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

ENTRANCE EXAMINATION - ACADEMIC SESSION JANUARY 2018

PROGRAMME: DM Cardiology (Medicine)

Time:90 Minutes

Max. Marks: 100

(Select the most appropriate answer)
(There are no negative marks for wrong answers)

1. Vestibular schwannomas are characterized by all the following, except
 - A. Internal auditory meatus is the commonest location
 - B. Peripheral vertigo precedes deafness typically
 - C. Head impulse test shows a deficient response
 - D. Loss of ipsilateral corneal reflex is an early feature
2. Causes of euvolemic hyponatremia include all, except
 - A. Severe primary hypothyroidism
 - B. Primary adrenal insufficiency
 - C. Syndrome of inappropriate antidiuresis (SIAD)
 - D. Stress
3. Which of the following is not a feature of Balint's syndrome
 - A. Hemispatial neglect
 - B. Optic ataxia
 - C. Simultanagnosia
 - D. Oculomotor apraxia
4. Clinical exacerbation during pregnancy is known to occur with all the following, except
 - A. Crohn's disease
 - B. Ulcerative colitis
 - C. Meningioma
 - D. Multiple sclerosis
5. Selective loss of neurons that produce the orexin neuropeptides (hypocretins) are implicated in the pathogenesis of
 - A. Dementia with Lewy bodies
 - B. Cortical basal degeneration
 - C. Narcolepsy
 - D. Frontotemporal dementia

6. A 68-year old lady with a body weight of 60 kg was found to have a creatinine of 2.55mg%. Her creatinine clearance (ml/min).estimated by Cockcroft-Gault formula is
- 20
 - 23.5
 - 27.2
 - 30
7. In which of the following conditions, palpable purpura with irregular outline is characteristically seen?
- Waldenstrom's hypergammaglobulinemia
 - Leukocytoclastic vasculitis
 - Meningococemia
 - Ecthyma gangrenosum
8. Which of the following can aid the prenatal diagnosis of genetic diseases as early as 9-12 weeks of gestation?
- Chorionic villus sampling
 - Percutaneous umbilical cord blood sampling
 - Quad screen test of the maternal blood
 - Amniocentesis
9. The Nobel prize in physiology or Medicine in 2016 was awarded to discoveries related to
- Mechanisms of autophagy
 - Novel therapies against malaria and round worm infection
 - Cells that constitute a positioning system in the brain
 - Machinery regulating vesicle traffic in human cells
10. Which of the following statements about thyrotoxic periodic paralysis is incorrect?
- Weakness of limb girdles and profound hypokalemia are usually present
 - Hypokalemia results from the redistribution of K^+ ions secondary to inhibition of passive efflux of potassium from cells
 - Hypokalemia is almost always accompanied by hypophosphatemia and hypomagnesemia
 - High-dose propranolol rapidly reverses hypokalemia and muscle paralysis
11. Which of the following is not a contraindication to giving intravenous tPA in acute stroke between 3 to 4.5 hours from known witnessed onset of symptoms?
- Age greater than 80 years
 - Being on anticoagulation irrespective of INR
 - Carotid stenosis of greater than 70% by NASCET criteria
 - Prior history of both stroke and diabetes

