



ENTRANCE EXAMINATION : ACADEMIC SESSION JANUARY 2020

PROGRAM: DM Cardiology (General Medicine)

Time: 90 minutes

Max. Marks: 100

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

1. Which of the following statements is false about Hairy cell leukemia?
 - a) Splenomegaly is common
 - b) High blood count due to Lymphocytosis points to the diagnosis
 - c) Infection with atypical mycobacteria is typical
 - d) Common cause of bone marrow "dry tap"

2. One unit of random donor platelet transfusion is expected to increase the platelet count in an adult by ___ square meter surface area
 - a) 5,000
 - b) 10,000
 - c) 15,000
 - d) 20,000

3. Nut rich in omega 3 polyunsaturated fatty acid is
 - a) Cashew nut
 - b) Hazel nut
 - c) Walnut
 - d) Pistachio

4. The drug Apremilast, used in the treatment of psoriasis, acts by
 - a) Phosphodiesterase 4 inhibition
 - b) Generating interferons
 - c) Inhibiting T- Helper cells
 - d) Inhibiting calmodulin

5. Which of the following is true of Paget's disease?
 - a) Bowing of a long bone is a characteristic feature
 - b) Spinal cord compression is a common complication
 - c) Heart failure is not a recognized complication
 - d) Pathological fractures are not a feature

6. Which of the following is true in the assessment of visual fields?
 - a) A lesion at the optic chiasma leads to homonymous hemianopia
 - b) An enlarged blind spot may occur because of papilloedema
 - c) Impulses from the retina leaves the eye via the optic radiation
 - d) The visual field examination maps out a patient's central vision

7. Which of the following is true about involuntary movements in the arm?
- Alcohol makes the tremor of benign essential tremor worse
 - Hemiballismus is due to a stroke causing paralysis of the distal half of the arm
 - A 'milkmaid' grip is sometimes found in dystonia
 - Writer's cramp is an example of a focal dystonia
8. All of the following have been found to be useful in decreasing the risk of ventilator-associated pneumonia ,except
- Short course of prophylactic antibiotics for comatose patients
 - Maintaining the head end of the patient at same level of the trunk to minimise pooling of secretions in glottis
 - Early transition to percutaneous tracheostomy
 - Post-pyloric enteral feeding
9. Bronchial breathing is characterized by
- Inspiratory component louder and longer with a gap between expiration and inspiration
 - Expiratory component louder and longer with a gap between inspiration and expiration
 - Inspiratory component louder and longer with a gap between inspiration and expiration
 - Expiratory component louder and longer with a gap between expiration and inspiration
10. In which of the following conditions, interferon is not used?
- Myelo-monocytic leukemia
 - Hairy cell leukemia
 - Chronic myeloid leukemia
 - Chronic hepatitis B infection
11. Which of the following statements is false about prostate malignancy?
- 40% of early onset malignancies are hereditary
 - Red meat consumption increases risk
 - It is the second leading cause of cancer in men
 - Nearly 50% of men with prostate malignancy ultimately die due to the disease
12. In which of the following conditions, H. Pylori treatment is a clearly indicated?
- Idiopathic thrombocytopenic purpura
 - Vitamin B12 deficiency
 - Iron deficiency anemia
 - Low-grade gastric B Cell lymphoma
13. The recommended treatment for INH resistant tuberculosis is
- Rifampin + Ethambutol +Pyrazinamide + levofloxacin x 6 months
 - Rifampin + Ethambutol +Pyrazinamide + levofloxacin x 1 year
 - Rifampin + Ethambutol +Pyrazinamide + streptomycin x 6 months
 - Rifampin + Ethambutol +Pyrazinamide + kanamycin x 6 months

