



श्री चित्रा तिरुनाल आयुर्विज्ञान और प्रौद्योगिकीसंस्थान, तिरुवनंतपुरम्-11  
**SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES & TECHNOLOGY**  
**THIRUVANANTHAPURAM—695 011**

**ENTRANCE EXAMINATION - ACADEMIC SESSION JUNE 2018**

**DM Cardiology (Medicine)**

Time:90 Minutes

Max. Marks: 100

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

1. Most common cause of lobar hemorrhage in elderly age group is
  - A. Hypertension
  - B. Vascular malformation
  - C. Coagulopathy
  - D. Amyloid angiopathy
2. Which among the following is not a direct thrombin inhibitor?
  - A. Dabigatran
  - B. Rivaroxaban
  - C. Argatroban
  - D. Bivalirudin
3. Bedaquiline acts by
  - A. ATP synthase inhibition
  - B. Cell wall inhibition
  - C. Inhibition of mycolic acid synthesis
  - D. By accumulation of methyl glyoxal
4. X gene of Hepatitis B virus is associated with
  - A. Surface antigen
  - B. Core antigen
  - C. Envelop antigen
  - D. Hepatocellular cancer
5. First line therapy for hairy cell leukemia is
  - A. Rituximab
  - B. Cladribine
  - C. Interferon - alpha
  - D. Splenectomy

6. Sunitinib is used in treatment of
- A. Hepatocellular cancer
  - B. Renal cell cancer
  - C. Pancreatic cancer
  - D. Colonic cancer
7. The intervention which is found to have benefit in reducing cigarette smoking related risk of coronary artery disease include all, except
- A. Nicotine gum
  - B. Low nicotine cigarettes
  - C. Varenicline
  - D. Bupropion
8. An adult male patient presenting with new onset edema was detected to have hyponatremia. He is not on any medications. Urine sodium concentration was 35mMol/L. Which among the choices given below could have such a presentation?
- A. SIADH
  - B. Cirrhosis
  - C. Nephrotic syndrome
  - D. Acute renal failure
9. Inclisiran is
- A. Lipoprotein
  - B. DNA
  - C. Monoclonal antibody
  - D. RNA
10. The commonest abnormal protein involved in secondary systemic amyloidosis is
- A. Light chains
  - B. Serum amyloid - associated protein
  - C. Transthyretin
  - D. Amylin
11. All of the following are true about syphilitic gumma, except
- A. Seen in groups usually
  - B. Can become several centimeters in size
  - C. Endarteritis seen
  - D. Treponema can be isolated from these lesions
12. Weil's syndrome includes all of the following, except
- A. Bleeding
  - B. Jaundice
  - C. Renal failure
  - D. ARDS

13. True about Dieulafoy's lesion

- A. Can cause subarachnoid haemorrhage
- B. Large erosions are common
- C. Lesions are common at greater curvature of stomach
- D. Thermal coagulation is an effective therapy

14. Best parameter to monitor thyroxine replacement in hypothyroidism is

- A. Free T4
- B. Free T3
- C. TSH
- D. Bound T4

15. Which of the following is not described in association with renal cell carcinoma

- A. Polycythemia
- B. Amyloidosis
- C. Cushing syndrome
- D. Malignant hypertension

16. Reperfusion is useful for

- A. Stunned myocardium
- B. Hibernating myocardium
- C. Non-ischemic viable myocardium
- D. Mixed ischemic myocardium

17. Which is the most common preceding infection in bone marrow failure syndromes?

- A. Parvo B19
- B. EBV
- C. HIV
- D. Sero-negative Hepatitis

18. Which among the following statements is incorrect?

- A. Light chains are synthesized in slight excess normally in plasma cells
- B. Qualitative assessment of M component can be done by electrophoresis
- C. M components are detected in chronic myeloid leukaemia
- D. In 20% myelomas, only light chains are produced

