75ml/100g/min
- D) 100ml/100g/min

9 Raised Intracranial pressure can cause the following changes **except**

- A) Bradycardia
- B) Tachycardia**
- C) Hypertension
- D) Bradypnea

10 Homonymous hemianopia means

- A) When one-half of the visual field is involved either in one or both eyes
- B) When the defects are present in the visual fields of both eyes and are on the same side of the vertical meridian**
- C) When the defects are present in the visual fields of both eyes but are on the opposite sides of the vertical meridian
- D) When the defects are present in the visual fields of both eyes and are on the same side of the horizontal meridian

11 Regarding location of the optic chiasma, one of following statement is incorrect

- A) Planum sphenoidale – 10%**
- B) Tuberculum sellae – 10%
- C) Over the Sella – 80%
- D) Dorsum Sella – 10%

12 Lateral geniculate body is a part of

- A) Hypothalamus
- B) Thalamus**
- C) Midbrain
- D) Pons

13 In the optic radiation, Meyer's loop is located in the

- A) Frontal Lobe
- B) Temporal Lobe**
- C) Parietal Lobe
- D) Occipital Lobe

14 The following are the rare causes of binasal hemianopia **except**

- A) Aneurysm
- B) Pituitary adenoma
- C) Vascular infarction
- D) Pseudo-tumor Cerebri**

15 Cochlear implant is contraindicated in the following conditions **except**

- A) Cochlear aplasia
- B) Severe or profound hearing loss**
- C) Central deafness
- D) Middle ear infection

16 Auditory brainstem implantation is an effective means of hearing rehabilitation in patients with

- A) Tuberous sclerosis
- B) Neurofibromatosis type 1
- C) Neurofibromatosis type 2**
- D) Von Hippel Lindau syndrome

17 Anterior pituitary secretes the following hormones **except**

- A) Prolactin
- B) Growth hormone
- C) Adrenocorticotrophic hormone
- D) Vasopressin**

18 The normal serum level of growth hormone is up to

- A) 0.5ng/ml
- B) 5ng/ml**
- C) 10ng/ml
- D) 15ng/ml

19 Cortisol is secreted from the

- A) Anterior Pituitary gland
- B) Posterior pituitary gland
- C) Adrenal medulla
- D) Adrenal cortex**

20 The following are the dynamic tests used in hypercortisolaemia **except**

- A) Oral glucose tolerance test**
- B) Low-dose dexamethasone test
- C) High-dose dexamethasone test
- D) CRH stimulation test

21 The Hounsfield numbers of various tissues in the body are as follows **except**

- A) CSF 0-10
- B) Fat -100
- C) Brain +100**
- D) Bone +800

22 The following are the advantages of computed tomography **except**

- A) Availability and cost effectiveness
- B) Rapid imaging modality with excellent image resolution
- C) Can be performed in patients in whom magnetic resonance imaging is contraindicated
- D) No risk of radiation injury**

23 The following statement are true **except**

- A) Astrocytomas are the most common primary intra –axial neoplasms of adults
- B) Meningiomas are the most common extra-axial neoplasms of adults
- C) Metastases are the most common supra and infratentorial neoplasms in adults
- D) Medulloblastomas are the most common posterior fossa neoplasms in adults**

24 Regarding meningitis, one of the following statement is **incorrect**

- A) It is acute inflammation of the meninges**
- B) It can occur secondary to hematogenous spread
- C) It can be direct spread from the adjacent focus of infection
- D) It can occur from penetrating injury to the brain

25 Tuberculous meningitis usually shows the following features on both CT and MRI scans **except**

- A) Enhancement of the basal cisterns
- B) Meningeal enhancement
- C) Hydrocephalus

D) Parenchymal infarction usually of the major vessels in the Circle of Willis

26 Tuberculomas in the brain can develop secondary to the following **except**

- A) Haematogenous spread
- B) Extension into the adjacent parenchyma
- C) Via cortical veins

D) Via major branches of the circle Willis

27 The following are the absolute criteria for the diagnosis of human neurocysticercosis **except**

A) Subcutaneous nodules

- B) Histological demonstration of parasite
- C) Direct visualization of parasite by fundoscopy
- D) Visualization of scolex on CT/MRI