14. Which of the following statements is false about hepatocellular carcinoma?
- HBV infection portends higher risk than HCV infection
 - NASH is an emerging risk factor in developed countries
 - Aflatoxin dietary exposure is a risk factor in Sub-Saharan Africa
 - HBV Vaccination has brought down incidence in some countries
15. Which of the following pairs of chemotherapy and the related complication is incorrect?
- Cyclophosphamide : Hematuria
 - Bleomycin : Interstitial fibrosis
 - Cisplatin : Liver failure
 - Ifosfamide : Fanconi syndrome
16. Which of the following is incorrect regarding immune type of Heparin induced thrombocytopenia?
- The risk is not dependent on the dose of heparin administered
 - Platelet count can be within reference range at presentation
 - Can develop within 24 hours if the patient had exposure to heparin recently
 - Venous thrombosis occurs more often than arterial thrombosis in patients with HIT
17. Trypanosome lytic factor is a sub-fraction of
- High density lipoprotein
 - Interleukin 6
 - Interferon alpha
 - Immunoglobulin A
18. Fosfomycin acts via
- Inhibiting glyoxalase
 - Inhibiting bacillithiol
 - Inhibiting shikimic acid pathway
 - Inhibiting peptidoglycan synthesis
19. Simon Broome diagnostic criteria for familial hyperlipidaemia suggests a cut off value of total cholesterol levels above 260 mg/dL (6.7 mmol/L) or LDL-C above 155 mg/dL (4.0 mmol/L) for
- Children and adolescents below the age of 16 years
 - Adolescents between the age of 16 and 24 years
 - Adults above the age of 25 years
 - Adults below the age of 50 years
20. B -Lines in lung ultrasound is a feature of
- Consolidation
 - Pleural effusion
 - Interstitial edema
 - Pulmonary infarction

21. Arc of Riolan is an arterioarterial anastomosis that connects

- a) Superior mesenteric artery and left renal artery
- b) Superior mesenteric artery and inferior mesenteric artery
- c) Inferior mesenteric artery and left renal artery
- d) Left renal artery and splenic artery

22. Which of the following is false about amiodarone induced- hyperthyroidism?

- a) Can occur in patients with previously normal thyroid gland function
- b) Serum T4 rises whereas T3 falls during the initial few months of starting amiodarone
- c) Type 2 autoimmune thyrotoxicosis occurs in patients with previous thyroid disease
- d) Type 1 autoimmune thyrotoxicosis is related to Jod-Basedow phenomenon

23. Desidustat is useful in therapy of

- a) Anemia of chronic kidney disease
- b) Pernicious anemia
- c) Sideroblastic anemia
- d) Thalassemia

24. CGRP (Calcitonin gene-related peptide) Receptor antagonists are used in the therapy of

- a) Parkinson disease
- b) Choreaathetosis
- c) Migraine
- d) Alzheimer's disease

25. Vasoritide, a C-Type natriuretic peptide analogue is useful in the therapy of

- a) Decompensated heart failure
- b) Anorexia nervosa
- c) Diabetes insipidus
- d) Achondroplasia

26. Antiplatelet action of dipyridamole is due to

- a) Cyclo-oxygenase inhibition
- b) ADP receptor inhibition
- c) Glycoprotein IIb/ IIIa inhibition
- d) Phosphodiesterase inhibition

27. The value of Ankle Brachial Index that is considered to be indicative of significant peripheral vascular disease

- a) 1.00 – 1.40
- b) 1.40 – 1.90
- c) 0.91 – 0.99
- d) 0.81 – 0.89

28. Which of the following is false regarding Galcanezumab?

- a) It is a human immunoglobulin (IG4) monoclonal antibody
- b) It can be used for preventive treatment for cluster headache
- c) The dose is 300 mg qnce monthly
- d) It is a calcitonin gene - related peptide receptor antagonist

29. Immunoglobulin class is decided by

- a) Variable portion of the light chain
- b) Variable portion of the heavy chain
- c) Constant portion of the light chain
- d) Constant portion of the heavy chain

30. Corticosteroids are useful in the treatment of hypertension in

- a) 11-beta hydroxylase deficiency
- b) Liddle's syndrome
- c) Barter's syndrome
- d) Reninoma

31. Drug recommended for treatment of adult polycystic kidney disease is

- a) Desmopressin
- b) Valsartan-Sacubitril combination
- c) Tolvaptan
- d) Cisplatin

32. The most common cause of high serum calcium in a patient with a known cancer is

- a) Ectopic production of parathyroid hormone
- b) Direct destruction of bone by tumor cells
- c) High levels of 1,25 - hydroxyvitamin D
- d) Production of parathyroid hormone - like substance

