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SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES & TECHNOLOGY  
THIRUVANANTHAPURAM—695 011

ENTRANCE EXAMINATION - ACADEMIC SESSION JANUARY 2020

DM – NEUROIMAGING & INTERVENTIONAL NEURORADIOLOGY

Time:90 Minutes

Max.Marks: 100

(Select the most appropriate answer)

(There are no negative marks for wrong answers)

1. Which of the following is likely to get clinical worsening with IV steroid treatment
  - a. Spinal dural arterio venous fistula
  - b. Primary CNS angitis
  - c. Primary CNS lymphoma
  - d. ADEM with cord involvement
  
2. The posterior column of the spinal cord can be affected in
  - a. B12 deficiency
  - b. Post bariatric surgery
  - c. HIV infection
  - d. All of the above
  
3. 'PHACES' Syndrome has all except
  - a. Posterior fossa anomalies
  - b. Hamartomas
  - c. Arterial abnormalities
  - d. Sternal defect
  
4. Posterior limb of internal capsule is supplied by
  - a. Anterior Choroidal artery
  - b. Hubner's recurrent artery
  - c. Anterior cerebral artery
  - d. None of the above
  
5. A 40 year female presented with a cystic lesion with enhancing nodule in the posterior fossa. Routine blood investigation showed elevated Hb and hematocrit. What is the most likely diagnosis
  - a. Pilocytic Astrocytoma
  - b. Pleomorphic xantho astrocytoma
  - c. Hemangioblastoma
  - d. Rosette forming Glioneuronal tumor

6. Right side mediastinal shadow is not usually formed by
- SVC
  - RA
  - RV
  - None of the above
7. Initial imaging investigation of choice for suspected renal artery stenosis induced hypertension is
- Color doppler imaging
  - DMSA scan
  - Captopril scintigraphy
  - MR Angiography
8. Osteoid osteoma of a long bone is best treated by
- Resection and bone grafting
  - RF ablation
  - Percutaneous alcohol ablation
  - Arterial embolization.
9. 'PHASES' scoring assesses
- AVM bleed risk
  - Stroke risk in elderly
  - Aneurysm rupture risk
  - None of the above
10. Intracranial hypertension can produce
- Optic nerve buckling
  - Posterior scleral flattening
  - Empty sella
  - All of the above
11. Cranial dural AVF is classified with
- Cognard classification
  - Boydens classification
  - Both of the above
  - No classification system is available
12. 'SPOT' Sign indicates
- MCA branch occlusion
  - PCA branch occlusion
  - Probability of hematoma expansion
  - ICA bifurcation occlusion

13. 'Wish bone' appearance of globuspallidus on SWI is seen in
- Chronic GM1 Gangliosidosis
  - Chronic GM2 Gangliosidosis
  - Multiple System Atrophy
  - Progressive Supranuclear Palsy
14. A 45 year old man presented with a left frontal mass in 2016 and was diagnosed to be a low grade glioma on MRI. He was followed up and in 2019, presented with raised ICP features and advanced MRI showed transformation to a high grade neoplasm. What is the most likely diagnosis
- IDH wild Glioblastoma
  - IDH mutant Glioblastoma
  - Anaplastic Ependymoma
  - H3 K27 histone mutant diffuse glioma
15. Motor cortex mineralization is noted on SWI in
- Motor Neuron Disease
  - Multiple sclerosis
  - Old age
  - All of the above
16. Neurofibromatosis Type 1 can present with
- Bilateral Acoustic Schwannoma
  - Moyamoya syndrome
  - Multiple meningiomas
  - All of the above
17. Abdominal aortic aneurysms extend to Common Iliac arteries in approximately
- 25% cases
  - 50% cases
  - 75% cases
  - 100% cases
18. 'Weber' Syndrome is characterized by
- Contralateral 3<sup>rd</sup> nerve palsy
  - Ipsilateral 3<sup>rd</sup> nerve palsy
  - Ipsilateral 4<sup>th</sup> nerve palsy
  - Contralateral 4<sup>th</sup> nerve palsy

