

**SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES & TECHNOLOGY,  
TRIVANDRUM**

**ENTRANCE EXAMINATION: NOVEMBER, 2016**

**PROGRAMME: MCh NEUROSURGERY (AFTER MS)**

**Duration: 90 Minutes**

**Total Marks: 100**

(Select the most appropriate answer; Each question carries one mark)

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1. A five year old child has a focal cystic brain stem glioma and on neurological examination is noted to have a right "one-and-half syndrome".  
The lesion is presumed to have involved,

- a. Right Medial longitudinal fasciculus and left parapontine reticular formation
- b. Right Medial longitudinal fasciculus and posterior commissure
- c. Right Medial longitudinal fasciculus and right parapontine reticular formation
- d. Left Medial longitudinal fasciculus and right parapontine reticular formation

2. Which of the following is not a centre for mediation of vertical gaze?

- a. Posterior commissure
- b. Rostral interstitial nucleus of Cajal
- c. Nucleus of Darkschewitsch
- d. Parapontine reticular formation

3. A 30 year old man has insidious onset upgaze paresis, convergence retraction nystagmus, light near dissociation and retracted eyelids. The most likely lesion diagnosis is

- a. Pineocytoma
- b. Pontine glioma
- c. Pulvinartuberculoma
- d. 4<sup>th</sup> ventricular ependymoma

4. The band of Giacomini is located in

- a. Temporal lobe
- b. Occipital lobe
- c. Insula
- d. Orbitofrontal cortex

5. A far lateral disc prolapse at L4-5 is most likely to cause the following deficit,

- a. Toe dorsiflexion weakness
- b. Plantar flexion weakness
- c. Foot inversion weakness
- d. Foot eversion weakness

6. An artery of Percheron territory infarct would result in

- a. Bilateral pontine infarcts
- b. Bilateral thalamic and mesencephalic infarcts
- c. Unilateral thalamic and diffuse brain stem infarcts
- d. Hypothalamic and medullary infarcts

7. A palliative surgical option for primary generalised epilepsy would be

- a. Selective amygdalohippocampectomy
- b. Multilobar resection
- c. Posterior quadrant disconnection
- d. Vagus nerve stimulation

8. Which of the following tumour entities has been deleted from the WHO 2016 classification of CNS tumors

- a. Astroblastoma
- b. Gliomatosis cerebri
- c. Pineoblastoma
- d. Meningeal melanocytosis

9. The parahippocampal gyrus continues by a small isthmus into the following

- a. Cingulate gyrus
- b. Lateral occipito temporal gyrus
- c. Dentate gyrus
- d. Parieto occipital gyrus

10. The Welcher's basal angle limit above which is diagnostic of platybasia is

- a. 120 degrees
- b. 140 degrees
- c. 160 degrees
- d. 100 degrees

11. The artery of Bernasconi and Cassanari is a branch of

- a. Internal carotid artery
- b. Thalamoperforators
- c. Basilar artery
- d. Medial posterior choroidal artery

12. Vein of Labbé connects

- a. Deep middle cerebral vein and transverse sinus
- b. Superficial sylvian vein and transverse sinus
- c. Superficial middle cerebral vein and superior petrosal sinus
- d. Superficial middle cerebral vein and sphenoparietal sinus

13. A neurosurgical resident wants to compare the mean operative time for three groups of 50 temporal lobectomy operations, each performed by a different surgical team. Assuming that the data are normally distributed, a suitable statistical test to compare the operative time mean of the 3 groups would be

- a. t-test
- b. Wilcoxon test
- c. ANOVA
- d. Mann-Whitney U test

14. Melanocytes in the nervous system are concentrated in

- a. Ventral medulla
- b. Amygdala
- c. Red nuclei
- d. Septum pellucidum

15. Pegvisomant is used for the treatment of

- a. Acromegaly
- b. Prolactinoma
- c. Cushing's disease
- d. Leptomeningeal gliomatosis

16. The areas devoid of a blood brain barrier include all except

- a. area postrema
- b. induseumgriseum
- c. neurohypophysis
- d. pineal gland

17. Which of the following is not a part of the limbic system

- a. Fimbria of fornix
- b. Thalamic fasciculus
- c. Diagonal band of Broca
- d. Mamillothalamic tract

