No. of Printed Pages : 15

MCC-002

POST GRADUATE DIPLOMA IN CLINICAL CARDIOLOGY (PGDCC)

00627

Term-End Examination

December, 2010

MCC-002 : FUNDAMENTALS OF CARDIOVASCULAR SYSTEM - II

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 of the following is True about 2 D Echo ?

(1) 2 D Echo uses the principle of ultrasound.

(2) Lower frequency probes give better penetration.

(3) 7.5 MHz probe is best suited for pediatric than adult examination.

(4) All of the above.

2. Pressure gradients are assessed with :

(1) M-Mode (2) Pulse Doppler

(3) Continuous wave doppler (4) Colour doppler.

3. The advantages of M-Mode are :

(1) evaluation of rapidly moving structure and endocardium.

(2) visualisation of minute changes in wall and valve motion.

(3) accurate measurement of chamber dimensions.

(4) all of the above.

4. Spot the FALSE statement :

(1) Pw measures flow velocity only of sample volume.

(2) Pulse doppler has one crystal.

(3) Pulse doppler can be done by duplex transducer as well as non-imaging tranducer.

(4) Maximal measurable velocity without aliasing is usually < 2m/s.

5. What is the colour of doppler when blood is flowing towards the transducer ?

(1) Red (2) Yellow

(3) Blue (4) Mosaic

6. Which of the following is simplified Bernoulli's equals ?

(1) $\Delta P = 4\left(V_2^2 - V_1^2\right)$ (2) AV area = 120/ + ½ ms

(3) $A_1V_1 = A_2V_2$ (4) PASP = $4V^2$ + RA Pressure

7. If TR jet velocity is 4m/s RVPS would be :

(1) 16mm Hg (2) 40mm Hg

(3) 64mm Hg + RAP (4) 84mm Hg

8. IVC diameter on expiration 1.8cm and on inspiration 0.8cm. The RA pressure estimate would be :

(1) 0 - 5mm Hg (2) 5 - 10mm Hg

(3) 10 - 15mm Hg (4) 15 - 20mm Hg

9. 2 D Echo evaluation revealed DT 280m Sec. IVRT 98ms E/A 0.8 :

(1) Normal filling (2) impaired relaxation

(3) Pseudonormal pattern (4) Restrictive filling

10. A wall motion score index of 1 indicates :

(1) Normally contracting LV (2) perfusion detect of > 20 %

(3) small infarct (4) extensive infarct

11. Spot the FALSE statement :

(1) Anterior infarcts more commonly form, Ventricular aneurysm.

(2) Ventricular pseudoaneurysm are commons in posterior infarcts.

(3) Infarct expansion usually occurs in a kinetic segments.

(4) Earliest abnormality to appear after prolonged ischemia is syntotic dysfunction.

12. M mode measurement of 13mm of pericardial fluid is :

(1) Normal fluid (2) Small effusion

(3) Moderate effusion (4) Large pericardial effusion

13. FALSE statement about pericardial effusion :

(1) Ends anterior to descending aorta.

(2) almost always overlaps left atrium.

(3) rarely > 4cm in depth.

(4) Tamponade may be present.

14. TRUE statement about cardiac temponade :

(1) Early diastolic collapse of RV is the most sensitive sign.

(2) Late diastolic RA collapse is the most specific sign.

(3) IVC plethora is usually seen.

(4) all of the above.

15. Judkins pig tail catheter has :

(1) Side holes and end holes.

(2) End holes only.

(3) Side holes only.

(4) No holes.

16. Low osmolar agents are preferred as contrast agents because :

(1) Deliver less osmotic load.

(2) Less load pain.

(3) Less intravescular volume.

(4) All of the above.

17. A 30 year old male with recent history of intercontinental long distance air travel is admitted with sudden onset of SoB, BP of 80/60, Normal ECG tracing - possible diagnosis :

(1) Pericardial effusion.

(2) Pulmonary thromboembolism.

(3) A cute MI.

(4) Unstable Angina.

18. 2 D Echo M mode shows increased density behind the posterior wall of 5mm, mild atrial enlargement, normal sized LV, dilated venacava, sepetal bounce, diastolic flow reversal i expiration in hepatic vein suggest :

(1) 1HD

(2) Valvular abnormality

(3) Constrictive pericarditis

(4) Cardiac tamponade

19. A pressure half time of 200ms, resting mean gradient of 8mm Hg is graded as :

(1) Normal

(2) Mild MS

(3) Moderate MS

(4) Severe MS

20. A 20 year old male i CRHD MS has SOBFC III, MVA by planimetry is 1.2cm^2, pressure half time 200ms wilkins score 7. Trivial MR. Treatment of choice :

(1) OP medical management
(2) P B M V
(3) Surgical management
(4) Hospitalisation.