19. Most specific symptom of temporal arteritis is

- A. Visual loss
- B. Jaw claudication
- C. Temporal headache
- D. Polymyalgia rheumatica

20. The artery that is spared in polyarteritis nodosa
- A. Bronchial artery
  - B. Renal artery
  - C. Coronary artery
  - D. Pulmonary artery
21. Lipoatrophy can occur in patients treated with
- A. Abacavir
  - B. Tenofovir
  - C. Stavudine
  - D. Maraviroc
22. The predominant pathogen in Injection drug users who develop Infective endocarditis
- A. Staphylococcus aureus
  - B. Streptococcus viridans
  - C. Enterococcus
  - D. Candida species
23. All of the following are associated with aortic dissection, except
- A. Tetralogy of Fallot
  - B. Behcet's disease
  - C. Takayasu arteritis
  - D. Down's syndrome
24. Loop diuretics increase fractional excretion of sodium by?
- A. 5 - 10 %
  - B. 10 - 20 %
  - C. 20 - 25 %
  - D. 25 - 50 %
25. Pseudohypoaldosteronism is characterized by all, except
- A. Hyperkalemia
  - B. Metabolic alkalosis
  - C. Renal sodium wasting
  - D. Hypotension
26. Which of the following about parietal cells is incorrect?
- A. Located in oxyntic gland
  - B. Does not secrete intrinsic factor
  - C. Express receptors for histamine, gastrin and acetylcholine
  - D. Express receptors for ligands that inhibit acid production
27. Normal value for pulmonary vascular resistance is?
- A. 25 to 50 dynes/cm<sup>5</sup>
  - B. 50 to 150 dynes/cm<sup>5</sup>

- C. 150 to 250 dynes/cm<sup>5</sup>
- D. 250 to 500 dynes/cm<sup>5</sup>

28. Howell-Jolly bodies best relate to which of the following?

- A. Uraemia
- B. Nuclear remnants
- C. Foreign bodies in the circulation
- D. Hemolytic anemia

29. Haemolysis is most likely cause if reticulocyte production index is more than..?

- A. 2.5
- B. 3.5
- C. 4.5
- D. 5.5

30. Immediate cutaneous and systemic reactions can occur without prior exposure to the offending agent for all the following, except

- A. Aspirin
- B. Radiocontrast media
- C. Peanut allergy
- D. Vancomycin

31. Nipah virus, the RNA virus, responsible for the newly emerging zoonosis in India belong to

- A. Picornaviridae
- B. Paramyxoviridae
- C. Flaviviridae
- D. Togaviridae

32. Which among the following infections have an animal reservoir?

- A. Hepatitis A
- B. Hepatitis C
- C. Hepatitis E
- D. GB Virus C

33. Pacemaker of intestines is

- A. Leydig cells
- B. Neuroglial cells
- C. Intersitial cells of Cajal
- D. Smooth muscle cells in sphincter of Oddi

34. Albendazole acts by

- A. Inhibiting microtubule formation
- B. Increasing calcium permeability
- C. Inhibiting Na<sup>+</sup>-K<sup>+</sup> ATPase
- D. Activating Sodium channel

35. What is the probability of a normal sibling of an individual affected by a disease which has autosomal recessive transmission, being a carrier for the same disease?
- A. 25 %
  - B. 50 %
  - C. 66 %
  - D. 75 %
36. Sickle cell trait is associated with which of the following malignancies in young adults
- A. Papillary thyroid carcinoma
  - B. Non-squamous cell carcinoma of lung
  - C. Renal medullary carcinoma
  - D. Osteosarcoma
37. Transcription factors are
- A. Messenger RNA
  - B. Micro-RNA
  - C. Transfer -RNA
  - D. Proteins
38. A girl presented with severe hyperkalemia and peaked T waves on ECG. What is the most rapid way to decrease serum potassium level?
- A. Calcium gluconate IV
  - B. Oral resins
  - C. Insulin + glucose
  - D. Sodium bicarbonate
39. Thrombotic event is seen in all of following, except
- A. PNH
  - B. DIC
  - C. ITP
  - D. Heparin induced thrombocytopenia
40. Generalised painless lymphadenopathy is seen in
- A. Rocky mountain spotted fever
  - B. Scrub typhus
  - C. Epidemic typhus
  - D. Q fever
41. All of the following are associated with high urinary sodium, except
- A. Syndrome of inappropriate antidiuretic hormone secretion
  - B. Nephrogenic syndrome of inappropriate antidiuresis
  - C. Cerebral salt wasting
  - D. Pseudohyponatremia

