

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

**Term-End Examination**

00096

**December, 2011**

**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 one is closest to Pulmonary wedge capillary pressure in normal person ?
  - (1) RA mean
  - (2) LA mean
  - (3) LVEDP-CLV End diastolic pressure
  - (4) PA mean
2. A step up of > 7% at atrial level indicates significant :
  - (1) Pretricuspid shunt
  - (2) Post tricuspid shunt
  - (3) Normal finding
  - (4) None of the above
3. Which of the following frequency transducers will have maximum penetration through tissue ?
  - (1) 3.5 MHz
  - (2) 7 MHz
  - (3) 4.5 MHz
  - (4) All have equal capacity
4. Which frequency transducer will you prefer while doing Echo in a 4 months old baby ?
  - (1) 3.5 MHz
  - (2) 7 MHz
  - (3) 4.5 MHz
  - (4) All have equal capacity
5. What is the colour of Doppler when blood is flowing towards transducer ?
  - (1) Red
  - (2) Yellow
  - (3) Blue
  - (4) Mosaic
6. Which Doppler is better for low velocity flow ?
  - (1) Continuous wave
  - (2) Pulse wave
  - (3) Colour Doppler
  - (4) Any of the above
7. The way to assess RV systolic or PA systolic pressure will be ('V' denotes TR velocity) :
  - (1)  $4V^2 + 10$  mm of Hg
  - (2)  $3V^2 + 8$  mm of Hg
  - (3)  $2V^2 + 6$  mm of Hg
  - (4)  $V^2 + 10$  mm of Hg
8. E-wave deceleration time (DT) of < 160 ms is suggestive of :
  - (1) Diastolic Dysfunction
  - (2) Systolic Dysfunction
  - (3) Restrictive filling
  - (4) Normal finding
9. Ischaemic Heart Disease IHD impairs systolic thickening of LV before ECG changes i.e thickening is less than the following compared to diastolic dimensions :
  - (1) < 1 time
  - (2) < 1.5 times
  - (3) < 2 times
  - (4) < 0.5 times

10. Dominance of Coronary Artery is decided by Left or Right Coronary origin of :  
 (1) PDA (2) OM (3) PLV (4) Diagonal
11. When do we invariably need to intervene if on Coronary Angiography stenosis is :  
 (1)  $> 50\%$  (2)  $> 30\%$  (3)  $> 60\%$  (4)  $> 70\%$
12. Which is not true of Pseudo Aneurysm of LV ?  
 (1) Narrow neck (2) More common in inj. wall  
 (3) Due to Myocardial Perforation (4) Wall is forced by myocardium
13. Doppler spectrum is cut off and frequency shift recorded on the opposite side of base line is called :  
 (1) Nyquist Limit (2) Aliasing  
 (3) Anti frequency (4) None of the above
14. Maximum measurable velocity by pulse wave is :  
 (1)  $< 2 \text{ m/s}$  (2)  $< 3 \text{ m/s}$  (3)  $< 5 \text{ m/s}$  (4)  $< 9 \text{ m/s}$
15. Continuous wave Doppler is able to measure velocity :  
 (1)  $< 15 \text{ m/s}$  (2)  $< 9 \text{ m/s}$  (3)  $8 \text{ m/s}$  (4)  $7 \text{ m/s}$
16. If IVC diameter on expiration is  $> 2 \text{ cm}$  with less than 20% collapse on inspiration : RA pressure is approximately :  
 (1) 10 - 15 mm (2) 10 - 20 mm (3) 5 - 10 mm (4)  $> 20 \text{ mm}$
17. Which is the most specific Echo cardiographic sign of cardiac tamponade ?  
 (1) Early diastolic collapse of RV  
 (2) Late diastolic RA collapse  
 (3) Abnormal septal motion  
 (4) Dilated IVC  $> 2 \text{ cm}$   $< 50\%$  inspiration collapse

18. Which is the most sensitive sign of cardiac tamponade ?
- (1) Early diastolic collapse of RV
  - (2) Late Diastolic RA collapse
  - (3) Abnormal septal motion
  - (4) Dilated Ivc > 2 cm. e' < 50% inspiration collapse
19. Compared to pleural effusions pericardial effusion :
- (1) Ends Anterior to descending Aorta
  - (2) Never overlaps Left Atrium
  - (3) May develop signs of tamponade
  - (4) All of the above
20. Which one of the following is the most diagnostic sign of Rheumatic Heart Disease ?
- (1) Restricted PML
  - (2) Thickened cusps
  - (3) Thickened Papillary Muscles and chordae
  - (4) Prolapse of AML
21. Vena contracta of > 6 mm is sign of :
- (1) Severe MS                      (2) Severe MR                      (3) MS + MR                      (4) MILD MR
22. PHT - (Pressure half time) of > 220 mm is suggestive of :
- (1) Severe MS                      (2) Moderate MS
  - (3) Mild MS                      (4) None of the above
23. In a patient with mitral stenosis the stenosis is severe if resting mean PG is more than :
- (1) 5 mm Hg                      (2) 7.5 mm Hg                      (3) 10 mm Hg                      (4) 15 mm Hg
24. Which of the following is true of MVP ?
- (1) Mid systolic hammocking in M-mode
  - (2) Never to be assessed in apical 4 chamber view
  - (3) Eccentric MR jet away from prolapsed leaflet
  - (4) All the above