21. Valve area in moderate Aortic stenosis is :

(1) > 1.5cm^2
(2) 1 – 1.5cm^2
(3) < 1cm^2
(4) 3 – 4cm^2

22. Mean gradient in severe AS is :

(1) < 25 mm Hg
(2) 25 - 40 mm Hg
(3) > 40 mm Hg
(4) cannot be estimeted.

23. In moderate mitral stenosis mean gradient :

(1) < 5 mm Hg
(2) 5 - 10 mm Hg
(3) > 10 mm Hg
(4) no gradient

24. Valve area in severe MS :

(1) < 1 cm^2
(2) 1 - 1.5 cm^2
(3) 1.5 - 2 cm^2
(4) 4 - 5 cm^2

25. TEE examination - probe is placed in :

(1) Trachea
(2) eosophagus
(3) both
(4) on thorax

26. Doppler vena contracta width in mild AR :

(1) < 0.1cm
(2) < 0.3cm
(3) > 0.4cm
(4) > 0.6cm

27. TAPSE of 2.6cm indicates :

(1) good RV function
(2) good LV function
(3) severe LV dysfunction
(4) Moderate LV dys function

28. Normal 'E' DT is about :

(1) 75ms (2) 100ms

(3) 200ms (4) 500ms

29. Dominent circulation in coronary arteries is determined by :

(1) origin of PDA (2) origin of PLVB

(3) origin of SA nodal artery (4) origin of AV nodal artery

30. Which is a hemodynamically significant lesion in coronary artery disease :

(1) > 30 % block (2) > 50 % block

(3) >70 % block (4) > 90 % block

31. Measurement of oximetry run is useful in :

(1) ASD (2) Co-arctation of aorta

(3) AS (4) Ebstein anamoly

32. Which of the following is a determinant of Peripheral resistance :

(1) Pulse pressure (2) Systolic BP

(3) Diastolic blood pressure (4) Mean aortic pressure

33. Wilkine score is for assessment of :

(1) AR (2) MR

(3) TR (4) MS

34. SAM (systolic anterior motion) is seen in all except :

(1) HOCM (2) anemia

(3) Thyrotoxicosis (4) Restrictive cardiomyopathy

35. Septal bounce is characteristic feature of :

(1) HOCM (2) Constrictive pericarditis

(3) pericardial effusion (4) Restrictive cardiomyopathy

36. In the apical 5 chamber view all are seen except :

(1) Both atria (2) Both ventricles

(3) Ascending Aorta (4) Pul Artery

37. Luferior wall is visualised its :

(1) PLAX View (2) Short ANS

(3) Apical 2C (4) Apical 4C

38. Pulmonary Artery Diastolic pressure is determined by measuring EDV of :

(1) T.R. Jet velocity (2) PR Jet velocity

(3) MR Jet velocity (4) I.V.C.

39. Pulmonary Artery Systolic pressure is determined by measuring :

(1) T.R. Jet velocity (2) PR Jet velocity

(3) MR Jet velocity (4) I.V.C.

40. Mospholigical features of Tricuspid valve are all except :

(1) Low annular attachment (2) Triangular orifice

(3) Three leaflets (4) Two leaflets

41. Mosphological feature of L.V. are all except :

(1) MV-AV continuety (2) No infundibulum

(3) Smooth septal surface (4) Large Apical trasiculalies

42. Visceral situr is decided by :

(1) Supra Sternal view (2) PLAX view

(3) Sub costal coronal view (4) Sub-costal sagittal view

43. SELLAR'S CLASSIFICATION of REGURGITATION - Moderate opacification of proximal chamber clearing cutis subsequent beats is graded as :

(1) 1+ (2) 2+

(3) 3+ (4) 4+

44. Contra indication is to PBMV are all except :

(1) L.A. thrombus
(2) Moderate-severe MN
(3) Conconitant severe CAP
(4) Sev MS i Pul HM

45. Catheter of choice for LV Angio graphy :

(1) Swan-ganz catheter
(2) Amplalzer catheter
(3) Pig tail catheter
(4) Multiple purpose

46. Radio Pharma clinical tracer used for myocardial metasbolism studies :

(1) 18 Clinical Deoxy Glucose
(2) Thallium
(3) 99-M te Sestanuitri
(4) 99-Te tetro fosmine