18. The resting membrane potential of a neuron is

- a. -90 mV
- b. 65 mV
- c. -70 mV
- d. 50mV

19. Which of the following histological meningioma variants is associated with a more aggressive clinical behaviour?

- a. Angiomatous
- b. Chordoid
- c. Clear cell
- d. Papillary

20. The projection of the superior semicircular canal usually seen on the floor of the middle cranial fossa during a subtemporal approach for resection of vestibular schwannoma, is called

- a. Tegmen tympani
- b. Arcuate eminence
- c. Vestibular prominence
- d. Glasscock's triangle

21. The following is not a boundary of the Trautman's triangle

- a. Tympanic membrane
- b. Superior petrosal sinus
- c. Sigmoid sinus
- d. Semi circular canals

22. Surgical approaches to the upper third of the clivus include all except

- a. Extended trans-nasal transphenoidal
- b. Trans-basal
- c. Le-Fort I trans maxillary approach
- d. Far Lateral approach

23. Fisch approach for skull base lesions refers to

- a. Pre auricular trans temporal approach
- b. Retro auricular infra temporal approach
- c. Retro auricular post sigmoid transcondylar approach
- d. Combined pre and post sigmoid approach

24. True about Dexmedetomidine, commonly used for awake craniotomy is
- a. Alpha 2 adrenergic receptor agonist
  - b. Sedative without the risk of respiratory depression
  - c. Both of the above
  - d. None of the above
25. Which of the following requires the highest dose of radiation in gamma knife stereotactic radiosurgery for control/cure?
- a. Trigeminal neuralgia
  - b. Metastases
  - c. Meningioma
  - d. Vestibular Schwannoma
26. The intracranial tumor most likely to be encountered in a middle-aged man with the acquired immunodeficiency syndrome (AIDS) is
- a. Glioblastoma multiforme.
  - b. Ependymoma.
  - c. Lymphoma.
  - d. Oligodendroglioma.
27. A 45 year old male suddenly cannot read or write. His speech is normal, although he misuses words, and he understands and executes simple motor commands. Later testing reveals that he cannot add and subtract, and he cannot identify which fingers are which. The localization of the lesion is
- a) splenium of the corpus callosum
  - b) angular gyrus
  - c) cuneus gyrus
  - d) arcuate fasciculus

28. Which of the following statement is true?

- a. Cranial osteomyelitis most frequently arises from the spread of bacteria through the bloodstream from an infection elsewhere in the body.
- b. Subdural empyema is ordinarily treated by administration of antibiotics without the need for surgical drainage.
- c. Bacterial meningitis rarely leads to the development of hydrocephalus.
- d. A bacterial brain abscess commonly presents as a mass lesion of the brain, without systemic signs of infection such as fever or leukocytosis.

29. Cancer of the Prostate Risk Assessment (CAPRA) score for predicting prognosis is calculated on the basis of the following except,

- a. PSA level
- b. Gleason score
- c. Percentage of biopsy cores positive for cancer
- d. Tumor histology

30. A 32-year-old woman developed neck and left arm pain. She noted paresthesias in the left index and long fingers. She was found to have weakness of the left triceps muscle and a diminished left triceps jerk. The disc herniation is most likely to be at

- a. C3–C4.
- b. C4–C5.
- c. C5–C6.
- d. C6–C7.

31. Which of the following statement is true regarding nerve injuries?

- a. The Hoffmann-Tinel sign localizes the level of a nerve injury.
- b. Secondary repair of a lacerated nerve 3 to 8 weeks after injury has several advantages.
- c. At delayed exploration a clinically nonfunctioning nerve if is in continuity with distal end, one should resect the injured portion of the nerve and suture together the ends.
- d. Electromyography studies are warranted within one week of injury

32. Which of the following lesions is not one of the cutaneous stigmata of occult spinal dysraphism?

- a. Midline lumbar capillary hemangioma.
- b. Focal hairy patch over the thoracolumbar spine.
- c. Dermal sinus located above the midsacrum.
- d. Café-au-lait spot over the thoracolumbar spine.