12. Cardiac causes that elevate the MELD (model for end-stage liver disease) above 22 for listing in transplant are
- A. Hepatopulmonary syndrome with PaO₂ < 60mm Hg
 - B. Portopulmonary hypertension with mean pulmonary arterial pressure >40mm Hg
 - C. Familial transthyretin-type amyloidosis
 - D. All of the above
13. The only CETP inhibitor that has been shown to be beneficial in clinical trial is
- A. Torcetrapib
 - B. Dalcetrapib
 - C. Evacetrapib
 - D. Anacetrapib
14. Selexipag is a
- A. Stimulator of soluble guanylate cyclase
 - B. Prostacyclin receptor agonist
 - C. Inhibitor of endothelin synthesis
 - D. Inhaled prostacyclin
15. True statement regarding Heparin induced thrombocytopenia is
- A. It does not occur in the first 4 days of administration of heparin
 - B. It usually manifests with severe thrombocytopenia and vascular thrombosis
 - C. ELISA to detect antiheparin-PF4 complex antibodies has high negative predictive value
 - D. in patients with thromboembolism, anticoagulation should be initiated with a combination of non-heparin parenteral anticoagulant and oral vitamin K antagonist (VKA) and continued with VKA for up to 6 months
16. Which among the following is not a gram positive bacillus?
- A. Tropheryma whipplei
 - B. Clostridium difficile
 - C. Corynebacterium jeikeium
 - D. Acinetobacter baumannii
17. Which among the following is not a major criteria for diagnosing acute rheumatic fever in high-risk population, as per revised Jones criteria?
- A. Monoarthritis
 - B. Polyarthralgia
 - C. Erythema marginatum
 - D. Prolonged PR interval

18. Which of the following LDL treatment goals is recommended by the current cholesterol guidelines
- A. <100mg/dL for high risk groups
 - B. LDL reduction by 50% with high-intensity statin use
 - C. No specific goal for treatment
 - D. <70mg/dL for very high-risk groups
19. What of the following gene mutations is the most common cause of early-onset familial Alzheimer's disease?
- A. PSEN-1
 - B. Apoε4
 - C. Trisomy 21
 - D. Arctic Mutation E22G
20. Carotenoid present in green leafy vegetable associated with reduction in blood pressure and atherosclerotic cardiovascular risk is
- A. Beta-carotene
 - B. Liposcein
 - C. Lutein
 - D. Linamarin
21. Clinical features of lower motor neuron lesion include all the following, except?
- A. Fasciculation
 - B. Clonus
 - C. Individual muscle paralysis
 - D. Hypotonia
22. S (sinister) enantiomers compared to R (rectus) enantiomers improve clinical efficacy for following drugs, except
- A. Amlodipine
 - B. Metoprolol
 - C. Ofloxacin
 - D. Salbutamol
23. Which among the following medications is least likely to result in improvement in radiological features in patients with rheumatoid arthritis?
- A. Sulfasalazine
 - B. Hydroxychloroquine
 - C. Abatacept
 - D. Methotrexate

24. Placental alkaline phosphatase is used as tumor marker in
- A. Choriocarcinoma
 - B. Teratoma
 - C. Seminoma
 - D. Lymphoma
25. The antibacterial agent Fosfomycin acts by
- A. generating disinfectants like formalin
 - B. inhibiting bacterial protein synthesis at the ribosomal level
 - C. inhibiting bacterial cell wall synthesis
 - D. inhibiting bacterial cell membrane synthesis....
26. Piperine, an extract from black pepper, acts as a bioenhancer for rifampicin by
- A. Inhibiting the first pass metabolism of drug
 - B. Preventing the renal excretion
 - C. Preventing the gastrointestinal degradation of the drug
 - D. All of the above
27. Which of the following is not a cause of venous thromboembolism?
- A. Protein C/S deficiency
 - B. Antiphospholipid syndrome
 - C. Post-operative states
 - D. Progesterone therapy
28. Familial combined hypolipidemia is caused by
- A. LDL receptor deficiency
 - B. Lipoprotein lipase deficiency
 - C. Angiotensin-like 3 peptide deficiency
 - D. Angiotensin deficiency
29. Commonest cause for iatrogenic hospital admission is
- A. Oral anticoagulant induced bleeding
 - B. Antiplatelet drug induced bleeding
 - C. Drug induced bone marrow depression
 - D. Drug induced anaphylaxis
30. Which of the following used for anticoagulant reversal is not a protein?
- A. Protamine
 - B. Adexanet alpha
 - C. Idarucizumab
 - D. Platelet rich plasma

