

**POST GRADUATE DIPLOMA IN CLINICAL
CARDIOLOGY (PGDCC)**

00305

Term-End Examination

June, 2012

MCC-007 : CARDIO-VASCULAR RELATED DISORDERS

Time : 2 hours

Maximum Marks : 60

Note :

- (i) *There will be multiple choice type of questions in this examination which are to be answered in OMR Answer Sheets.*
- (ii) *All questions are compulsory.*
- (iii) *Each question will have four options and only one of them is correct. Answers have to be marked in figures in the appropriate rectangular boxes corresponding to what is the correct answer and then blacken the circle for the same number in that column by using HB or lead pencil and not by ball pen in OMR Answer Sheets.*
- (iv) *If any candidate marks more than one option it will be taken as the wrong answer and no marks will be awarded for this.*
- (v) *Erase completely any error or unintended marks.*
- (vi) *There will be 90 questions in this paper and each question carries equal marks.*
- (vii) *There will be no negative marking for wrong answers.*
- (viii) *No candidate shall leave the examination hall at least for one hour after the commencement of the examination.*

1. Which one of the following is not a component of Metabolic Syndrome ?
(A) Hyperglycemia (B) Low HDL
(C) High LDL (D) Abdominal Obesity
2. Which is true for Diabetic Cardiomyopathy ?
(A) Secondary to Myocardial Infarction
(B) Indicates small vessel CAD
(C) Independent Myocardial Involvement
(D) Diastolic dysfunction uncommon
3. Earliest Echocardiographic finding of Diabetic Heart Disease is :
(A) Regional wall motion abnormality
(B) Systolic LV dysfunction
(C) Diastolic LV dysfunction
(D) Ventricular hypertrophy
4. Anti-hypertensive drug of choice in uncomplicated Type 2 Diabetes Mellitus is :
(A) Beta-blocker (B) ACE inhibitor (C) Diuretic (D) Any of these
5. A 65 year old lady admitted for Hip fracture surgery developed acute breathlessness with hypotension. An Electrocardiogram and cardiac biomarkers are normal. The most likely cause will be :
(A) Acute Left ventricular Failure (B) Pulmonary Embolism
(C) Septicaemia (D) Internal Haemorrhage
6. Eclampsia is characterized by all except -
(A) Hypertension (B) Hyperglycemia
(C) Edema (D) Proteinuria
7. Foetal circulation is established by what period in intra-uterine life ?
(A) 23 - 28 days (B) 40 - 42 days (C) 55 - 60 days (D) 90 days
8. Which of the following drugs used for treatment of pulmonary hypertension is presently not available in India ?
(A) Bosentan (B) Iloprost (C) Tadalafil (D) Sildenafil
9. A young Insulin dependent Diabetic was admitted with ketoacidotic coma. He was well on way to recovery after fluid replacement and insulin therapy when he suddenly developed life threatening ventricular tachyarrhythmia. What was the most likely cause of such a complication ?
(A) Metabolic Acidosis
(B) Fluid overload
(C) Underlying Coronary artery disease
(D) Hypokalaemia