19. Which of the following produces bilateral amygdala and hippocampus T1 hyperintensity
- Neuromyelitisoptica
  - Neurofibromatosis
  - Neurocutaneous melanosis
  - Mesial Temporal sclerosis
20. Commonest cause of SAH is
- Trauma
  - Aneurysm bleed
  - AVM bleed
  - Vasculitis
21. In cardiac CT, retrospective gating, would be particularly useful in patients with
- Large body habitus
  - Anomalous coronary origin
  - Irregular heart rate
  - Slow heart rate
22. A beam hardening artifact has which effect on CT appearance of soft tissue
- No Change
  - Darker with better contrast
  - Brighter with same contrast
  - Darker with poorer contrast
23. The main advantage of iterative reconstruction compared to filtered back projection in CT is
- Better depiction of bone detail
  - Better handling of noisy images
  - Does not require specification of reconstruction kernel or filter
  - Faster reconstruction
24. Acute severe headache can be produced by
- Aneurysm bleed
  - Cerebral Venous thrombosis
  - Migraine
  - All of the above
25. CT 'DOT' Sign is seen in
- MCA branch occlusion
  - Basilar top occlusion
  - Hematoma Expansion
  - Vertebral artery dissection

26. Which of the following is NOT associated with hypertense signal in T1 weighted imaging
- a.melanin
  - b.lipoma
  - c. high protein content
  - d. water
27. Which of the following is not the indication of a micturating cystourethrogram in children
- a. Thick walled bladder in ultrasound
  - b. Antenatally detected hydronephrosis
  - c. Any haematuria in children
  - d. All boys under 4 years with UTI
28. Which of the following is not the cause of increased echogenicity of the neonatal kidneys
- a. Tuberous sclerosis
  - b. Cytomegalovirus infection
  - c. Multilocular cystic nephroma
  - d. Acute tubular necrosis
29. McLeod's syndrome is characterized by
- a. None of the following
  - b. Pulmonary infarction associated with abscess
  - c. Congenital absence of pericardium
  - d. Idiopathic pulmonary hypertension
30. For a Cantrell's pentalogy, which is true
- a. All the five components are intracardiac
  - b. 3 are intracardiac and 2 are intracranial
  - c. rotation defects of the gut
  - d. fusion defects of the anterior abdominal/chest wall with associated anomalies
31. Achondroplasia does not have
- a. Anterior scalloping of vertebral body
  - b. Hydrocephalus
  - c. Frontal bossing
  - d. Normal cardiothoracic ratio
32. MRI features of carpal tunnel syndrome are all except
- a. Neurinoma of median nerve
  - b. Increased signal intensity of nerve on T2WI
  - c. Mass within the carpal tunnel
  - d. Volar bowing of flexor retinaculum

33. Extrapulmonary bronchopulmonary sequestration is
- Drain to the pulmonary veins
  - Symptomatic only in adulthood
  - Comprises of 75% of all bronchopulmonary sequestration
  - None of the following
34. True about metastasis to lung is
- 5 % of all SPN are metastatic
  - incidence is 60 % in choriocarcinoma
  - mostly haematogenous
  - all are true
35. Kummell disease is
- Delayed, post traumatic collapse vertebral body
  - Non-traumatic bone infarction
  - Traumatic dislocation of the patella
  - Osteonecrosis of the patella
36. Which is true regarding traumatic diaphragmatic rupture (TDI)
- Most commonly occur after surgery
  - About 50% of TDI is diagnosed acutely
  - Left hemidiaphragm is more commonly ruptured than right
  - Usually isolated without any other injury in the body
37. Which of the following is not a CT sign of closed loop intestinal obstruction?
- String sign of Kantor
  - Twisted mesentery
  - Tapering of the loop
  - Thickening of the mesenteric vessels
38. In the ultrasonic diagnosis of endocrine exophthalmus, the earliest sign often is
- Enlargement of the lateral rectus muscle
  - Edema of the optic nerve
  - Enlargement of the superior rectus muscle
  - Enlargement of the inferior rectus muscle
39. Which of the following statements best describes the ultrasonic diagnosis of incompetent cervix?
- This diagnosis is best made in the first trimester
  - This is rarely diagnosed prior to the twenty-fourth week of gestation
  - Enlargement of cervical musculature is a common secondary finding
  - The characteristic finding is amniotic fluid in the cervical canal.