31. Serum lipase level in pancreatitis is normal in
- A. Pancreatitis due to gall stones
 - B. Pancreatitis due to hypertriglyceridemia
 - C. Pancreatitis due to viral infection
 - D. Pancreatitis due to drugs
32. Acyclovir in the treatment of Herpes Zoster acts by
- A. Inhibiting the viral membrane formation
 - B. Inhibiting viral DNA replication
 - C. Inhibiting viral protein synthesis
 - D. All of the above
33. Regarding diphtheria, correct statement is
- A. Falling levels of immunity in the adult population is a reason for sporadic cases in the immunization era
 - B. Immunization abolishes carrier state
 - C. Antibiotic prophylaxis is not indicated for asymptomatic case contacts who are not carriers (negative cultures)
 - D. Asymptomatic case contacts who are carriers should be administered antibiotic prophylaxis and antitoxin
34. Which of the following statements is incorrect regarding Hepatitis A virus infection?
- A. It is a DNA virus
 - B. The four genotypes are immunologically indistinguishable
 - C. During acute illness diagnosis is by demonstrating anti- HAV of the IgM class
 - D. The IgG anti-HAV present in immune globulin accounts for the protection it offers against HAV infection
35. Drug of choice for prevention of CMV infection in solid organ transplant recipient is
- A. Acyclovir
 - B. Foscarnet
 - C. Valganciclovir
 - D. Interferon
36. If a drug reduced mortality rates from 20% (control arm) to 15% (treatment arm), the Number Needed to Treat (NNT) by this drug to prevent mortality over the similar duration is
- A. 5
 - B. 7
 - C. 10
 - D. 20

37. Which among the following is not an organ-specific autoimmune disease?
- A. Myasthenia gravis
 - B. Acute rheumatic fever
 - C. Sjogren's syndrome
 - D. Goodpasture's syndrome
38. Regarding abciximab, correct statement is
- A. It is a specific inhibitor of Gp IIb / IIIa
 - B. Abciximab has a short plasma half life
 - C. The inhibition of platelet aggregation wears off immediately after completion of infusion
 - D. Its use is contraindicated in patients with renal failure
39. Cytosolic glycogen accumulation does not occur in
- A. Pompe disease
 - B. McArdle's disease
 - C. Phosphofructokinase deficiency
 - D. Phosphoglycerate kinase deficiency
40. All the following antimalarials act by forming heme complexes which are toxic to the parasite, except
- A. Primaquine
 - B. Chloroquine
 - C. Mefloquine
 - D. Quinidine
41. All of the following are true about calcium in correction of hyperkalemia, except
- A. Calcium raises the action potential threshold
 - B. Calcium reduces the excitability
 - C. Lowers resting membrane potential
 - D. Reverses depolarisation blockade
42. Which of the following is not a cause of hypokalemia?
- A. Metabolic alkalosis
 - B. Hyperthermia
 - C. Thyrotoxicosis
 - D. Starvation

43. All of the following are directly related to HHV 8 infection, except
- A. Kaposi's sarcoma
 - B. Lymphoma
 - C. Multiple myeloma
 - D. Low CD4 cell count
44. All of the following are used in the treatment of raised intracranial pressures, except
- A. Mannitol
 - B. Dopamine
 - C. Steroids
 - D. Hypoventilation
45. The drug that can cause hypothyroidism
- A. Lithium
 - B. Ibuprofen
 - C. Indomethacin
 - D. Ranitidine
46. The drug of choice in generalized epilepsy syndromes having mixed seizure types
- A. Phenytoin
 - B. Carbamazepine
 - C. Lamotrigine
 - D. Valproic acid
47. One of the following drugs causes unconjugated hyperbilirubimemia
- A. Rifampin
 - B. Erythromycin
 - C. Estrogens
 - D. Anabolic steroids
48. Regarding contrast induced nephropathy
- A. Serum Creatinine peaks in 24 hours
 - B. Resolves within 1 week
 - C. Multiple myeloma is a risk factor
 - D. Direct cytotoxic damage to the tubules is one of the proposed mechanisms
49. Which of the following statements is incorrect regarding Ig A Nephropathy?
- A. Presents with recurrent episodes of macroscopic hematuria following URTI
 - B. Nephrotic syndrome is common
 - C. Renal function is usually preserved
 - D. Mostly a benign disease with slow progression