10. A primigravida with known moderate Mitral Stenosis, became increasingly symptomatic during second trimester despite adequate dose of oral diuretic and control of heart rate with Beta blocker and digitalis. The next management option is :
- (A) Closed valvotomy or Balloon valvotomy
 - (B) Termination of Pregnancy
 - (C) High dose intravenous diuretic
 - (D) Mitral valve replacement
11. Which of the following antihypertensive agents is safest during pregnancy -
- (A) Olmesartan (B) Labetalol (C) Furosemide (D) Verapamil
12. A woman of child-bearing age with severe symptomatic mitral regurgitation seeks consultation for further management before her pregnancy. What will be the ideal management to overcome increased haemodynamic load of pregnancy ?
- (A) Optimise medical treatment
 - (B) Replacement with metallic prosthetic valve
 - (C) Replacement with bio-prosthetic valve
 - (D) Mitral valve repair
13. A woman with asymptomatic Hypertrophic cardiomyopathy wants to know the risks of bearing children. The probability of maternal or fetal complication is :
- (A) High in HOCM (B) Pregnancy is usually uncomplicated.
 - (C) Sudden death is increased. (D) Pregnancy is contraindicated.
14. A pregnant woman presents with features of Marfan's Syndrome. Cardiovascular examination should be directed to exclude all of the following except :
- (A) Aortic root dilatation (B) Mitral regurgitation
 - (C) Aortic stenosis (D) Aortic regurgitation
15. Chances of pregnancy remaining uneventful will be highest in which of the following cardiac illness of the mother ?
- (A) Tetralogy of Fallot
 - (B) Moderate Aortic Regurgitation
 - (C) Idiopathic Pulmonary hypertension
 - (D) Dilated cardiomyopathy
16. Impaired fasting glucose is defined as -
- (A) Fasting blood glucose between 100 - 125 mg/dl
 - (B) Fasting blood glucose between 110 - 139 mg/dl
 - (C) Fasting blood glucose between 100 - 139 mg/dl
 - (D) Fasting blood glucose between 110 - 125 mg/dl

17. A young pregnant woman gives past history of Acute rheumatic fever. She has been on Benzathin Penicillin prophylaxis. What will be the approach during pregnancy ?
- Stop penicillin prophylaxis
 - Continue as before
 - Replace penicillin with another antibiotic
 - Add a second antibiotic
18. A 25 year old woman with a bad obstetrical history of recurrent fetal loss presents with clinical findings of pulmonary embolism. She is found to have prolonged activated partial thromboplastin time. The likely diagnosis is ;
- Anti-cardiolipin antibody syndrome
 - Anti-thrombin III deficiency
 - Protein S deficiency
 - Protein C deficiency
19. A pregnant woman without much symptoms, on a follow up clinic was found to have the following findings: Increased heart rate, a quick upstroke pulse, a third sound gallop, an apical diastolic murmur, an ejection systolic murmur. The most likely interpretation is :
- Mitral stenosis
 - Atrial septal defect
 - Heart failure
 - Normal
20. A hypertensive patient with normoglycemia, was on diuretic. After six months' of treatment he was found to have elevated blood glucose and an elevated HbA1c. If diuretic is the cause of hyperglycemia, which one of the following is the likely cause ?
- Chlorothiazide
 - Triamterene
 - Amiloride
 - Spironolactone
21. An apparently healthy person developed acute breathlessness while travelling to a place 10,000 ft above sea-level. The possible pathological basis of his symptom is :
- High pulmonary capillary pressure
 - Left ventricular dysfunction
 - Pulmonary embolism
 - Bronchospasm
22. According to WHO criteria the adult female is said to be anaemic when her hemoglobin level in venous blood is less than :
- 10 gm/dl
 - 11 gm/dl
 - 12 gm/dl
 - 13 gm/dl
23. According to JNC VII, the ideal goal of Blood pressure to be maintained in Diabetic is :
- < 125/75
 - < 130 / 80
 - < 140 / 90
 - < 120 / 80
24. Which one of the following orally acting hypoglycemic drug is usually omitted before percutaneous cardiac intervention ?
- Glimepride
 - Pioglitazone
 - Metformin
 - Rosiglitazone