28 The following statement are true regarding Creutzfeldt – Jakob disease, **except**

A) It is a non- fatal neuro – degenerative disorder

- B) It is diagnosed by the detection of an accumulation of an abnormal form of the human prion protein (PrPSc) in the brain
- C) Brain biopsy or autopsy is required for a definitive diagnosis
- D) Neuropathologic spongiform neuropil changes are characteristic

29 The total number of vertebrae in the human spinal column are

- A) 31
- B) 32
- C) 33**
- D) 34

30 Cerebral cortical development consists of these major processes **except**

- A) Cell Proliferation and apoptosis
- B) Neuronal migration
- C) Cortical organization

D) Myelination

31 Which of the following statement is **incorrect** regarding craniostenosis

- A) Scaphocephaly is due to premature fusion of sagittal suture
- B) Plagiocephaly is due to premature fusion of both coronal sutures**
- C) Trigonocephaly is due to premature fusion of the metopic suture
- D) Oxycephaly is due to premature fusion of both coronal and anterior sagittal sutures

32 Normal pressure hydrocephalus is a clinical syndrome characterized by the following symptoms **except**

- A) Altered mentation
- B) Gait difficulties
- C) Sphincter disturbances
- D) Headache**

33 The most common group affected by head injuries are in the following age range

- A) 0-10 years
- B) 10-20 years
- C) 20-40 years**
- D) 40-60 years

34 The burden of disease due to head injuries can be prevented by the following **except**

- A) Stop the accident from occurring
- B) Reduce the injuries on impact
- C) Public health measures
- D) Establishment of neurosurgical centers**

35 Commonest cause of traumatic brain injury

- A) Road traffic accidents**
- B) Falls
- C) Violence
- D) Sports and recreational activities

36 The pattern of intracerebral injury in infancy differs from that described in adults due to all **except**

- A) Increased elasticity and moldability of the infant's skull due to suture patency
- B) Softer consistency of the brain due to incomplete myelination
- C) Shallow cranial vault
- D) CSF quantity**

37 The following are medical methods for controlling increased intracranial pressure (ICP) **except**

- A) Position of the patient's head
- B) Osmotherapy and diuretics
- C) Hyperventilation
- D) ICP monitoring**

38 The following are surgical methods for controlling increased intracranial pressure (ICP) **except**

- A) ICP monitoring**
- B) CSF drainage
- C) Removal of mass lesions
- D) Decompressive craniectomy

39 For reducing the intracranial pressure, optimum head elevation is by

- A) 10 degrees
- B) 20 degrees
- C) 30 degrees**
- D) 40 degrees

40 Cerebral perfusion pressure is

- A) Systolic pressure - intracranial pressure
- B) Diastolic pressure - intracranial pressure
- C) Mean pressure - intracranial pressure**
- D) Pulse pressure - intracranial pressure

41 Battle's sign is associated with

- A) Fractures of the orbital roof
- B) Bleeding beneath the pericranium over the mastoid**
- C) Frontal sinus injury
- D) 2nd cervical vertebral fracture

42 Horner's syndrome is characterized by the following **except**

- A) Unilateral mydriasis**
- B) Facial anhidrosis
- C) Ptosis
- D) Loss of ciliospinal reflex

43 Bilaterally dilated and non-reactive pupils are indicators of the following **except**

- A) Bilateral glaucoma with blindness
- B) Drugs like atropine, datura and glutethimide poisoning
- C) Brain death
- D) Posterior communicating artery aneurysm**

44 Minimum volume of urine necessary for normal excretion of metabolic waste products

- A) 10 ml/hr
- B) 20 ml/hr**
- C) 30 ml/hr
- D) 40 ml/hr

45 One of the following statement is **incorrect**

- A) Normal extracellular sodium concentration is 135-155 mmol/l
- B) Normal intracellular sodium concentration is 4-10 mmol/l
- C) Hyponatraemia causes cerebral edema and seizures
- D) Hyponatraemia causes increased muscle tone and hyperreflexia**

46 One of the following statement is **incorrect**

- A) Osmolarity of the extracellular fluids is normally maintained in the range 265-280 mmol/l of water**
- B) In the syndrome of inappropriate ADH secretion, there is a continuous secretion of ADH, even in the presence of conditions such as hyponatraemia, hypo-osmolar serum and hypervolaemia
- C) Cerebral salt wasting syndrome is due to an inappropriate/unregulated release of atrial natriuretic peptide
- D) Diabetes insipidus (DI) is a common condition after craniofacial trauma, skull base fractures and hypothalamo-pituitary injuries