50. Which of the following receptors are known to mediate Hering-Breuer reflex?

- A. Pulmonary stretch receptor
- B. Bronchial stretch receptor
- C. J receptor
- D. Chest wall proprioceptors

51. The most common cardiac anomaly associated with Coarctation of aorta is

- A. Bicuspid aortic valve
- B. Subaortic ventricular septal defect
- C. Atrial septal defect
- D. Supramitral ring

52. 22q11 deletion is commonly associated with all, except

- A. Tetralogy of Fallot
- B. Truncus arteriosus
- C. Interrupted aortic arch
- D. D-Transposition of great arteries

53. The most common coronary artery anomaly in Tetralogy of Fallot is

- A. Left anterior descending artery from right aortic sinus
- B. Single coronary artery from right aortic sinus
- C. Single coronary artery from left aortic sinus
- D. Left circumflex coronary artery from right aortic sinus

54. The most common indication of heart transplantation in the neonate is

- A. Hypoplastic left heart syndrome
- B. Hypoplastic right heart syndrome
- C. Severe Ebstein's anomaly
- D. Dilated cardiomyopathy

55. Which among the following is an anatomical scoring system

- A. STS Score.
- B. Euroscore II
- C. SYNTAX Score
- D. GRACE Score

56. Which among the following is a systolic event?

- A. E wave
- B. L wave
- C. A wave
- D. S' wave

57. Which among the following is not an admixture lesion?
- A. Transposition of great arteries
 - B. Truncus arteriosus
 - C. Total anomalous pulmonary venous connection
 - D. Pulmonary atresia with intact ventricular septum
58. Inclisiran, used in the treatment of dyslipidemia, is chemically a
- A. Synthetic RNA
 - B. Synthetic histone
 - C. Synthetic DNA
 - D. Synthetic mitochondria
59. All of the following are useful indicators regarding the severity of Tetralogy of Fallot, except
- A. Systemic arterial oxygen saturation
 - B. Intensity of outflow murmur
 - C. Functional class
 - D. Right ventricular outflow gradient by echocardiography
60. What is the Duke Treadmill score for a patient who exercised for 10 minutes (12 METs) and had a maximum of 1 mm ST depression at peak exercise without angina?
- A. 5
 - B. 7
 - C. 9
 - D. 10
61. Left axis deviation of the QRS complex is associated with all the following, except
- A. Inflow ventricular septal defect
 - B. Pulmonary atresia with intact interventricular septum
 - C. Double outlet right ventricle with subaortic ventricular septal defect
 - D. Noonan syndrome with pulmonary stenosis
62. What is the age-predicted maximum heart rate in a 60-year old man on beta blockers?
- A. 122
 - B. 133
 - C. 155
 - D. 166
63. All of the following are minor criteria in the latest Revised Jones criteria for rheumatic fever in moderate-high risk population, except
- A. Monoarthralgia
 - B. Fever with body temperature $\geq 38.5^{\circ}\text{C}$
 - C. ESR ≥ 30 mm/hour
 - D. Prolonged PR interval

64. Which of the following features favor a diagnosis of restrictive cardiomyopathy over constrictive pericarditis?
- Elevated pulmonary artery pressures
 - Normal BNP levels
 - Annulus reversus
 - Ventricular interdependence
65. All the following conditions are associated with high volume pulse, except
- Aorta to LV tunnel
 - Coronary cameral fistula
 - Neonatal Blalock Taussig shunt
 - Hemitruncus
66. Which of the following is false regarding right ventricle?
- It has fine and regular trabeculations
 - Septal attachment of AV valve is more apical
 - Moderator band is present
 - Trabecular septomarginalis is present
67. Which of the following is an example of ductus dependent systemic circulation?
- Severe Ebstein's anomaly
 - Pulmonary atresia
 - Tricuspid atresia
 - Interruption of aortic arch
68. All the following statements about spontaneous coronary artery dissection are true, except
- More common in young females
 - Proximal coronary involvement associated with immuno-inflammatory disease
 - Intra-coronary imaging shows 'accordion sign'
 - Physical stress precipitates it by causing intimal tear
69. Hemodynamic definition of 'Isolated post-capillary Pulmonary Hypertension' is
- Pulmonary artery wedge pressure > 15 mm Hg
 - Right ventricular systolic pressure > 36 mm Hg
 - Diastolic pressure gradient < 7 mm Hg
 - Pulmonary vascular resistance > 3 Wood units
70. Which of the following statements is true regarding alcohol septal ablation?
- Indicated when dynamic LV outflow gradient is more than 50 mm Hg at rest
 - Targeted septal thickness less than 16 mm is a contraindication
 - Usually preferred over surgical myomectomy
 - Reduces risk of sudden death