25. A 26 year old Insulin dependent Diabetic was brought to the Emergency ward with Diabetic ketoacidosis. Which one of the following clinical findings is odd for DKA, which requires additional diagnosis ?
- (A) Marked Bradycardia (B) Dehydration
(C) Abdominal Pain/tenderness (D) Hypotension
26. A diagnosis of Transposition in the fetus should lead to search for which of the following maternal illness ?
- (A) Gestational hypertension (B) Gestational Diabetes
(C) Hypothyroidism (D) Hyperemesis gravidarum
27. In pregnancy all of the following cardiovascular parameters are increased except one which is decreased ? Which one of the following decreases ?
- (A) Heart rate (B) Stroke volume
(C) Blood volume (D) Peripheral resistance
28. An elderly individual presented with acute exacerbation of COPD with marked bronchospasm. Which of the following abnormalities is most likely to be found on pulmonary function test is
- (A) Decreased total lung capacity
(B) Reduced residual volume
(C) Reduced FEV1/FVC capacity
(D) Decreased residual volume/total lung capacity
29. A Diabetic lady, whose blood sugar levels were well controlled with diet only, developed persistent hyperglycemia during pregnancy. The next course of action will be :
- (A) Persist with stricter control of diet
(B) Introduce Sulphonylurea drug
(C) Start a insulin sensitizer
(D) Insulin therapy
30. Which of the following is not a feature of chest x-ray in a patient with acute pulmonary embolism -
- (A) Wedge-shaped opacity (B) Normal chest x-ray
(C) Pulmonary plethora (D) Atelectasis
31. A pregnant woman who had mild hypertension before pregnancy, and was well controlled with lifestyle modification develops higher level of BP now. She has no evidence of any target organ damage. Initiation of anti-hypertensive therapy has been shown to be of definite benefit to both mother and fetus above which level of BP ? (NICE guideline)
- (A) $\geq 140/90$ (B) $\geq 130/85$ (C) $\geq 160/110$ (D) $\geq 150/100$
32. A 65 year old patient, diabetic with dyslipidaemia, was admitted for hip replacement surgery. Preventive strategy for pulmonary embolism should include preoperative therapy with :
- (A) Aspirin (B) Clopidogrel (C) Fondaparinux (D) Enoxaparin

33. A woman, who continued with Lithium therapy during early part of her pregnancy gave birth to a cyanotic child ? What is the likely malformation in the child ?
 (A) Tetralogy of Fallot (B) d-transposition of great vessels
 (C) Ebstein's anomaly (D) Truncus arteriosus
34. In a patient of Type 1 Diabetes mellitus, the most reliable indicator of Nephropathy is :
 (A) Urine albumin > 30 mg/day in 3 consecutive samples
 (B) Haematuria
 (C) Urinary protein > 550 mg/day in 3 consecutive samples
 (D) Development of Retinopathy
35. All of the following statements are true about Post-partum cardiomyopathy except :
 (A) Symptom onset from first trimester
 (B) Symptom may appear in first 5 months after childbirth
 (C) More common in multiparus
 (D) Pre-eclampsia is a risk factor
36. A 60 year old diabetic patient presents with class III heart failure. Any of the following drugs may be used as anti-diabetic therapy for him except :
 (A) Glimepride (B) Acarbose (C) Insulin (D) Pioglitazone
37. A diabetic patient with Coronary artery disease, and Blood pressure level of 140/90, has urinary excretion of albumin 250mg/24 hrs. He is on Beta blocker, nitrate, aspirin, statin and on Insulin. He is symptomatically well controlled. The next course of action as regards to his therapy is :
 (A) No change of medication
 (B) Change B-blocker to a Calcium blocker
 (C) Add clopidogrel
 (D) Add an Ace-inhibitor
38. A patient with severe pulmonary artery hypertension and cyanosis due to reversal of a congenital shunt is found to have pulmonary artery pressure of 170/80. His cuff pressure is 120/70. What is the likely congenital shunt in this case :
 (A) VSD (B) PDA
 (C) ASD (D) Aorto-pulmonary window
39. A case of Idiopathic pulmonary hypertension commonly have all the findings mentioned below except :
 (A) Prominent a wave in JVP (B) Prominent Left parasternal heave
 (C) Clubbing (D) Hoarseness of voice
40. The normal trans-pulmonary gradient in mm of Hg., is :
 (A) 2 mm (B) 10 mm (C) 20 mm (D) 30 mm