33. Cordotomy results in which of the following?

- a. Contralateral loss of pain sensation.
- b. Vagal instability.
- c. Ipsilateral loss of temperature appreciation.
- d. Contralateral loss of two-point discrimination.

34. All of the following are true about neurogenic shock except:

- a. There is a decrease in systemic vascular resistance and an increase in venous capacitance.
- b. Tachycardia or bradycardia may be observed, along with hypotension.
- c. The use of an alpha agonist such as phenylephrine is the mainstay of treatment.
- d. Severe head injury, spinal cord injury, and high spinal anesthesia may all cause neurogenic shock.

35. Which of the following statements about head injury and concomitant hyponatremia are true?

- a. There are no primary alterations in cardiovascular signs.
- b. Signs of increased intracranial pressure may be masked by the hyponatremia.
- c. Oliguric renal failure is an unlikely complication.
- d. Rapid correction of the hyponatremia may prevent central pontine injury.

36. Which of the following statement is true concerning the neuroendocrine responses to shock?

- a. Sympathetic nerve endings release epinephrine which is responsible for systemic vascular resistance
- b. Endogenous glutamate is the primary contributor to systemic vascular resistance
- c. Reduced pancreatic secretion of glucagon contributes to glucose intolerance associated with injury and sepsis
- d. The renin-angiotensin axis further augments the sympathetic-mediated vasoconstriction

37. An aneurysm that has been detected at the junction of the anterior cerebral artery and the anterior communicating artery on the right side has caused a visual field defect. What might visual field testing reveal?

- a. Macular sparing
- b. Right nasal hemianopsia
- c. Left homonymous hemianopsia with macular sparing
- d. Bitemporal superior quadrantanopsia

38. The probable embryonic origin of craniopharyngioma is from a remnant of

- a. endoderm cells
- b. ectoderm cells
- c. neural crest cells
- d. neural tube cells

39. A 56 year old female has loss of touch sensations in the face. The patient can feel pain and temperature sensations, and there is no jaw weakness. The neural structure most likely affected is the

- a. spinal nucleus of V
- b. trigeminal ganglion
- c. principal nucleus of V
- d. mesencephalic nucleus of V

40. Which of the following cells are found in the white matter of the spinal cord?
- Schwann cells
  - Ependymal cells
  - Oligodendrocytes
  - Pyramidal cells
41. After repair of an aortic aneurysm, a patient develops neurological signs, which was attributed to temporary occlusion of the feeder arteries to the anterior spinal artery. Which of the following neurologic signs would be least likely to be present in the patient?
- Bilateral loss of pain and temperature below the site of the occlusion
  - Bilateral motor weakness below the site of the occlusion
  - Bilateral loss of vibratory sense below the site of the occlusion
  - Bilateral Babinski signs
42. In a section through the T10 segment of the spinal cord, which of the following will not be present?
- Preganglionic sympathetic neurons
  - Fasciculus gracilis
  - Fasciculus cuneatus
  - Dorsal spinocerebellar tract
43. A 47 year old diabetic patient develops infection in a dural sinus lateral to the body of the sphenoid bone in the floor of the middle cranial fossa. Which neurological deficit is expected in such a situation initially on the affected side?
- Ptosis
  - Dilated pupil
  - Medial strabismus
  - Altered sensation in skin of the forehead
44. In a primigravida, ultrasound imaging reveals that fetus has spina bifida cystica with meningocele. What is the associated finding?
- Raised alpha-fetoprotein in amniotic fluid
  - Oligohydramnios
  - Club foot
  - Pulmonary hypoplasia

45. Which of the following structures is derived from basal plate of the neural tube?

- a. Lateral geniculate body
- b. Substantianigra
- c. Dorsal columns
- d. Superior colliculus

46. The dorsal scapular nerve arises from

- a) C4
- b) C5
- c) C6
- d) C7

47. Pupil sparing oculomotor palsy is seen in

- a) Anterior clinoidal meningioma
- b) Posterior communicating artery aneurysm
- c) Diabetic neuropathy
- d) Uncal herniation

48. Taste sensations from the anterior two-thirds of the tongue are carried to the geniculate ganglion by the

- a) Greater superficial petrosal nerve
- b) Chorda tympani
- c) Vagus nerve
- d) Gingivo-buccal nerve