33. Which of the following is typically spared in polyarteritis nodosa?

- a) Coronary artery
- b) Pulmonary artery
- c) Renal artery
- d) Medium sized vessels

34. Which of the following is false regarding Tumor lysis syndrome?

- a) Can present with acute kidney injury
- b) Hyperkalemia and hypercalcemia are common
- c) Rasburicase is useful in treatment
- d) More commonly seen in acute leukemias

35. Hyperhomocysteinemia is treated with

- a) Retinoic acid
- b) Cyanocobalamine
- c) Ascorbic acid
- d) Alpha tocopherol

36. A person with liver disease caused by Schistosoma mansoni is most likely to have

- a) Ascites
- b) Esophageal varices
- c) Gynecomastia
- d) Jaundice

37. Deficits in the complement membrane attack complex (C5b-8) are associated with recurrent infections of

- a) Pseudomonas aeruginosa
- b) Catalase positive bacteria
- c) Streptococcus pneumonia
- d) Neisseria meningitis

38. Which of the following hemolytic anemia is classified as extra-corporeal ?

- a) Elliptocytosis
- b) Paroxysmal nocturnal hemoglobinuria
- c) Sickle cell anemia
- d) Thrombotic thrombocytopenic purpura

39. The most common inherited prothrombotic disorder is

- a) Activated protein C resistance
- b) Prothrombin gene mutation
- c) Protein C deficiency
- d) Protein S deficiency

40. The pandemic Black death in the thirteenth century is attributed to

- a) Small pox
- b) Plague
- c) Influenza
- d) Malaria

41. Hyponatremia with low urine osmolality occurs in

- a) Diarrhea
- b) Primary polydipsia
- c) Cirrhosis
- d) SIADH

42. True statement in hereditary hemochromatosis is

- a) Serum ferritin levels are useful for predicting occurrence of liver fibrosis
- b) The frequency of phlebotomy should be based on plasma transferrin saturation
- c) Daily administration of deferoxamine is more effective than weekly phlebotomy for removing excess iron stores
- d) Excess iron removal has favorable outcomes on survival, but has little effect on cardiac failure once established

- 43. Highest risk of developing chronic hepatitis B infection occurs with which mode of transmission?**
- a) Intravenous drug abuse
 - b) Infected blood products
 - c) Sexual transmission
 - d) Vertical transmission in perinatal period
- 44. Which laboratory finding is the last to occur in iron deficiency state without any concomitant abnormality?**
- a) Increased red cell distribution width
 - b) low transferrin saturation
 - c) Low reticulocyte hemoglobin value
 - d) Decreased serum ferritin level
- 45. Receiver Operating Characteristic (ROC) curve is generated by plotting**
- a) False positive rate in X axis and true positive rate in Y axis
 - b) Positive predictive value in X axis and negative predictive value in Y axis
 - c) Specificity in X axis and positive predictive value in Y axis
 - d) Sensitivity in X axis and negative predictive value in Y axis
- 46. Which among the following is a G-protein coupled receptor?**
- a) Insulin receptor
 - b) Opioid receptor
 - c) Steroid receptor
 - d) Cytokine receptor
- 47. Dexmedetomidine is**
- a) Alpha 2 adrenergic antagonist
 - b) Alpha 2 adrenergic agonist
 - c) GABA receptor agonist
 - d) Endocannabinoid receptor agonist
- 48. Which of the following is incorrect regarding leptospirosis?**
- a) Non-oliguric hypokalemic renal insufficiency is characteristic
 - b) Thrombocytopenia is common
 - c) High bilirubin levels with disproportionately elevated transaminases is diagnostic
 - d) Amylase levels are often elevated
- 49. The mechanism of action of oseltamivir is as a**
- a) Neuraminidase inhibitor
 - b) Matrix-2 protein inhibitor
 - c) NS-1 inhibitor
 - d) Hemagglutinin inhibitor