41. A case of pulmonary hypertension after haemodynamic investigations was found to have the following findings : Pressures - RV 120/18, PA : 120/18(52), PCWP : 18, Cardiac Index : 2 L/sq.m. After exclusion of left sided heart disease, which of the following is the most likely diagnosis :
- (A) Pulmonary embolism
 - (B) Eisenmenger syndrome
 - (C) Pulmonary veno-occlusive disease
 - (D) Primary pulmonary artery hypertension
42. A case of Chronic obstructive airway disease is diagnosed to have Cor-pulmonale. Diagnosis of Cor-pulmonale requires demonstration of which of the following :
- (A) Right ventricular hypertrophy
 - (B) Right ventricular failure
 - (C) Frequent arrhythmias
 - (D) Right atrial enlargement
43. A 25 year old patient presents with late onset of cyanosis with a history of known congenital heart disease. The unusual finding against a diagnosis of Eisenmenger syndrome out of the following is :
- (A) Haemoptysis
 - (B) History of squatting
 - (C) Syncope
 - (D) Peripheral pruning of pulmonary vessels on Chest X-ray
44. A 25 year old young lady is admitted to the emergency ward with pregnancy, complicated with tight mitral stenosis, atrial fibrillation and fast ventricular rate. The best modality of treatment will be
- (A) Electrical cardioversion
 - (B) Quinidine intravenous
 - (C) Therapeutic abortion
 - (D) Verapamil intravenous
45. Inferior vena cava filters are indicated in a case of Pulmonary thromboembolism in which of the following conditions ?
- (A) Deep vein thrombosis involving iliac veins
 - (B) Repeated embolic episodes despite adequate anti-coagulation
 - (C) Demonstration of large areas of ventilation/perfusion mismatch
 - (D) Large thrombus is present in pulmonary artery
46. DM Confers as much additional risk as having
- (A) Previous MI
 - (B) Previous HTN
 - (C) Hypothyroidism
 - (D) Smoking
47. Percentage patients with acute MI who have previously undiagnosed DM -
- (A) 1 - 5%
 - (B) 25 - 30%
 - (C) 50 - 65%
 - (D) None of the above

48. Early administration of ACE Inhibitors to acute MI patients with DM -
 (A) Reduces mortality compared to non DM
 (B) Increase in mortality as compared to non DM
 (C) No change
 (D) None of the above
49. Potentially life threatening complications of Metformin -
 (A) Hypoglycemia (B) Renal Failure
 (C) Lactic acidosis (D) None of the above
50. A 50 year female, known DM on insulin with HTN and CAD was added on with Pioglitazone. One potential complication that can occur is -
 (A) Edema (B) Worsening arrhythmia
 (C) Sinus bradycardia (D) Worsening angina
51. Type II diabetes is characterized by
 (A) Resistance of cells to action of insulin
 (B) Absolute deficiency of insulin
 (C) Abrupt onset of thirst polyuria and polyphagia
 (D) None of the above
52. 55 years obese female, diabetic, hypertensive with dyslipidemia is having recurrent chest pain on exertion. Coronary angiogram reveals noncritical disease with normal LV systolic function. These findings suggest a diagnosis of
 (A) Syndrome - x (B) Obstructive CAD
 (C) Diastolic heart failure (D) None of the above
53. Which of the following is not required to be monitored in a patient on bosentan therapy for pulmonary hypertension -
 (A) Hemogram (B) Renal functions
 (C) Liver functions (D) Right heart hemodynamics
54. All are causes of secondary DM except -
 (A) Pancreatitis (B) Acromegaly
 (C) Hyperthyroidism (D) Amiodarone
55. All are indications for statin therapy in a patient with diabetes mellitus except -
 (A) LDL > 100 mg/dl despite lifestyle measures
 (B) Overt cardiovascular disease
 (C) Age above 50 years
 (D) Age more than 40 years with one more cardiovascular risk factor
56. D-dimer test for diagnosis of acute pulmonary embolism has following characteristics except-
 (A) High sensitivity (B) High specificity
 (C) Low positive predictive value (D) High negative predictive value