49. Bill's bar separates the

- a) Facial nerve and sup vestibular nerve
- b) Sup vestibular nerve and inf vestibular nerve
- c) Inferior vestibular nerve and the cochlear nerve
- d) Cochlear nerve and the superior vestibular nerve

50. The TNM staging for a bladder carcinoma with invasion of the prostatic stroma, external iliac node involvement and no metastases is

a. T3N1M0

b. T4N2M0

c. T3N1M1

d. T4N1M0

51. Cricothyroid muscle acts a ..... of the vocal cord

a) Abductor

b) Tensor

c) Adductor

d) Lengthner

52. Posterior pituitary is supplied by

a) Superior hypophyseal artery

b) Inferior hypophyseal artery

c) Both superior and inferior hypophyseal artery

d) Perforators from middle cerebral artery

53. The most common cause of XI<sup>th</sup> cranial nerve injury in the neck is

a) Tubercular adenopathy

b) Metastatic cervical adenopathy

c) Iatrogenic

d) Vertebral artery aneurysm

54. The hypothalamus inhibits the secretion of prolactin by secreting..

a) Dopamine

b) Serotonin

c) Noradrenaline

d) GABA

55. Astereognosis occurs due to the involvement of

- a) Ipsilateral parietal lobe
- b) Contralateral parietal lobe
- c) Ipsilateral temporal lobe
- d) Contralateral frontal lobe

56. A 13-year-old boy is brought to the casualty after a road traffic accident. He is conscious and oriented. His pulse rate is 110/min and his BP is 80/60 mm Hg. which is the earliest investigation you will do?

- a. CT brain
- b. Focussed abdominal sonogram for trauma (FAST)
- c. X Ray chest
- d. CT abdomen

57. 54-year-old male patient is brought to the emergency with multiple long bone injuries and suspected blunt trauma abdomen. His ABG shows pH of 7.24, PCO<sub>2</sub> of 39.4, PO<sub>2</sub> of 95, HCO<sub>3</sub> of 18, and anion gap of 10. He is in:

- a) Respiratory acidosis
- b) Respiratory alkalosis
- c) Metabolic acidosis
- d) Metabolic alkalosis

58. The usual appearance of an acute extradural hematoma on a CT scan is

- a. hyperdense, concavo-convex lesion
- b. hyperdense, biconvex lesion
- c. hypodense, biconvex lesion
- d. isodense, concavo-convex lesion

59. Not true about surgical repair of inguinal hernias is

- a. Lichtenstein's repair is an open mesh tension free repair
- b. TEP is a laparoscopic repair preferred for bilateral and recurrent hernias
- c. Shouldice's repair uses an absorbable mesh
- d. Herniotomy as a stand alone procedure is rarely done for adult direct inguinal hernias

60. The superior oblique is supplied by...
- oculomotor nerve
  - trochlear nerve
  - Trigeminal nerve
  - abducens nerve
61. Myelin in the central nervous system is formed by.
- Schwann cells
  - Oligodendroglia
  - Microglia
  - Ependymal cells
62. Brodman's area 4 corresponds to the
- Speech area
  - Sensory area
  - Motor area
  - Auditory area
63. Gerstman's syndrome consists of all the following except:
- Acalculia
  - Left-Right confusion
  - Dressing apraxia
  - Finger anomia
64. Posterior fontanelle closes at:
- 3months
  - 9months
  - 12months
  - 18months
65. The components of the Glasgow Coma Score include all of the following EXCEPT.
- Motor activity
  - Speech
  - Pupillary size
  - Eye opening

66. Choroid plexus accounts for..% of CSF production?

- a. 20%
- b. 40%
- c. 60%
- d. 80%

67. CSF is normally produced at the rate of...

- a. 0.3ml/hour ~~min~~
- b. 0.8ml/hour
- c. 1.2ml/hour
- d. 2.4ml/hour

68. Acetazolamide is a diuretic, which acts upon...

- a. Na-K ATPase
- b. Na-K-Cl channels
- c. Carbonic anhydrase
- d. Aquaporin channels

69. A subtle sign of corticospinal weakness is

- a. Hemiparesis
- b. Waddling gait
- c. Foot drop
- d. pronator drift

70. A middle aged man presents with a history of abnormal increase in the size of his hands and feet. He has also noticed a hoarseness of voice and coarseness of facial features. He is likely to be suffering from..