- 50. Which of the following is not an acute phase reactant?**
- a) C-reactive protein
 - b) Haptoglobin
 - c) Alpha fetoprotein
 - d) Complement
- 51. Sonicated microvesicular albumin is used to**
- a) Define severity of coarctation of aorta
 - b) Define the left ventricular contours and perfusion
 - c) Define coronary plaque morphology
 - d) Define coronary Doppler flows to assess stenosis severity
- 52. Among the following, the synthetic statin is**
- a) Lovastatin
 - b) Simvastatin
 - c) Pravastatin
 - d) Pitavastatin
- 53. Features of infective endocarditis that warrant surgical intervention is**
- a) First-degree heart block
 - b) Negative growth on blood cultures
 - c) Fever $>38^{\circ}\text{C}$ for 1 week
 - d) Hepatosplenomegaly
- 54. The treatment least likely to be useful for torsades de pointes is**
- a) Defibrillation
 - b) Procainamide
 - c) Magnesium
 - d) Electrical pacing
- 55. Which of the following statements is correct regarding Brain Natriuretic Factor?**
- a) It indicates increased ventricular volume and/or wall stress
 - b) It is not affected by renal function
 - c) It is elevated in only systolic, but not diastolic heart failure
 - d) It will always be elevated in heart failure
- 56. Which of the following would be most likely seen in a patient with chronic severe mitral regurgitation?**
- a) Normal LV cavity size
 - b) Dyspnoea
 - c) Third heart sound
 - d) LV ejection fraction $> 65\%$
- 57. Regarding hypertension and coarctation of aorta, which of the following is true?**
- a) Prevalence of hypertension is higher with later repair
 - b) Prevalence of hypertension is lower regardless of age of repair
 - c) Prevalence of hypertension is similar to people with no coarctation
 - d) Hypertension is not a problem after repair

58. Heart valve most likely to be affected with infective endocarditis following a septic abortion
- Mitral valve
 - Aortic valve
 - Tricuspid valve
 - Pulmonary valve
59. A smoker with a history of Intermittent claudication, detected to have hypertension was initiated on ACEI. He came back with doubling of the serum creatinine levels. The most likely underlying pathology could be
- Hemodynamically significant bilateral renal artery stenosis
 - Conns syndrome
 - Pheochromocytoma
 - Hypernephroma
60. A 65-year old man who underwent a drug eluting stent implantation presents with recurrence of angina on exertion after 5 months of initial procedure. The most likely reason for his symptom is
- Progression of coronary microvascular disease
 - Subacute stent thrombosis
 - In-stent re-stenosis
 - Onset of left ventricular dysfunction
61. The treatment of choice of a neonate with Simple TGA with VSD with significant arterial desaturation in a tertiary care pediatric cardiac referral center
- Balloon atrial septostomy
 - Early arterial switch surgery
 - Prostaglandin infusion
 - Blade septostomy
62. A patient is discharged after primary angioplasty for single vessel disease following an anterior wall STEMI. His ejection fraction is 40%. The prescription should contain all the following drugs in addition to dual antiplatelets, except.
- Beta blocker
 - Long acting Nitrate
 - ACE inhibitor
 - Statin
63. The following are high risk markers of sudden cardiac death in hypertrophic cardiomyopathy, except
- Hypotensive response to exercise
 - Extensive (>15%) late Gadolinium enhancement of LV myocardium
 - Significant mitral regurgitation
 - Multiple NSVT episodes on Holter
64. The provocative tests to induce coronary spasm include all the following, except
- Ergonovine
 - Acetylcholine
 - Adenosine
 - Hyperventilation