47. The Normal Range for P.A.peak systolic pressure :

(1) 2 - 7 Hg
(2) 4 - 12 Hg
(3) 15 - 30 Hg
(4) 50 - 60 Hg

48. A large sodium lodide crystal photomultiplier collimater are parts of :

(1) 2 D Echo probe
(2) 3 D echoprobe
(3) Soue's catheter
(4) Gamma Camera

49. A.S.D. is best seen in

(1) Apical 4 chamber
(2) Sub-costal
(3) Suprasternal
(4) SAX

50. Best Echo parawelis for Assesment of Severity of VSD shunt :

(1) LVEF
(2) LVIDd
(3) LVIDs
(4) LA Size

51. A PDA of 3mm size should be considered for :

(1) Spontaneous closure
(2) Device closure
(3) Surgical closure
(4) Medical management

52. CONTINUOUS Doppler probe has :

(1) One crystal (2) Two crystal

(3) three crystal (4) no crystal

53. MVA by planimetery (cm^2) in moderate MS :

(1) > 1.5 (2) 1.0 - 1.5

(3) < 1.0 (4) < 6.0

54. R.V.pressure is measured by (in a case of VSD) :

(1) arm BP-VSD gradient (2) VSD gradient - arm BP

(3) Syslotic BP - Diaslotic BP (4) VSD grandient

55. Which probe has best penetration ?

(1) 2 (2) 5

(3) 7.5 (4) 10

56. Pulmonary Angiography - false statement :

(1) indicates in Pul Embolism

(2) Damping of pressure in MPA indicates massive Embolism.

(3) PAWP is measured using balone floation catheter.

(4) Increased pressure in MPA indicates Embolism.

57. Simpson's method is used to calculate :

(1) MR jet velocity (2) Pressure grandient across VSD

(3) LVEF (4) Stenotic lusims

58. Great vessels are recognised by :

(1) Origin from ventricle (2) Morphology of Sexulunar valve

(3) Branching pattern (4) None of the above

59. Following are Functional causes of TR except :

(1) R.U. infarction (2) Corpulency

(3) Tricuspid valve Prolapse (4) PPH

60. Indication for Aostic valvuloplasty are :

(1) Peak systolic pressure gradient at rest of $\geq$ 65mmHg.

(2) Peak systolic pressure gradient at rest of 50 - 64 with symptoms.

(3) Low cardiac output regardless of gradient.

(4) All of the above.

61. Doppler echocardiography is based upon :

(1) change in direction of reflected sound waves.

(2) change in velocity of reflected sound waves.

(3) change in frequency of reflected sound waves.

(4) change in intensity of reflected sound waves.

62. For optimum Doppler echo signals one has to :

(1) use maximum gain for doppler.

(2) use high filters for Doppler.

(3) align the Doppler beam perpendicular to the blood flow.

(4) align the Doppler beam in line with the blood flow.

63. Pulse wave doppler is used to :

(1) measure low velocities in a localized area.

(2) measure high velocities in a localized area.

(3) measure low velocities in a wide area.

(4) measure high velocities in a wide area.

64. What happens when the velocity exceeds the Nyquist limit ?

(1) the machine gives an alarm.

(2) aliasing of Doppler signals occurs.

(3) the Doppler signal becomes inaudible.

(4) the Nyquist limit cannot be exceeded.

65. Continuous wave Doppler is useful to :

(1) to measure high velocities and gradients.

(2) to identify presence of small VSD.

(3) to locate exact site of stenosis.

(4) to quantify severity of regurgitation.

66. Colour flow Doppler mapping is based on measurement of :

(1) peak velocity of flow in area of interest.

(2) least velocity of flow in area of interest.

(3) mean velocity of flow in area of interest.

(4) difference in peak and least velocity of flow in area of interest.

67. Two dimensional echocardiography utilizes sound with a frequency of :

(1) more than 2 million cycles/sec.

(2) between 50,000 and 100,000 cycles/sec.

(3) between 20,000 and 50,000 cycles/sec.

(4) less than 20,000 cycles/sec.

68. For optimum image 2 D Echo cardiography the beam of ultrasound must be aligned at :

(1) 0 degrees to the object of interest.

(2) 45 degrees to the object of interest.

(3) 90 degrees to the object of interest.

(4) 120 degrees to the object of interest.

69. Pericardial Tamponade is diagnosed when pericardial effusion is accompanied by :

(1) Diastolic collapse of inferior vena cava.

(2) Diastolic collapse of right atrium and right ventricle.

(3) Systolic collapse of inferior vena cava.

(4) Systolic collapse of right atrium and right ventricle.

70. The continuity equation is used to calculate :

(1) severity of aortic regurgitation.

(2) severity of mitral regurgitation.

(3) severity of coarctation.