42. All of the following are causes of metabolic alkalosis with normal blood pressure, except
- A. Gitelman syndrome
  - B. Bartter syndrome
  - C. Liddle syndrome
  - D. Autosomal dominant hypoparathyroidism
43. Candida skin test is used for assessment of
- A. T cell function
  - B. B cell function
  - C. Complement function
  - D. Phagocytic function
44. Which of the following is predominantly a granulomatous small vessel vasculitis?
- A. Churg-Strauss syndrome
  - B. Microscopic polyangitis
  - C. Henoch-Schönlein purpura
  - D. Kawasaki disease
45. Nephrogenic systemic fibrosis is associated with
- A. Iodinated contrast
  - B. Gadolinium based contrasts
  - C. Iridium-based contrast
  - D. Barium-based contrast
46. A 9-yr old girl has difficulty in combing hairs and climbing upstairs since 6 months. She has Gower's sign positive and maculopapular rash over metacarpophalangeal joints. What should be the next appropriate investigation to be done?
- A. ESR
  - B. RA factor
  - C. Creatine kinase
  - D. Electromyography
47. 14-yr old girl on exposure to cold has pallor of extremities followed by pain and cyanosis. In later ages of life, she is prone to develop
- A. SLE
  - B. Scleroderma
  - C. Rheumatoid arthritis
  - D. Histiocytosis
48. Reduced T2 relaxation time is characteristic feature of
- A. Amyloidosis.
  - B. Sarcoidosis.
  - C. Cardiac lymphoma.
  - D. Iron overload cardiomyopathy

49. Least seen in hypothyroidism
- A. Complete heart block
  - B. Carotenemia
  - C. Pretibial myxedema
  - D. Tamponade
50. Fabry's disease results from a deficiency of
- A. Alpha-galactosidase A
  - B. Beta-galactosidase
  - C. Sphingomyelinase
  - D. Neuraminidase
51. The risk of occurrence of conduction abnormalities due to procedure-related injury is likely to be the least in
- A. Balloon mitral valvotomy
  - B. Trans-catheter aortic valve implantation
  - C. RF ablation of mid-septal accessory pathway
  - D. Percutaneous alcohol septal ablation
52. How many METs has a patient exercised, if he completed stage 2 of Bruce protocol?
- A. 4.6 METs
  - B. 5.4 METs
  - C. 6.4 METs
  - D. 7.0 METs
53. The following statements regarding Tetralogy of Fallot are true, except
- A. Left axis deviation on ECG suggests associated AV canal defect
  - B. The RVOT gradient is proportional to the severity of the disease
  - C. JVP is usually not elevated in children with TOF
  - D. Good surgical outcome is primarily decided by the pulmonary anatomy
54. All of the following are long RP tachycardia, except
- A. Atrial tachycardia
  - B. PJRT
  - C. AVRT
  - D. Atypical AVNRT
55. Which of the following is not a feature of sub-aortic stenosis?
- A. Aortic regurgitation
  - B. Ejection click
  - C. Left ventricular hypertrophy
  - D. Coarctation of aorta as a coexisting defect