- 65. The recommended duration of oral anticoagulant therapy following surgery in a patient who had a bio-prosthetic valve implantation and in sinus rhythm is**
- 6 weeks
 - 3 months
 - 6 months
 - 12 months if rheumatic heart disease
- 66. Intravascular ultrasound (IVUS) uses ultrasonic waves while Optical Coherence Tomography (OCT) uses**
- Radiofrequency energy
 - Near Infra-red light
 - Ultraviolet rays
 - LASER
- 67. Combination of Ampicillin and ceftriaxone is recommended in treatment of endocarditis with**
- Streptococcus abiotrophia
 - Streptococcus mitis
 - Enterococcus faecalis
 - Brucella spp.
- 68. The smallest lipoprotein is**
- LDL
 - IDL
 - VLDL
 - HDL
- 69. Atrial flow regulator is useful in the therapy of**
- Severe mitral regurgitation
 - Severe pulmonary hypertension
 - Left atrial thrombus
 - Patent foramen ovale
- 70. QT prolongation is not seen with**
- Digoxin
 - Tricyclic antidepressants
 - Dronedarone
 - Quinidine
- 71. Bifid pulse with systolic and diastolic peak is seen in**
- Aortic regurgitation
 - Hypertrophic cardiomyopathy
 - Septic shock
 - Mitral regurgitation
- 72. Which of the following ECG changes is associated with acute hyperkalemia?**
- Prolongation of ST segment
 - QRS widening
 - Prominent U wave
 - T wave flattening

- 73. All of the following clinical findings are consistent with severe mitral stenosis, except**
- a) Atrial fibrillation
 - b) Opening snap late after S2
 - c) Pulmonary vascular congestion
 - d) Pulmonary hypertension
- 74. All the following ECG findings are suggestive of left ventricular hypertrophy, except**
- a) (S in V1 + R in V5 or V6) > 35 mm
 - b) R in avR > 8 mm
 - c) R in aVL > 11 mm
 - d) R in aVf > 20 mm
- 75. Which of the following congenital cardiac disorders will lead to left to right shunt, generally with cyanosis?**
- a) Anomalous origin of left coronary artery from pulmonary trunk
 - b) Patent ductus arteriosus without pulmonary hypertension
 - c) Total anomalous pulmonary venous connection
 - d) Ventricular septal defect
- 76. Where are the most common drivers of atrial fibrillation anatomically located?**
- a) Left atrial appendage
 - b) Pulmonary veins
 - c) Pulmonary artery
 - d) Coronary sinus
- 77. What medication is most effective for a wide complex tachycardia in a patient with WPW syndrome?**
- a) Adenosine
 - b) Digoxin
 - c) Procainamide
 - d) Diltiazem
- 78. Which of the following is not usually an admixture circulation in infancy?**
- a) Complete atrioventricular septal defect
 - b) Totally anomalous pulmonary venous connection
 - c) Hypoplastic left heart syndrome
 - d) Pulmonary atresia with ventricular septal defect
- 79. Which of the following is typically associated with increased pulmonary vascularity on chest X-ray?**
- a) Pulmonary AV malformations
 - b) Neonatal Ebstein's anomaly
 - c) Transposition of great arteries with intact ventricular septum
 - d) Pulmonary atresia with intact ventricular septum

80. A 10 year-old child, post-ASD surgical closure 6 months back, presented with massive pericardial effusion. The most appropriate diagnosis based on the cath data given below,

	Basal	Post pericardiocentesis
Right atrium	a23 v23 mean 22	a18 v18 mean 17
Pericardium	mean 21	mean 0
Right ventricle	40 Ed 22	35 Ed 17
PCWP	mean 23	a17 v17 mean 16

- a) Massive pericardial effusion, not in cardiac tamponade
- b) Massive pericardial effusion with tamponade, fully resolved on pericardiocentesis
- c) Massive pericardial effusion with tamponade, co-existent restrictive cardiomyopathy
- d) Effusive constrictive pericarditis

81. What is the target heart rate (bpm) for a 50 years old woman during a treadmill test?

- a) 162
- b) 170
- c) 171
- d) 173

82. Which of the following chemotherapeutic agents is commonly associated with pulmonary hypertension?

- a) 5-Fluorouracil
- b) Doxorubicin
- c) Dasatinib
- d) Cisplatin

83. Mechanism of action of Pradigastat is

- a) Upregulation of ABCA 1
- b) Inhibition of cholesterol ester transfer protein (CETP)
- c) Inhibition of diacylglycerol acyltransferase 1 (DGAT1)
- d) Upregulation of lecithin cholesterol acyltransferase (LCAT)

84. All of the following fall in class IV of Modified WHO classification of maternal cardiovascular risk in pregnancy with maternal cardiac event rate risk of >40% , except