57. A 60 year male with uncontrolled DM is most likely to have
 (A) Increased LDL (B) Increased HDL
 (C) Increased TG (D) None of the above
58. Greater increase in blood volume occurs in pregnant women in which of the following case -
 (A) Multigravida (B) Multiple pregnancy
 (C) A and B (D) None of the above
59. An 18 year pregnant women in her 28th week is most likely to have a heart rate of -
 (A) 90 - 100 bpm (B) 60 - 70 bpm
 (C) 130 - 140 bpm (D) None of the above
60. A 32 weeks pregnant woman came with pedal edema and recorded BP was 140/90. Which of the following is contraindicated ?
 (A) Methyl dopa (B) Labetalol (C) Enalapril (D) Nifedipine
61. Amidarone is contraindicated in pregnancy due to following reasons -
 (A) Bradycardia in mother (B) QT prolongation in new born
 (C) Foetal hypothyroidism (D) All of the above
62. Which of the following is likely to be tolerated the best during pregnancy -
 (A) Significant mitral stenosis
 (B) Significant mitral regurgitation
 (C) Significant pulmonary hypertension
 (D) Coarctation of aorta
63. According to the current guidelines, pulmonary hypertension is defined as -
 (A) Mean PA pressure > 25 mmHg at rest
 (B) PA systolic pressure > 40 mmHg at rest
 (C) Mean PA pressure > 30 mmHg at rest
 (D) PA systolic pressure > 50 mmHg at rest
64. One of the complications of administering hydrochlorothiazide during pregnancy
 (A) Arrhythmia (B) Foetal Hyperkalemia
 (C) Renal Agenesis in foetus (D) Reduce uterine blood flow
65. Category B antibiotics will be best defined as
 (A) Animal and Human studies have shown no evidence of foetal harm in first trimester or later in pregnancy
 (B) Animal studies have shown risk and there are no adequate, well-controlled studies in humans.
 (C) Medication has clear cut problems in pregnancy and should not be used unless there are no better alternatives.
 (D) Animal studies have not shown any risk and there are no human studies or animal studies have shown risk but well - controlled studies in humans have ruled out risk.

66. CLASP study compared the following one of the drugs vs. placebo in pregnancy
 (A) Aspirin (B) Warfarin (C) Clopidogrel (D) Digitalis
67. Indications for use of aspirin in diabetics are all except -
 (A) Men over 50 years of age or women over 60 years of age
 (B) Men over 60 years of age or women over 60 years of age and having at least one other cardiovascular risk factor
 (C) At any age if annual risk of cardiovascular events is > 1%
 (D) Presence of overt cardiovascular disease.
68. A 27 year old primi gravida presents in 3rd trimester with history of shortness of breath, paroxysmal nocturnal dyspnea, pedal oedema, with HR 110 bpm, BP - 90/60 and loud left ventricular s3. What is the probable diagnosis ?
 (A) Rheumatic MR
 (B) Peripartum cardiomyopathy
 (C) Primary pulmonary hypertension
 (D) None of the above
69. All the following are risk factors for venous thromboembolism except -
 (A) Myocardial infarction (B) Cancer
 (C) Strenuous physical activity (D) Pregnancy
70. 25 year female underwent MV replacement and has a plan for pregnancy. What will be the best anticoagulation plan ?
 (A) Warfarin throughout pregnancy
 (B) Inject heparin throughout pregnancy
 (C) Heparin/LMWH in first trimester of pregnancy switching to warfarin in second trimester until 38 weeks. Later LMWH till labour
 (D) None of the above
71. 25 year old women presents with symptoms of angina/SOB and syncope, clinical exam shows normal S1/loud second sound with normal aortic component and loud pulmonary component, PSM at LSB. The most likely diagnosis will be -
 (A) Primary Pulmonary Hypertension
 (B) MS
 (C) ASD
 (D) None of above
72. All the following can be diagnosed with ambulatory blood pressure monitoring except -
 (A) White-coat hypertension (increased BP only in clinics)
 (B) Masked hypertension (BP normal in clinics but raised at home)
 (C) Renovascular hypertension
 (D) Non-dipper pattern of BP
73. Commonest cause of mortality in diabetics -
 (A) Stroke (B) Renal failure
 (C) Myocardial infarction (D) Hypoglycemia