40. Regarding pulmonary embolism in the presence of obstructive pulmonary disease, which of the following is correct?

- a. Pulmonary embolus is rare in patients with obstructive pulmonary disease.
- b. Matched ventilation and perfusion defects indicate a high probability of pulmonary embolus.
- c. In patients with obstructive pulmonary disease, ventilation-perfusion imaging is rarely of value in diagnosing pulmonary embolus.
- d. Two or more areas of ventilation-perfusion mismatch indicate a high probability of pulmonary embolus.

41. Which of the following is not the cause of generalized increased bone density

- a. Melorheostosis
- b. Caffey's disease
- c. Paget's disease
- d. Osteopetrosis

42. The Law, Stenvers, and Owen radiographic projections are used to demonstrate

- a. Facial structures
- b. Lateral ventricles in pneumoencephalography
- c. The temporal bone
- d. The atlanto-occipital articulation

43. Congenital cholesteatomas arise from which source?

- a. Metaplasia of epidermoid cells in the middle ear.
- b. Collagen tissue of the meninges.
- c. Most often from the lining membrane within the mastoid.
- d. Epidermoid rests in the temporal bone or adjacent epidural and meningeal spaces.

44. White cerebellum" sign is seen in:

- a. Diffuse cerebral edema
- b. Extensive subdural hematoma
- c. Premature brain
- d. Largely unmyelinated brain

45. Which type of intracranial syndrome hemorrhage seen in Battered baby syndrome

- a. Subdural hemorrhage
- b. Extradural
- c. Subarachnoid
- d. Intraventricular

46. "String of beads" appearance of carotid angiogram is classic for
- Fibromuscular dysplasia
  - Connective tissue disorder
  - Spontaneous arterial dissection
  - All of the above
47. Severe chest pain with hematemesis and dysphagia, in association with mediastinal emphysema, is characteristic of
- Ruptured esophageal varices
  - Mallory-Weiss syndrome
  - Boerhaave syndrome
  - Intramural esophageal rupture
48. Pelvic lipomatosis is LEAST characterized by which of the following?
- Greater frequency in men than women
  - Ureteral obstruction
  - Generalized morbid obesity
  - Low attenuation values on computerized tomography of the pelvis
49. Marked hyperacidity, acute peptic ulceration and non-beta islet cell pancreatic tumors are the hallmark of
- Menetrier's disease
  - Eosinophilic gastroenteritis
  - Aberrant pancreas in the stomach
  - Zollinger-Ellison syndrome
50. Which of the following is NOT a good estimate of basilar impression?
- Chamberlain's line
  - Bull's angle
  - Bimastoid line
  - Basal angle
51. Artery of Bernasconi and Cassinari commonly arises from
- Middle cerebral artery
  - Basilar artery
  - Internal cerebral artery
  - Anterior cerebral artery
52. Which of the following is the commonest persistent carotico- vertebral anastomoses
- Pro-atlantal
  - Trigeminal
  - hypoglossal
  - Foetal PCA



53. Barrow classification system is used for
- Cranial dural AV fistula
  - Spinal vascular malformations
  - Brain arterio venous malformations
  - Carotid cavernous fistula
54. Commonest spinal vascular malformation
- Spinal Dural AVF
  - Spinal cord glomus AVM
  - Spinal cord juvenile AVM
  - Perimedullary AVF
55. Mask images in angiogram is
- Subtracted image
  - They are post contrast images
  - Used to post process DSA images
  - Used in volume rendering
56. Which of the following is not a principal post processing technique?
- Maximum intensity projection
  - Surface shaded display
  - Multiplanar reconstruction
  - Angioscopy
57. All of the following are mechanical thrombectomy devices in acute ischemic stroke except
- Solitaire
  - Abciximab
  - MERCI
  - Penumbra
58. Location of the spinal dural AV fistula
- Anterior spinal dura
  - Posterior spinal dura
  - Dural root sleeve
  - All the above
59. Most dreaded complication of femoral arterial puncture
- Femoral sheath hematoma
  - Pseudo aneurysm
  - AV fistula
  - Retro peritoneal haemorrhage