47 These are alloplastic material used for calvarial reconstruction **except**

- A) Hydroxyapatite cement
- B) Titanium
- C) Bone paste**
- D) Acrylic

48 Acute subdural hematoma results from the following **except**

- A) Cerebral contusions
- B) Rupture of middle meningeal artery**
- C) Rupture of bridging veins
- D) Rupture of small cortical arteries

49 One of the statement is **incorrect** regarding extradural hematoma

- A) Presentation is acute in the majority
- B) Temporoparietal region is most commonly involved
- C) A Lucid interval is pathognomonic**
- D) It is rare in children below 2 years of age and after 60 years

50 In most of the patients with extradural hematoma (EDH) management can be conservative in the following conditions, **except**

- A) Small EDH
- B) Subacute or chronic EDH
- C) Minimal neurological signs and symptoms
- D) Posterior fossa EDH**

51 X-ray of the cervical spine is indicated for patients with trauma unless they meet all of the following criteria **except**

- A) No posterior midline cervical spine tenderness
- B) No focal neurological deficits
- C) No painful distracting injuries
- D) Evidence of intoxication**

52 Central nervous system contains about

- A) 100 million neurons
- B) One billion neurons
- C) 10 billion neurons
- D) 100 billion neurons**

53 The following statement are correct about Carpal Tunnel Syndrome (CTS) **except**

- A) Commonest kind of entrapment syndrome
- B) CTS is due to the compression of ulnar nerve in the carpal tunnel**
- C) First description was by Paget J in a patient with distal radius fracture
- D) First surgery for CTS was done at the Mayo Clinic in 1933

54 Predisposing factors for post-craniotomy infection include the following **except**

- A) Emergency level of surgery
- B) Long duration of surgery (>200min)
- C) Duration of stay in ICU (>72 hrs)
- D) Penetration of the dural venous sinuses**

55 To diagnose tuberculous meningitis , the following CSF criteria are useful **except**

- A) Pleocytosis with more than 20 cells/mm³
- B) Lymphocytes more than 60%
- C) Protein more than 100mg%
- D) Sugar more than 60%of the corresponding blood sugar**

56 The following criteria are useful in deciding surgical therapy for Pott's paraplegia **except**

- A) Neurological signs not improving or worsening one week of drug therapy**
- B) Development of neurological signs with progression while on drug therapy
- C) Recurrence of neurological signs after improvement
- D) When the diagnosis is in doubt

57 Cysticercosis is a parasitic disease caused by

A) Larval stage of Taenia solium

B) Adult stage of Taenia solium

C) Larval stage of Taenia saginata

D) Adult stage of Taenia saginata

58 Surgery is required for neurocysticercosis in the following conditions **except**

A) The diagnosis is uncertain

B) Cysts presenting with tumor like mass effect

C) Cysts presenting with epilepsy

D) Cysts presenting with hydrocephalus

59 Hydatid disease is caused by

A) Taenia ulticeps

B) Taenia echinococcus

C) Taenia Solium

D) Taenia saginata

60 Biopsy is recommended in the following setting in AIDS cases with intracranial lesions

A) Lesions are typical for toxoplasmosis

B) Negative toxoplasmosis titres

C) Patients who fail to respond to empirical treatment for toxoplasmosis

D) Presence of extra neural neoplasm or infectious disease process involving the CNS

(Question is deleted)

61 One of the following statement about subarachnoid hemorrhage (SAH) is **incorrect**

A) SAH is a neurological emergency

B) SAH is not very common in the general population

C) Most common cause of SAH is rupture of cerebral aneurysms

D) Missed diagnosis of SAH is very common

62 Triple - H therapy in the management of cerebral vasospasm consists of the following **except**

A) Induced hypertension

B) Hypervolaemia

C) Haemodilution

D) Hyperventilation

63 The following are crystalloid agents for volume expansion **except**

A) Normal saline

B) Ringer's lactate

C) Dextrose

D) Dextran

64 Developmental malformation affecting the blood vessels supplying the brain are divided into the following categories **except**