- a. Cushing's disease
- b. Acromegaly
- c. Gigantism
- d. Hypothyroidism

71. Involvement of the cerebellar vermis by an isolated lesion causes

- a. truncal ataxia
- b. limb ataxia
- c. dysmetria
- d. hypotonia

72. The median nerve supplies all the muscles except
- Flexor digitorum longus
  - Triceps
  - Lumbricals
  - Palmaris longus
73. A 25 year old male with blunt abdominal trauma and hemodynamic instability due to a motor cycle accident is subjected to a diagnostic peritoneal lavage(DPL). A positive DPL is indicated by
- RBCs over 1,00,000 per microliter
  - RBCs over 10,000 per microliter
  - WBC over 100 per microliter
  - Amylase above 5 IU/L
74. Posterolateral herniation of L4-L5 disc causes radiculopathy of ..
- L3
  - L4
  - L5
  - S1
75. A mural nodule is seen with which neoplasm?
- Pilocytic astrocytoma
  - Myxopapillaryependymoma
  - Medulloblastoma
  - Pleomorphic xanthoastrocytoma
76. All the following are manifestations of pituitary apoplexy except:
- ophthalmoplegia
  - Vision loss
  - Cushings syndrome
  - panhypopituitarism

77. In a "hernia englissade" the most common contents are
- Urinary bladder
  - Caecum
  - Ileum
  - Sigmoid colon
78. Upward gaze palsy and nystagmus retractorius are seen with tumours of the
- Cerebellum
  - Pineal region
  - Suprasellar region
  - Brainstem
79. Papilloedema is associated with all the following findings EXCEPT.
- Loss of venous pulsations
  - Chalky white optic disk
  - Deep optic cup
  - Loss of nerve fiber layer
80. All the following are true about Neurofibromatosis-2 except
- Bilateral vestibular schwannoma
  - Mutation in chromosome 17q12
  - Associated with posterior subcapsular cataract
  - Associated with multiple intracranial meningiomas
81. The most common cause of subarachnoid hemorrhage is
- Trauma
  - Aneurysm bleed
  - AVM bleed
  - Tumour bleed
82. The most common site for an intracranial aneurysm is
- Ant communicating artery
  - Post communicating artery
  - Middle cerebral artery
  - Basilar artery

83. All the following are differential diagnosis for a ring enhancing lesion in the brain except

- a. Glioblastoma
- b. Metastasis
- c. Tuberculoma
- d. Pilomyxoidastroctoma

84. The radiation source of a Gamma Knife is

- a. Cobalt
- b. Radium
- c. Thorium
- d. Iodine 131

85. In a patient with complete hemisection of the right side of the spinal cord at the level of the T10 segment, the deficit which is likely will be

- a) Loss of pain and temperature sensation in lower limb on the left side
- b) altered touch sensations in the right lower limb
- c) hyperactive stretch reflexes in the lower limb on the left side .
- d) absent stretch reflexes in the right lower limb

86. A 60 year old patient is able to look straight ahead with both eyes, but when he looks to the left, the right eye cannot be adducted, and the left eye exhibits a horizontal nystagmus. Convergence is intact. The lesion is most likely in the

- a. medial longitudinal fasciculus
- b. oculomotor nerve
- c. paramedian pontine reticular formation
- d. trochlear nerve

87. A pituitary tumor that secretes excessive amounts of growth hormone is likely to cause decreased:

- a) plasma concentration of insulin-like growth factor I (IGF-I)
- b) uptake of amino acids by muscle
- c) plasma concentration of free fatty acids
- d) tolerance to a glucose load

88. Which of the following procedures is not suitable for NOTES (Natural Orifice Transluminal Endoscopic Surgery)?

- a. Gastrostomy
- b. Cholecystectomy
- c. Thyroidectomy
- d. Hysterectomy

89. Lung volume reduction surgery(LVRS) offers hope to improve the quality of life in patients with,

- a. Emphysema
- b. Empyema
- c. Malignant effusion
- d. Large diaphragmatic hernia