(4) severity of aortic stenosis.

71. The following echocardiographic findings are suggestive of severe aortic regurgitation except :

(1) left ventricular diastolic dimension of 7.0 cms.

(2) aortic regurgitation pressure ½ time more than 250 msecs.

(3) diastolic reversal of flow in descending aorta.

(4) aortic regurgitation colour jet width 75% of LVOT.

72. The gradient across a stenotic aortic valve is related to all the following factors except :

(1) heart rate

(2) systolic function of left ventricle.

(3) diastolic function of left ventricle.

(4) cardiac output.

73. A patient with mitral stenosis undrgoes cardiac catheterization. The following findings are expected except :

(1) left ventricular end - diastolic pressure 20 mmHg.

(2) PA wedge pressure 22 mmHg.

(3) Pulmonary artery mean pressure 64 mmHg.

(4) RA mean pressure 11 mmHg.

74. In echocardiographic assessment of mitral stenosis, the mitral valve score grades the following except :

(1) leaflet calcification

(2) leaflet dimensions

(3) Leaflet thickening

(4) Leaflet mobility

75. Mitral valve area can be calculated from all the following parameters except :

(1) mitral valve planimetry

(2) mitral valure pressure ½ time

(3) continuity equation

(4) peak mitral valve diastolic gradient

76. Mosaic colour in colour Doppler indicates :

(1) high velocity laminar flow
(2) high velocity turbulent flow
(3) low velocity turbulent flow
(4) low velocity laminar flow

77. Pericardial effusion is commonly diagnosed on echocardiography by :

(1) echo free space behind heart and descending aorta.
(2) echo free space in front of the heart.
(3) echo free space surrounding the leaft ventricle and left atrium.
(4) echo free space surrounding the heart but not extending behind the left atrium

78. A 49 year old male was admitted to CCU with chest pain. The ECG showed ST segment depression is anterolateral leads. Which of the following test is appropriate for initial evaluation ?

(1) Treadmill exercise test
(2) First pass radionuclide angiography
(3) Ventilation perfusion scan
(4) Echocardiography

79. Ventricular angiography is useful for the assessment of the following except :

(1) ventricular diastolic function
(2) ventricular global systolic function
(3) regional ventricular function
(4) valvular regurgitation

80. A 56 year old male is admitted with acute chest pain, dyspnoea and hypotension. The ECG shows anterior myocardial infarction. The following procedures are indicated except :

(1) Intra - arterial line.
(2) Swan - Ganz PA catheter insertion.
(3) Ventilation perfusion scan.
(4) Early coronary angiography.

81. Myocardial viability can be assessed by all the following tests except :

(1) PET scan
(2) Doppler echocardiography
(3) Thallium scintigraphy
(4) GSPECT

82. A step-up in the right atrium on oximetry can be seen in the following conditions except :

(1) atrial septal defect
(2) coronary cameral fistula
(3) patent foramen ovale
(4) VSD with tricuspid regurgitation

83. Cardiac output can be measured by the following methods except :

(1) Doppler echocardiography.
(2) Fick's principle using oximetry.
(3) Thermodilution method.
(4) Tissue Doppler imaging.

84. The left ventricular end diastolic pressure in a normal individual measures :

(1) 0 - 5 mmHg
(2) 5 - 12 mmHg
(3) 12 - 20 mmHg
(4) 20 - 30 mmHg

85. To calculate pulmonary vascular resistance you require the following except :

(1) pulmonary artery diameter
(2) pulmonary artery mean pressure
(3) PA wedge mean pressure
(4) Pulmonary blood flow

86. A large V wave in the PA wedge pressure tracing indicates :

(1) acute left ventricular failure
(2) chronic left ventricular failure
(3) severe mitral regurgitation
(4) severe mitral stenosis

87. Left ventricular end-diastolic pressure of 40 mmHg in the presence of aortic regurgitation indicates :

(1) hypertension with aortic regurgitation.
(2) acute onset severe aortic regurgitation.
(3) chronic severe aortic regurgitation.
(4) combined aortic stenosis and aortic regurgitation.

88. A aortic diastolic pressure of 20 mmHg can occur in all the following conditions except :

(1) severe aortic regurgitation.

(2) arteriovenous fistula.

(3) large patient ductus arteriosus.

(4) pyrexia.

89. Equalisation of pressures in all 4 chambers of the heart occurs in :

(1) large septal defects

(2) post operative state

(3) constrictive pericarditis

(4) pneumopericardium

90. Which view is most preferred for angiographic assessment of left ventricular funcation ?

(1) right anterior oblique (2) lateral

(3) left anterior oblique (4) anteroposterior