56. Which of the following is not a common feature of total anomalous pulmonary venous connection?
- A. Continuous murmur
  - B. Figure of 8 appearance on chest X-ray in infra-cardiac type
  - C. Right axis deviation on ECG
  - D. Similar oxygen saturation in all cardiac chambers
57. The lowest systemic oxygen saturation is seen in
- A. TGA with VSD and PS
  - B. Tetralogy of Fallot
  - C. Single Ventricle with PAH
  - D. TAPVC
58. All of the following are true about bidirectional VT, except
- A. Mutation of caldesmon-2
  - B. Seen with digoxin toxicity
  - C. Beta blockers are ineffective
  - D. Usually presents in childhood
59. 'Dip and Plateau' pressure wave form in ventricles is seen in all the following conditions, except
- A. Restrictive cardiomyopathy
  - B. Right ventricular ischemia
  - C. Congestive cardiac failure
  - D. Acute tricuspid regurgitation
60. Upright T wave in lead V1 in a neonate of 7 days of life
- A. Indicates RV Hypertrophy
  - B. Normal pattern of ECG at that age
  - C. May suggest corrected TGA
  - D. Can occur with left to right shunt lesions
61. A 25 year old male presents to OPD with a regular narrow QRS tachycardia at a rate of 180bpm with P waves following each QRS. During carotid sinus massage, tachycardia converts to LBBB morphology at a rate of 165bpm. The most likely diagnosis
- A. AVNRT with LBBB aberrancy
  - B. Orthodromic AVRT using a left-sided Bypass tract
  - C. Orthodromic AVRT using a right-sided bypass tract
  - D. Ventricular tachycardia with 1:1 VA conduction

62. A 15-year old girl presented with recurrent episodes of syncope that are preceded by prodromal symptoms of weakness and nausea. Physical examination, ECG, Holter monitoring and treadmill test were normal. Which is the next appropriate evaluation?
- A. Electrophysiologic study
  - B. Head up tilt test
  - C. Signal-averaged ECG
  - D. Implantable arrhythmia monitor
63. The following features are characteristics of ostium primum ASD with left to right shunt more than 2:1, except
- A. Right axis deviation and right bundle branch block
  - B. Fixed and wide split of S2
  - C. Tricuspid mid-diastolic murmur
  - D. Right ventricular S3
64. What is the tricuspid annular plane systolic excursion that correlates with normal right ventricular systolic function?
- A. >14 mm
  - B. >16 mm
  - C. >18 mm
  - D. >20 mm
65. A 20-year old male presented with recurrent episodes of exertional syncope. His baseline ECG was normal. Out of genetic arrhythmia syndromes, the most possible diagnosis in him is
- A. Catecholaminergic polymorphic VT
  - B. Brugada syndrome
  - C. Long QT syndrome
  - D. Short QT syndrome
66. All of the following are examples of admixture physiology, except
- A. Tricuspid atresia
  - B. Complete atrioventricular septal defect
  - C. Pulmonary atresia with ventricular septal defect
  - D. Hypoplastic left heart syndrome
67. Which among the following is not a part of right atrial anatomy?
- A. Crista supraventricularis
  - B. Eustachian valve
  - C. Torus aorticus
  - D. Tendon of Todaro