A) Venous malformation

B) Arteriovenous malformation

C) Cavernous malformation

D) Saccular aneurysms

65 The following statements are correct about the cavernous sinus **except**

- A) It is plexus of veins encased in a double layer of dura
- B) It is located on either side of the body of the sphenoid sinus
- C) The internal carotid artery along with its surrounding sympathetic plexus courses through the sinus
- D) The III, IV, V and VI cranial nerves run through the lateral wall of the sinus**

66 Conus syndrome is characterized by the following **except**

- A) Retention of urine with overflow
- B) Faecal incontinence
- C) Impotence
- D) Extensor plantar reflex**

67 First successful surgical removal of an intradural spinal tumor is credited to

- A) Victor Horsley**
- B) William Krauss
- C) Charles Elseberg
- D) Harvey Cushing

68 The total number of intervertebral discs in human spine are

- A) 21
- B) 22
- C) 23**
- D) 24

69 The following are the non operative management methods of degenerative disc disease **except**

- A) Bed rest
- B) Physiotherapy
- C) Epidural steroid injections
- D) Chemonucleolysis**

70 Osteoporosis is characterized by the following **except**

- A) High bone mass**
- B) Microarchitectural deterioration of bone tissue
- C) Enhanced bone fragility
- D) Increase in fracture risk

71 Subependymal giant cell astrocytoma is characterized by the following **except**

- A) Rapidly growing tumor**
- B) Typically arises from the walls of the lateral ventricle
- C) Most common CNS tumor in patients with tuberous sclerosis
- D) Manifests mostly in children and young adults

72 Regarding Glioblastoma multiforme (GBM), the following statements are correct **except**

- A) GBM is the most common and most malignant glioma
- B) Peak incidence is between 45-75 years
- C) Most common presentation is drug resistant epilepsy**
- D) Microvascular proliferation and necrosis are the histological hallmarks

73 The following are primary CNS germ cell tumors **except**

- A) Germinoma
- B) Teratoma
- C) Melanoma**
- D) Choriocarcinoma

74 The following statements are correct regarding meningiomas **except**

- A) Slow growing benign tumors
- B) Arise from the arachnoid cap cells
- C) Peak incidence is between 50-60 years
- D) Twice as common in men as in women**

75 In normal human adults the intracranial volumes includes the following **except**

- A) Intracellular (1100-1300 ml)
- B) Interstitial (1000-1500 ml)**
- C) CSF (75-100 ml)
- D) Blood (75-100 ml)

76 The following statement regarding schwannomas are correct **except**

- A) It is nerve sheath tumor
- B) Multiple tumors are associated with neurofibromatosis
- C) Sensory nerves are preferentially involved
- D) Malignant transformation is common**

77 The following statements are correct regarding Lhermitte-Duclos disease **except**

- A) It is a benign cerebellar tumor composed of dysplastic ganglion cells
- B) The exact nature is not clear
- C) It has a strong association with Cowden disease
- D) Majority of the patients are children**

78 The following statements regarding desmoplastic infantile ganglioglioma (DIG) is **incorrect**

- A) DIG is a large cystic tumor occurring in infants
- B) DIG involves brain stem and basal ganglia**
- C) DIG corresponds to WHO grade 1
- D) They can be mistaken for mesenchymal tumors and are high grade glioma

79 Intracranial space occupying lesions cause clinical symptoms by the following **except**

- A) Lowering the intracranial pressure**
- B) Interfering with the function of the area involved by the lesion
- C) Disturbing the function of the neighboring structures due to edema and vascular disturbances
- D) Displacement and distortion of remote structures due to various herniations

80 Headache in raised intracranial pressure results from the following **except**

- A) Stretching of the dural coverings
- B) Shifting of the dural partitions
- C) Stretching and kinking of the major blood vessels
- D) Vasoconstriction**

81 Headache caused by the raised intracranial pressure has the following features **except**

- A) Headache is throbbing character
- B) Headache gets aggravated by stooping, straining or exertion
- C) Common in the early hours of the morning
- D) Coincides with the non REM sleep**

82 Vomiting caused by raised intracranial pressure has the following features **except**

- A) It is a frequent symptom
- B) It is caused by the vomiting center in the medulla
- C) Vomiting precedes headache**
- D) Vomiting is projectile