71. Blunt or shallow Y descent in jugular venous waveform is seen in all, except
- Tricuspid stenosis
 - Cardiac tamponade
 - Effusive-constrictive pericarditis
 - Ebstein's anomaly
72. Pro-BNP can be increased in all, except
- Coronary artery disease
 - Sepsis
 - Pulmonary hypertension
 - Obesity
73. Drug combinations recommended to be avoided include all, except
- Metronidazole and Warfarin
 - Furosemide and Gentamicin
 - Dihydropyridine calcium channel blockers and beta blockers
 - Omega-3 and Antiplatelets
74. Which among the following is a correct description for the condition 'mitral arcade'?
- Absent chordal insertions
 - Absent papillary muscles
 - Fused papillary muscles
 - Elongated papillary muscles
75. An asymptomatic 45-year old male with newly diagnosed atrial fibrillation and normal echo, refused cardioversion while suggested. The next optimal management strategy for him is
- Sedate and cardiovert against patient wishes
 - Aspirin
 - Anticoagulation
 - Rate control
76. A patient with no structural heart disease: a wide QRS tachycardia of RBBB morphology at a rate of 160 bpm, QRS axis of (-) 40 degrees and AV dissociation was recorded during palpitation. What is the likely diagnosis?
- RV outflow ventricular tachycardia
 - Posterior fascicular VT
 - Anterior fascicular VT
 - Antidromic AVRT

77. All are true about TAPSE (Tricuspid Annular Plane Systolic Excursion), except
- A. Normal TAPSE is >17 mm
 - B. Reliable measure of RV systolic function
 - C. Can be measured using either M-mode or 2D echo
 - D. TAPSE is measured at septal aspect of tricuspid annulus
78. Mechanisms of dyspnea in left heart disease include all, except
- A. PVH and decreased lung compliance
 - B. Respiratory muscle fatigue
 - C. Elevated LV End diastolic pressure leads to decreased antegrade coronary blood flow
 - D. Reverse 'Bernheim' effect
79. Functional causes of opening Snap (either due to swift opening of AV valve or due to excess flow across the valve) is seen in all, except
- A. Mitral regurgitation
 - B. Ventricular septal defect
 - C. Atrial septal defect
 - D. First degree AV block
80. Which is the incorrect statement regarding effect of dobutamine infusion in patients with heart failure
- A. Left ventricular end diastolic pressure decreases
 - B. Mean arterial pressure decreases slightly due to interplay of actions on alpha 1 and alpha 2 receptors
 - C. Left ventricular end systolic volume decreases
 - D. There is increased myocardial oxygen demand
81. Absent jugular venous pulsations are described in patients with
- A. Atrial paralysis
 - B. Budd Chiari syndrome
 - C. Endomyocardial fibrosis with giant right atrium
 - D. Fontan procedure
82. The tricuspid valve is in closed position corresponding to which of the following curves of central venous pressure:
- A. 'a' wave
 - B. x descent
 - C. x' descent
 - D. y descent