68. Lack of decline of right atrial waveforms during inspiration during catheterization is least likely to occur in which of the following conditions
- A. Cardiac tamponade
  - B. Right ventricular endomyocardial fibrosis
  - C. Right ventricular myocardial infarction
  - D. Severe mitral stenosis with severe pulmonary hypertension and tricuspid regurgitation
69. ECG manifestations of Brugada syndrome are provoked with?
- A. Ajmaline
  - B. Flecainide
  - C. Procainamide
  - D. All of the above
70. Which among the following findings during exercise stress testing has the least clinical significance?
- A. Progressive prolongation of QT interval
  - B. Development of broad QRS
  - C. Progressive shortening of PR interval
  - D. Development of T wave alternans
71. A 50-year-old male with atypical angina underwent treadmill exercise electrocardiography by Bruce Protocol. The test result read "negative for inducible ischemia". What is the minimum heart rate (in beats per minute) this patient should have attained during stress test for satisfying the diagnostic accuracy requirement for the test?
- A. 136
  - B. 145
  - C. 153
  - D. 170
72. Therapy with Phosphodiesterase-5 inhibitors is currently not recommended or could be potentially harmful in all the following conditions, except
- A. Pulmonary hypertension associated with systemic sclerosis
  - B. Pulmonary hypertension associated with mitral stenosis
  - C. Pulmonary veno-occlusive disease
  - D. Pulmonary hypertension associated with hypertrophic cardiomyopathy
73. A 9-month-old asymptomatic, healthy-looking baby presents for cardiac evaluation. Which among the following clinical findings would indicate a small, restrictive ventricular septal defect?
- A. Soft, early peaking early systolic murmur in the upper left sternal border

- B. Wide, mobile split second heart sound
  - C. Harsh and loud early systolic murmur in the lower left sternal border, which disappears in second half of systole followed by normally split second heart sound
  - D. Short mid diastolic murmur in mitral area
74. A 60-year old male patient is planned for invasive coronary angiography. During the precatheterization evaluation, the doctor verifies the check-list of the patient. Which among the following items noted in the check-list is not a caution against the procedure, in relation to the use of contrast agents?
- A. History of documented vasovagal response during a previous coronary angiogram performed 3 years ago
  - B. Serum Potassium concentration 2.4 mEq/L
  - C. Multi-nodular goiter with Serum TSH < 0.05 mIU/L
  - D. e-GFR of 25 mL/minute
75. Complete heart block is common in the following congenital heart diseases, except
- A. Atrioventricular septal defects
  - B. Ebstein anomaly
  - C. Corrected TGA
  - D. 'Swiss-cheese' VSD
76. The essential drugs to be prescribed at discharge for a 60-year old male following anterior wall ST elevation myocardial infarction and successful thrombolysis do not include
- A. Statin
  - B. Beta blocker
  - C. Short acting nitrate
  - D. ACE inhibitor
77. Which of the following statements about sarcoid heart disease is not true?
- A. The most common phenotype is restrictive cardiomyopathy.
  - B. Most patients with cardiac sarcoid have lung involvement also
  - C. Heart block is a common manifestation
  - D. Ventricular arrhythmias is a common manifestation
78. The features of cardiac amyloidosis include all, except
- A. Dilated ventricular chambers
  - B. Atrial septal thickening
  - C. Sub-enedocardial Gadolinium enhancement in MRI
  - D. Right heart failure predominates in clinical symptoms

79. Watchman device is used for
- A. Paravalvar leak closure
  - B. Left atrial appendage closure
  - C. Inter atrial septal aneurysm occlusion
  - D. Closure of Fontan fenestration
80. A 48-year-old male, smoker, with history of claudication presents with syncope. Electrocardiogram reveals type I Brugada pattern. His coronary angiogram is normal. On review of his treatment records, he is on medications for bipolar disorder and peripheral arterial disease. Which among the following medicines which he was taking, do not have a caution against use in patients with Brugada syndrome in relation to arrhythmogenicity?
- A. Lithium
  - B. Cilostazol
  - C. Oxcarbazepine
  - D. Amitriptyline
81. Continuation of eustachian valve of inferior vena cava on medial end of right atrium is
- A. Crista terminalis
  - B. Tendon of Todaro
  - C. Septal leaflet of tricuspid valve
  - D. Atrio-ventricular septum
82. Which among the following is not a beta blocker with vasodilatory property?
- A. Bisoprolol
  - B. Bucindolol
  - C. Carvedilol
  - D. Nebivolol
83. Noonan syndrome all true except
- A. Left axis deviation
  - B. Lymphedema
  - C. Aortic stenosis
  - D. Mental retardation
84. During invasive radial arterial pressure recording of a patient with heart failure admitted in critical care unit, waveforms displayed a notch in the lower part of ascending limb, the systolic peak was remarkably delayed and the pulse waves displayed low amplitude. In addition, every second beat had smaller amplitude than the preceding one. Which among the following is most likely to be the patient's underlying cardiac condition?
- A. Acute severe aortic regurgitation
  - B. Aortic stenosis