90. During the placement of a ventriculoperitoneal shunt, a surgeon accidentally injures the transverse colon causing a 2 cm perforation. The best management option would be,

- a. Laparotomy and colostomy with delayed colostomy closure
- b. Primary closure of colonic tear.
- c. Continue the shunt placement and broad spectrum antibiotics post operatively
- d. Exploratory laparotomy and peritoneal lavage

91. The following is not true about TRALI(Transfusion Associated Acute Lung Injury),

- a.Mortality is less than 1% and usually responds to aggressive supplemental oxygen
- b.CVP and pulmonary artery wedge pressure are usually normal
- c.IV immunoglobulins and cryoprecipitate also cause TRALI
- d.Donor derived anti-HLA or anti-HNA antibodies are implicated

92. The minimum critical intra abdominal pressure limit above which intra abdominal hypertension or abdominal compartment syndrome is diagnosed in adults is,

- a.5 mm Hg
- b.12 mm Hg
- c.25 mm Hg
- d.35 mm Hg

93. In limb compartment syndrome,the critical pressure limit above which fasciotomy is urgently indicated is,

- a.12mm Hg
- b.20 mm Hg difference between intra compartmental pressure and systolic pressure
- c.<30 mm Hg difference between intra compartmental pressure and diastolic pressure
- d.15 mm Hg

94. The most common initial manifestation in MEN 2 syndromes is

- a. Medullary thyroid carcinoma (MTC)
- b. Pheochromocytoma
- c. Pancreatic neoplasms
- d. Primary hyperparathyroidism

95. The following statement is not true about Kasai's porto- enterostomy for congenital biliary atresia

- a. Ascending cholangitis is a usual post operative complication
- b. The best surgical outcome is for children above 1 year of age.
- c. Liver transplant is sometimes needed after this procedure
- d. Intra hepatic multiple biliary cysts may appear after a successful Kasai's operation.

96. The following statement is not true about cryptorchidism

- a. The incidence is around 30% in premature male babies
- b. The incidence of malignancy is higher in undescended testis
- c. It does not influence fertility
- d. A retractile testis may be misdiagnosed as cryptorchidism

97. Pneumoperitoneum during laparoscopic surgery does not involve

- a. Carbon dioxide insufflation at the rate of 4- 6 lit/min
- b. Maintenance by insufflation at the rate of 1500 ml/min
- c. Ventilation-perfusion (VQ) mismatch
- d. Increase in venous return and cardiac output

98. The ligament that connects the duodenum, jejunum and the duodenojejunal flexure to the connective tissue around the coeliac and superior mesenteric artery is called

- a. The ligament of Treitz
- b. The ligament of Bigelow
- c. The ligament of Cooper
- d. The ligament of Berry

99. The organ of Zuckerkandl is located at the aortic bifurcation or

- a. Origin of inferior mesenteric artery
- b. Origin of internal iliac artery
- c. Origin of superior mesenteric artery
- d. Upper third of abdominal aorta

100. Modified radical neck dissection usually involves preservation of all structures except

- a. Submental and submandibular nodes
- b. Internal jugular vein
- c. Sternocleidomastoid
- d. Spinal accessory nerve

**THREE**

1	C	27	B	53	C	79	C
2	D	28	D	54	A	80	C
3	A	29	D	55	B	81	A
4	A	30	D	56	B	82	A
5	C	31	B	57	C	83	D
6	B	32	D	58	B	84	A
7	D	33	A	59	C	85	B
8	B	34	C	60	B	86	A
9	A	35	A	61	B	87	B
10	B	36	D	62	C	88	C
11	A	37	D	63	C	89	A
12	B	38	B	64	A	90	B
13	C	39	C	65	C	91	A
14	A	40	C	66	D	92	B
15	A	41	C	67	A	93	C
16	B	42	C	68	C	94	A
17	B	43	C	69	D	95	B
18	C	44	A	70	B	96	C
19	D	45	B	71	A	97	B
20	B	46	B	72	B	98	A
21	A	47	C	73	A	99	A
22	D	48	B	74	C	100	A
23	B	49	A	75	A		
24	C	50	D	76	C		
25	A	51	B	77	D		
26	C	52	B	78	B		