83. Isovolumic contraction phase of ventricular systole occurs during which of the following phases of central venous pressure, approximately
- A. From nadir of y descent to peak of a wave
 - B. From peak of a wave to trough of x wave
 - C. From trough of x wave to peak of c wave
 - D. From peak of c wave to trough of x' descent
84. Pulmonary venous hypertension is a feature of
- A. Large ostium secundum defect with left to right shunt
 - B. large ventricular septal defect with left to right shunt
 - C. large pulmonary arteriovenous malformation
 - D. Tricuspid atresia with restrictive atrial septal defect
85. Which among the following is not a feature of low flow - low gradient severe aortic stenosis with preserved left ventricular function?
- A. Mean trans aortic pressure gradient < 40 mm Hg
 - B. Aortic valve area < 1 cm²
 - C. Stroke volume > 35 ml/ m²
 - D. Left ventricular ejection fraction > 50%
86. Ejection systolic murmur in outflow in a neonate is least likely to be due to
- A. Subaortic membrane
 - B. Unicuspid aortic valve
 - C. Bicuspid aortic valve
 - D. Pulmonary stenosis
87. Systolic murmur in which among the following conditions does not increase in intensity in the cardiac cycle after a premature ventricular contraction?
- A. Valvular aortic stenosis
 - B. Hypertrophic obstructive cardiomyopathy
 - C. Valvular pulmonic stenosis
 - D. Mitral valve prolapse
88. All of the following reduces intensity of first heart sound (S1) except
- A. Mechanical ventilation
 - B. Calcific mitral stenosis
 - C. Short PR interval
 - D. LV dysfunction
89. Xanthomas within palmar creases are seen characteristically in
- A. Pseudoxanthoma elasticum
 - B. Type II hyperlipoproteinemia
 - C. Type III hyperlipoproteinemia
 - D. Hypothyroidism

90. All of the following are part of acute aortic syndrome, except
- A. Aortic dissection
 - B. Acute aortic regurgitation
 - C. Intramural hematoma
 - D. Penetrating atherosclerotic ulcer
91. Drug of choice for infective endocarditis due to HACEK organisms is
- A. Vancomycin
 - B. Gentamicin
 - C. Ampicillin
 - D. Ceftriaxone
92. What percentage (%) of patients with rheumatic mitral valve disease has the echocardiographic diagnosis of tricuspid stenosis as a co-existing lesion?
- A. 10
 - B. 20
 - C. 30
 - D. 40
93. In the electrocardiogram of a 40-year old male, the QRS amplitude in lead I and aVF measured (+) 10 and (-)10mV respectively. The frontal QRS axis is
- A. (+) 15°
 - B. (-) 45°
 - C. (-) 75°
 - D. (-) 90°
94. In which of the following valve lesions, Dimensionless Index (DI) is used as an echocardiographic parameter to assess the severity of the lesion?
- A. Aortic stenosis
 - B. Aortic regurgitation
 - C. Mitral regurgitation
 - D. Mitral stenosis
95. All the following are correct about left ventricular assist device implantation, except
- A. LA pressure is reduced more than RA pressure
 - B. A PFO/small ASD is created following LVAD implantation for decompressing LA
 - C. Right to left shunting at atrial level can produce systemic desaturation
 - D. RV failure is a bad prognostic marker

96. The formula to predict the maximum predicted heart rate for Treadmill exercise testing in CAD patients on beta blockers is $X - (0.7 \times \text{Age})$. The value of X is
- A. 174
 - B. 164
 - C. 184
 - D. 154
97. The clinical features of subaortic membrane stenosis can include all, except
- A. Ejection systolic murmur
 - B. Ejection click
 - C. End-diastolic murmur of aortic regurgitation
 - D. Low pulse volume
98. Which of the following is a vasodilator?
- A. Thromboxane A₂
 - B. Endothelin
 - C. Prostaglandin E₂
 - D. Urotensin II
99. All are true about genotype - phenotype correlation in Brugada syndrome, except
- A. SCN5A mutation is associated with short PR interval
 - B. LTCC mutation is associated with short QT interval
 - C. Yield of genetic testing is low (25%)
 - D. No major therapeutic implication of genetic testing
100. At birth, tunica intima of arterial wall contains all of the following, except
- A. Type IV collagen
 - B. Laminin
 - C. Endothelial cells
 - D. Smooth muscle cells