- C. Acute severe mitral regurgitation
- D. Acute myocardial infarction, cardiogenic shock with implantation of intra-aortic balloon pump counterpulsation with augmentation of every alternate cycle

85. Inotrope of choice in cardiogenic shock with tachyarrhythmia

- A. Dopamine
- B. Dobutamine
- C. Norepinephrine
- D. Milrinone

86. The vein that is expected to give the best results on implantation of left ventricular lead in CRT is

- A. Anterior interventricular vein
- B. Middle cardiac vein
- C. Posterolateral vein
- D. Small cardiac veins

87. which drugs has significant interaction and drug toxicity

- A. Simvastatin and erythromycin
- B. Sildenafil and nitroglycerin
- C. Cyclosporine and St. John's wort
- D. Digoxin and verapamil

88. Which of the following about idiopathic outflow tract ventricular tachycardia is false?

- A. ~80% of outflow tract VTs originate in LV
- B. Not associated with SCD
- C. Vagal maneuvers terminate them
- D. Adenosine and beta blockers terminate them

89. Normal aortic valve area is

- A. 1-2 cm<sup>2</sup>
- B. 2-3 cm<sup>2</sup>
- C. 3-4 cm<sup>2</sup>
- D. 4-5 cm<sup>2</sup>

90. LV dyssynchrony is considered to be present when septal to posterior wall delay exceeds

- A. 100 ms
- B. 130 ms
- C. 150 ms
- D. 65 ms

91. The following drug is contra indicated during PCI in a patient with history of CVA
- A. Prasugrel
  - B. Ticagrelor
  - C. Clopidogrel
  - D. Cangrelor
92. All of the following are features of hyperaldosteronism, except
- A. Reduced Na absorption
  - B. Increased K excretion
  - C. Increased plasma volume
  - D. Reduced renin – angiotensin levels
93. All of the following drugs are used in the management of AVNRT, except
- A. Adenosine
  - B. Verapamil
  - C. Diltiazem
  - D. Amiodarone
94. "Cannon" "A" waves may occur regularly in which of the following conditions?
- A. During junctional rhythm
  - B. AV dissociation with VT
  - C. Complete heart block
  - D. All of the above
95. The normal A2-O5 interval is?
- A. 0.04 to 0.06 seconds
  - B. 0.04 to 0.08 seconds
  - C. 0.04 to 0.10 seconds
  - D. 0.04 to 0.12 seconds
96. Murmur of HOCM becomes louder with?
- A. Standing
  - B. Squatting
  - C. Passive leg raising
  - D. All of the above
97. In mitral stenosis, the most reliable as an index of severity of valve obstruction?
- A. Loudness of S1
  - B. Character of murmur
  - C. Duration of murmur
  - D. Intensity of murmur

98. Normal HV interval in the His bundle recording is?

- A. 10 to 20 ms
- B. 15 to 35 ms
- C. 35 to 55 ms
- D. 60 to 75 ms

99. Torsades de pointes is unusual with

- A. Sotalol
- B. Amiodarone
- C. Ibutilide
- D. Dofetilide

100. All the following are true regarding fractional flow reserve (FFR), except

- A. Cut off of 0.80 determines physiological significance
- B. Used in culprit vessels in ACS
- C. Used in non-culprit vessels in ACS
- D. Regadenosan can be used in calculation of FFR

**DM Cardiology June 2018 – Answer key (Medicine)**

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

**DM Cardiology (Pediatrics)**

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

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