74. Two main cardiac conditions in which medical termination of pregnancy is advised -
(A) PPH and Eisenmenger in mother
(B) Severe MS and Severe MR
(C) Mild PS or Mild AS
(D) None of the above
75. All the following can induce hyperglycemia except -
(A) Prednisolone (B) Niacin
(C) Hydrochlorothiazide (D) Nikorandil
76. Isolated systolic hypertension is defined as -
(A) Systolic BP \geq 160 mmHg
(B) Systolic BP \geq 160 mmHg and diastolic BP $<$ 90 mmHg
(C) Systolic BP \geq 140 mmHg and diastolic BP $<$ 90 mmHg
(D) Systolic BP \geq 160 mmHg and age above 60 years
77. Ankle-brachial index is a tool for diagnosis of -
(A) Subclinical atherosclerosis (B) Autonomic neuropathy
(C) Marfan's syndrome (D) None of the above
78. The most useful diagnostic test in patient with suspected acute PTE -
(A) Plethysmography (B) d - dime
(C) VQ scan (D) CT pulmonary angiogram
79. ACE inhibitors dilate which arterioles in renal glomeruli -
(A) Afferent (B) Efferent
(C) Both (D) None of the above
80. Dosage of urokinase for patients with PE -
(A) 4400 u/hr over 10 minutes followed by 4400 u/kg for 12 hours
(B) 250,000 u/hr over 30 minutes followed by 100, 000 u/hr for 24 hours
(C) 100 mg over 2 hours
(D) None of the above
81. Which of the following cardiac sound is not physiological during pregnancy -
(A) Mid-diastolic murmur at apex
(B) Continuous murmur over precordium
(C) Loud 1st heart sound
(D) Early diastolic murmur at left parasternal border
82. Gliptins act by all the mechanisms except -
(A) Decreased breakdown of increptin
(B) Decreased breakdown of insulin
(C) Increased production of insulin
(D) Decreased production of glucagon

83. Chest x-ray in a patient presenting with severe acute MR will show -
(A) Cardiomegaly with PVH (B) Normal size heart with PVH
(C) Normal chest x-ray (D) None of the above
84. Drugs which can induce PAH -
(A) Fenfluramine (B) Amlodipine
(C) Sildenafil (D) None of the above
85. A 45 year female with suspected severe PAH has come for assessment of PAH by echo. The estimated TR velocity is 4m/s. The PA systolic pressure (assuming RA pressure is 10) would be -
(A) 74 mmHg (B) 80 mmHg (C) 95 mmHg (D) 55 mmHg
86. Common causes of cor - pulmonale would be all except -
(A) Chronic bronchitis (B) Cystic fibrosis
(C) Higher altitude dwellers (D) Mitral stenosis
87. Sildenafil citrate used for treatment of PAH should not be used along with -
(A) Sorbitrate (B) Illioprost
(C) Hydralazide (D) Calcium channel blockers
88. Thrombolytic agent of choice in acute pulmonary embolism is -
(A) Streptokinase (B) Urokinase (C) Alteplase (D) Tenechteplase
89. Normal PA pressure in individual living at sea level is -
(A) 18 - 25/6 - 10 mm Hg (B) 25 - 35/10 - 15 mm Hg
(C) 35 - 45/15 - 25 mm Hg (D) > 45/> 25 mm Hg
90. Which of these is not an indication for surgical pulmonary embolectomy ?
(A) Persistent arterial hypotension (B) Systemic hypoperfusion and hypoxia
(C) RV dilatation (D) Severe RV failure
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