83 The following statements is **incorrect** regarding papilloedema

- A) It is caused by blockage of venous return from the retina
- B) Pituitary and parapituitary lesions present with papilloedema**
- C) Earliest change in the optic fundus secondary to raise in the intracranial pressure is loss of spontaneous venous pulsations
- D) Earliest indication of papilloedema is the enlarged of the blind spot

84 The following features are characteristic of an intrinsic brainstem neoplasm **except**

- A) Internuclear ophthalmoplegia
- B) Horner's syndrome
- C) Ipsilateral III cranial nerve paresis with contralateral hemiparesis
- D) Combination of VII and VIII cranial nerve involvement on one side**

85 Metastatic tumors are most common in the

- A) Cerebrum**
- B) Cerebellum
- C) Brainstem
- D) Spinal cord

86 Pituitary gland was so named due to

- A) Shape of the sella
- B) Shape of the gland
- C) Its function as the master gland
- D) Thought that it discharges thick nasal mucus**

87 One of the following measurements regarding pituitary gland is **incorrect**

- A) Transverse diameter is 12-15 mm
- B) Anteroposterior diameter is 8-10 mm
- C) Height is 5-7 mm
- D) Weight is 5-7 gm**

88 Regarding blood supply of the pituitary gland, which statement is **incorrect**

- A) It has a dual blood supply
- B) Direct arterial supply is common to the anterior and posterior lobe
- C) Portal supply is exclusive to the posterior lobe**
- D) Inferior hypophyseal artery is the most important artery supplying the pituitary gland

89 Normal sellar volume is approximately

- A) 200 mm³
- B) 400 mm³
- C) 600 mm³**
- D) 800 mm³

90 Pituitary tumors by compressing the optic apparatus, may produce the following **except**

- A) Reduction of loss of visual acuity due to compression of fibers sub-serving central vision
- B) Various types of field defects
- C) Papilloedema**
- D) Positive visual phenomena in the form of hallucinations

91 The visual field defects that commonly occur due to pituitary tumors are the following **except**

- A) Bitemporal hemianopia
- B) Binasal hemianopia**
- C) Homonymous hemianopia
- D) Temporal field defect in one eye with loss of vision in the other eye

92 The following are the physiological replacement dosage **except**

- A) Hydrocortisone 20-25 mg
- B) Cortisone 20-30 mgs
- C) Prednisolone 7.5 mgs
- D) Dexamethasone 5-7.5 mgs**

93 Stereotactic biopsies are avoided for the following intracranial lesions **except**

- A) Extra-axial lesions
- B) Grey-white junction lesions
- C) Deep-seated lesions**
- D) Suspected vascular lesions

94 Half –life of Cobalt -60 is

- A) 5.26 days
- B) 5.26 weeks
- C) 5.26 months
- D) 5.26 years**

95 Standard limitations for administration of Gamma Knife radiosurgery are following **except**

- A) Tumor diameter less than 3 cm**
- B) Tumor volume greater than 19 cc
- C) Tumor proximity to optic pathways
- D) Tumor proximity to brainstem

96 The following structures are part of limbic system **except**

- A) Amygdala
- B) Fornix
- C) Hippocampus
- D) Pineal gland**

97 Stem cells are characterized by the following **except**

- A) Cells able to reproduce themselves throughout the life span
- B) Cells able to give rise to differentiated cells
- C) Cells have the ability to divide for definite periods in culture**
- D) Cells can give rise to specialized cells

98 The following are surgically remediable lesional epilepsy syndromes **except**

- A) Mesial temporal sclerosis
- B) Focal cortical dysplasia
- C) Rasmussen's encephalitis
- D) Lennonx-Gastaut syndrome

(Question is deleted)

99 One of the following statement regarding cerebral physiology is **incorrect**

- A) CNS receives about 15% of the resting cardiac output
- B) CNS consumes about 20% of oxygen required by the body at rest
- C) CNS consumes one quarter of the total glucose consumed by the body
- D) Lack of substrate storage in the brain and a high metabolic rate makes the brain relatively immune to the effects of ischemia**

100 The following maneuvers may be instituted to treat brain swelling in neurosurgery **except**

- A) Head elevation
- B) Administer intravenous mannitol
- C) Ensure adequate venous drainage from the brain
- D) Administer N₂O**

Note: This is the final key. No further queries or objections from the candidates will be entertained under any circumstances.