60. True statement regarding sylvian triangle is all except
- Drawn on lateral view of ICA
  - Middle cerebral artery trunk forms the superior border
  - Anterior border is formed by ascending frontal complexes
  - Used to locate perisylvian mass lesions.
61. Aggressive dural AVF is commonly seen at
- Tentorial
  - Sigmoid sinus
  - Transverse sinus
  - Superior sagittal sinus
62. Characteristic "Medusa head" appearance is seen in
- Dural AV fistula
  - Developmental venous anomaly
  - Brain arterio venous malformations
  - Vein of Galen malformations
63. Which of the following is not a liquid embolic agent
- N- butyl cyano acrylate
  - Onyx
  - Squid
  - PVA
64. Percutaneous injection of thrombin is a treatment for
- Arteriovenous malformations of brain
  - Berry aneurysms
  - Peripheral arterial pseudo aneurysms
  - Pancreatic pseudo cyst
65. Which catheter is used for complex visceral artery catheterization?
- Right coronary catheter
  - Yashiro catheter
  - Pigtail catheter
  - Multipurpose catheter
66. Which trial is related to the carotid stenosis
- NASCET
  - NINDS
  - ECASS
  - ISAT

67. Artery of Percheron commonly arises from

- a. P1 segment of PCA
- b. Basilar artery
- c. Basilar artery bifurcation
- d. P2 segment of PCA

68. False statement regarding the intra cranial artery dissection

- a. Commonly produce arterial dilatation
- b. Commonest site is basilar artery
- c. Common presentation is SAH
- d. High re-bleed rate

69. The pathognomonic sign of arterial dissection is

- a. String sign
- b. Tapering occlusion (flame shape)
- c. Pseudoaneurysm
- d. Double lumen

70. Self expanding stents are made up of

- a. Poly tetra flouroEthelene (PTFE)
- b. Nitinol
- c. Carbon fiber
- d. Platinum

71. Melting brain syndrome is seen in all except

- a. Vein of Galen malformation
- b. Pial AV fistula
- c. Dural sinus malformation
- d. Developmental venous anomaly

72. One French is equal to

- a. 0.1mm
- b. 0.2mms
- c. 0.3mms
- d. 0.4 mms

73. Which of the following is false regarding Perimesencephalic nonaneurysmal SAH

- a. SAH confined to perimesencephalic, prepontine cistern
- b. Most likely cause is ruptured perimesencephalic vein
- c. Associated with high incidence of vasospasm.
- d. Angiography is negative in 95% of cases

74. Which is not a component Spetzler-Martin scale

- a. Size
- b. deep drainage
- c. feeding artery number
- d. Eloquence

75. Which of the following is not used for endovascular treatment of intracranial aneurysm

- a. Platinum coil
- b. PVA
- c. Flow diverter
- d. Parent vessel occlusion

76. What is not true about spinal cord herniation?

- a. The herniation occurs through the dural defect in the lateral aspect
- b. Cord is displaced anteriorly
- c. Scalloping of the anterior vertebral body can be present
- d. Patients may present with Brown-Sequard syndrome

77. Which of the following deficiency can cause subacute combined degeneration of spinal cord

- a. Iron deficiency
- b. Copper deficiency
- c. Zinc deficiency
- d. Manganese deficiency

78. The ways to improve lateral resolution of ultrasound are all except

- a. Enlarging transducer surface
- b. Dynamic electronic focussing
- c. Multiple ultrasound beams
- d. Using shorter wavelength beams

79. Carbon dioxide as contrast agent could be used for which angiogram?

- a. Renal angiogram
- b. Aortic arch angiogram
- c. Cerebral angiogram
- d. Spinal angiogram

80. What is the osmolality of Iohexol 240?

- a. 500
- b. 413
- c. 616
- d. 690

81. Posterior ethmoidal artery is a branch of

- a. Ophthalmic artery
- b. Internal maxillary artery
- c. Middle meningeal artery
- d. Posterosuperior alveolar artery