- a) Pulmonary arterial hypertension
- b) Severe mitral stenosis
- c) Previous peripartum cardiomyopathy with residual left ventricular impairment
- d) Unrepaired cyanotic congenital heart disease

85. All of the following can be useful in the treatment of reflex syncope, except

- a) Midodrine
- b) Beta adrenergic blockers
- c) Counter-pressure manoeuvres during the prodromal phase
- d) Dual chamber pacemakers

86. Which of the following is incorrect regarding exercise induced bundle branch block

- a) Exercise induced right bundle branch block is not associated with independent cardiovascular risk
- b) Exercise induced left bundle branch is associated with increased cardiovascular risk if it occurs at heart rates < 125/min

- c) ST-T changes are interpretable if they happen before the onset of left bundle branch block
- d) Onset and offset of left bundle branch block occur at the same heart rate

87. Which of the following is incorrect about tachycardia induced cardiomyopathy?

- a) Recurrent non-sustained ventricular tachycardia can cause it
- b) The ventricular function tends to improve once the causative arrhythmia is cured
- c) Diastolic dysfunction can be a part of tachycardia induced cardiomyopathy
- d) It is not known to occur with frequent ventricular ectopics

88. Metastatic infection is least common in infective endocarditis with which of the following agents

- a) Streptococcus mutans
- b) Streptococcus intermedius
- c) Beta hemolytic streptococci
- d) Streptococcus pneumoniae

89. Which of the following statements regarding prosthetic heart valves is incorrect?

- a) Structural valve deterioration occurs earlier in aortic position than mitral position in bioprosthetic valves.
- b) Homograft bioprosthetic valves currently have similar long term durability when compared to current-generation pericardial valves.
- c) Mechanical heart valves have better durability than bioprosthetic valves .
- d) Pulmonary valve autograft in aortic position should be avoided in patients with aortic root dilatation.

90. Which among the following biomarkers is currently recommended for monitoring of patients who are on combination therapy with Sacubitril-Valsartan ?

- a) BNP
- b) MR Pro-ANP
- c) NT- Pro BNP
- d) C-NP

91. The phase in the ECG when the left ventricular volume is the highest in a given cardiac cycle in a healthy individual

- a) PR segment
- b) ST segment
- c) End of T wave
- d) TP segment

92. In which of the following conditions is the systolic blood flow across the aortic valve significantly higher than that across the pulmonary valve in a given cardiac cycle?

- a) Pulmonary arteriovenous malformation
- b) Right pulmonary artery to left atrial fistula
- c) Tetralogy of Fallot
- d) During dynamic exercise in upright position

93. A lady was diagnosed with peripartum cardiomyopathy at 9th month of gestation. Which among the following is the relatively safer medication for management of heart failure for her?
- Telmisartan
 - Enalapril
 - Ivabradine
 - Hydralazine-Nitrate
94. The frequency of the probe used for intra vascular ultrasound is
- 20- 40 MHz
 - 10-20 MHz
 - 5-15 MHz
 - 1-5 MHz
95. Left isomerism is characterized by
- Bilateral right sided bronchial morphology
 - Wandering spleen
 - Asplenia
 - Cabott's rings
96. The recurrence risk of congenital heart disease for a baby who has a sibling with congenital heart disease is
- 1-2 %
 - 2-6 %
 - 6-8 %
 - 8-10%
97. All are true of atrioventricular septal defect, except
- Unwedged aorta
 - Elongated left ventricular outflow tract
 - Elongated right ventricular outflow tract
 - Counterclockwise rotation of the left ventricular papillary muscles
98. Which aortic arch gives rise to the right and left pulmonary arteries?
- Third
 - Fourth
 - Fifth
 - Sixth
99. The most common coronary anomaly seen in Tetralogy of Fallot?
- Single coronary artery arising from left coronary sinus
 - Single coronary artery arising from right coronary sinus
 - Left anterior descending artery arising from right coronary artery
 - Left circumflex artery arising from right coronary artery
100. The saturation in pulmonary artery is more than the aorta in all the following, except
- Transposition of great arteries
 - Taussig-Bing anomaly
 - Unobstructed supracardiac TAPVC
 - Unobstructed infracardiac TAPVC