82. Which of the following statement is not true about metachromatic leukodystrophy?

- a. It is an autosomal dominant disorder
- b. Symmetric periventricular white matter hyperintensity is typical MR finding
- c. Central and peripheral nervous systems are affected
- d. Urine sulfatide excretion is high

83. Recurrent artery of Heubner is a branch of

- a. Anterior cerebral artery
- b. Middle cerebral artery
- c. Anterior choroidal artery
- d. Posterior communicating artery

84. Which tumor is amenable for intrarterial chemotherapy

- a. Glioblastoma Multiforme
- b. Cerebral lymphoma
- c. Retinoblastoma
- d. Medulloblastoma

85. Fat suppression in MRI is achieved using all the following techniques except:

- a. Spectral saturation
- b. Dixon method
- c. Inversion pulse application
- d. Parallel imaging

86. The dose of epinephrine in anaphylaxis is

- a. 0.2 to 0.5 ml of 1 in 1000 dilution intramuscularly
- b. 0.2 to 0.5 ml of 1 in 10000 dilution intramuscularly
- c. 2 to 5 mg of 1 in 1000 dilution intravenously
- d. 2 to 5 mg of 1 in 10000 dilution intravenously

87. Sclerosants used for treatment of venous malformation include all except:

- a. Ethanol
- b. Polidocanol
- c. Bleomycin
- d. Ethylene vinyl alcohol

88. What is true about juvenile nasopharyngeal angiofibroma?

- a. Tumor originates in sphenopalatine foramen
- b. CT is ideal to depict the tumoral extensions
- c. Invasive angiography is not necessary prior to surgery
- d. Major vascular supply arises from internal carotid artery

89. Cavitation is commonly associated with which of the following pulmonary neoplasm?

- a. Adenocarcinoma
- b. Squamous cell carcinoma
- c. Large cell carcinoma
- d. Bronchioloalveolar cell carcinoma

90. With respect to the double aortic arch, which of the statements is true

- a. Deep posterior indentation on the oesophagus on Barium oesophagogram
- b. Shallow indentation on the left on oesophagogram
- c. Tracheal narrowing
- d. All of the above

91. Wada's Test is carried out for the diagnostic support in which of the following conditions

- a. Testing the patency of sagittal sinus in parasagittal midline meningiomas
- b. Testing if the patient is malingering
- c. Language or speech testing in epilepsy
- d. Language or speech testing in parkinson's disease

92. Cause of scaphoid abdomen in neonates

- a. Diaphragmatic hernia
- b. Duodenal atresia
- c. Pyloric stenosis
- d. Esophageal atresia with tracheoesophageal fistula

93. Which is not a common causes of intestinal obstruction in first three months

- a. Small left colon syndrome
- b. Intussusception
- c. Duplication cyst
- d. Hirschprung's disease

94. Which is not a recognized cause of 11 pair of ribs on a CXR

- a. Turner's syndrome
- b. Down's syndrome
- c. Campomelic dysplasia
- d. Cleidocranial Dysplasia

95. The most common joint to be affected by osteoarthritis is

- a. Glenohumeral
- b. Tibiofemoral
- c. Patellofemoral
- d. Acetabulofemoral

96. Type A dissection of the aorta may be a feature of all except

- a. Marfan's syndrome
- b. Ehler-Danlos syndrome
- c. Cystic medial necrosis
- d. Tuberous sclerosis

97. K-space manipulation in MRI denotes

- a. Manipulation of image contrast
- b. Gradient manipulation
- c. Manipulation of the RF pulse
- d. Manipulation of Fourier image transforms

98. Oxyhemoglobin in MRI is represented by

- a. Hypointense in T1 and T2
- b. Hyperintense in T1 and T2
- c. Isointense in T1 and hyperintense in T2
- d. Hyperintense in T1 and hypointense in T2

99. Who is the pioneer in percutaneous transluminal angioplasty

- a. Evan Seldinger
- b. Charles Dotter
- c. Marvin Judkins
- d. Andrias Gruntzig

100. Pseudoarthrosis is not seen in

- a. Fibrous dysplasia
- b. Cleidocranial dysplasia
- c. Neurofibromatosis
- d. Down's syndrome