25. A patient with Aortic stenosis and in dysfunction ; best way to judge Aortic valve Area is :
- (1) Planimetry
  - (2) AV gradient
  - (3) AVA calculation by continuity Equation
  - (4) Any of the above
26. What is the mean PG across Aortic valve to call it severe as with normal LV function ?
- (1) > 25 mm Hg
  - (2) > 30 mm Hg
  - (3) > 40 mm Hg
  - (4) > 50 mm Hg
27. In a patient with severe AR CW across jet shows PHT (pressure half time) :
- (1) > 50 mm
  - (2) 250 - 500 mm
  - (3) 250 mm
  - (4) > 750 msec
28. In absence of TR we diagnose tricuspid stenosis if mean PG across TV is :
- (1) > 2.5 mm Hg
  - (2) 2 - 2.5 mm Hg
  - (3) < 2 mm Hg
  - (4) < 1 mm Hg
29. Organic TR is caused by :
- (1) Trauma
  - (2) Carcinoid
  - (3) SBE
  - (4) All the above
30. Morphological feature of tricuspid valve includes all except :
- (1) Septal chordal attachment
  - (2) Two leaflet
  - (3) Triangular orifice
  - (4) More than two papillary muscles
31. Morphological characteristics of LV includes all of the following except :
- (1) Smooth septal surface
  - (2) Fine trabeculation
  - (3) Higher attachment of AV valve
  - (4) Sub Aortic infundibulum
32. Great vessels are recognised by :
- (1) Their origion from ventricle
  - (2) Semilunar valve morphology
  - (3) Branching pattern
  - (4) Velocity of flow
33. Viscueral simtus is decided by :
- (1) Suprasternal view
  - (2) Parasternal long Axis View
  - (3) Subcostal sagental view
  - (4) Subcostal coronal view

34. Best view of diagnose ASD is by :
- |                        |                        |
|------------------------|------------------------|
| (1) Subcostal view     | (2) Parasternal view   |
| (3) Apical 4 - chamber | (4) Supra sternal view |
35. PAPVE of Right Pulmonary veins are most commonly associated with :
- |                          |                        |
|--------------------------|------------------------|
| (1) Fossa ovalis ASD     | (2) Ostium primum ASD  |
| (3) Sinus venosus defect | (4) coronary sinus ASD |
36. Which type of USD is most commonly associated with AR due to Aortic value prolapse ?
- |                        |                      |
|------------------------|----------------------|
| (1) Perimeubranous VSD | (2) Sub pulmonic VSD |
| (3) Inlet VSD          | (4) Muscular VSD     |
37. Straddling of Triuspid valve is feature of :
- |                        |                |
|------------------------|----------------|
| (1) Perimembranous VSD | (2) Inlet VSD  |
| (3) Muscular VSD       | (4) Outlet VSD |
38. Highest Rate of spontaneous closure is seen with :
- |                          |                  |
|--------------------------|------------------|
| (1) Perimembrous VSD     | (2) Inlet VSD    |
| (3) Doubly committed VSD | (4) Muscular VSD |
39. Which type of ASD can be cleared by Device ?
- |                       |                        |
|-----------------------|------------------------|
| (1) Fossa avalis ASD  | (2) Coronary sinus ASD |
| (3) Sinus Venerus ASD | (4) Ostium primum ASD  |
40. High parasternal view is useful to profile :
- |         |         |         |                  |
|---------|---------|---------|------------------|
| (1) ASD | (2) VSD | (3) PDA | (4) Aortic valve |
|---------|---------|---------|------------------|
41. PA systolic pressure may be estimated from :
- |            |            |            |            |
|------------|------------|------------|------------|
| (1) TR jet | (2) MR jet | (3) PR jet | (4) AR jet |
|------------|------------|------------|------------|
42. Commonest Acqanotic CHD is :
- |         |                           |
|---------|---------------------------|
| (1) ASD | (2) VSD                   |
| (3) PDA | (4) Bicuspid Aortic valve |

43. Which of the following is not an indication for Balloon Aortic valve 10 plasty ?
- (1) Peak systolic gradient  $\geq 6$  in
  - (2) Systolic gradient 50 - 64 with symptoms
  - (3) Low cardiac output regardless of gradients
  - (4) None of the above
44. Which of the following is called Roger's Defect ?
- (1) Small ASD
  - (2) Small PDA
  - (3) Restrictive small VSD
  - (4) Co-arcuation of Aorta
45. Common art associated lesion of VSD is :
- (1) ASD
  - (2) PDA
  - (3) Co-arcuation of Aorta
  - (4) Bicuspid Aortic valve
46. Isovolumic relaxation phase of cardiac cycle ends with :
- (1) Peak of 'C' waves
  - (2) Opening of A.V. valve
  - (3) Closure of semilunar valve
  - (4) Beginning of 'T' waves
47. 'C' waves in JVP is due to :
- (1) Atrial contraction
  - (2) Tricuspid valve Bulging in RA
  - (3) Right Atrial filling
  - (4) Rapid ventricular filling
48. All of following heart sounds occur shortly after S<sub>2</sub> except :
- (1) Opening snap
  - (2) Pericardial knock
  - (3) Ejection click
  - (4) Tumour plop
49. Pulsus paradoxus is seen in all except :
- (1) IPPV
  - (2) COPD
  - (3) Cardiac tamponade
  - (4) Constrictive pericarditis
50. Pulsus Bisferiens is best felt in :
- (1) Carotid artery
  - (2) Brachial artery
  - (3) Radial artery
  - (4) Femoral artery

51. Normal PCWP with pulmonary Edema is seen in :
- (1) Left atrial myxoma
  - (2) High altitude
  - (3) Pulmonary vein obstruction
  - (4) Pulmonary artery obstruction
52. QRS complex indicates :
- (1) Atrial Repolarisation
  - (2) Atrial Depolarisation
  - (3) Ventricular Repolarisation
  - (4) Ventricular Depolarisation
53. All are ECG findings in WPW - syndrome, except :
- (1) Narrow QRS complexes
  - (2) Normal QT Interval
  - (3) Scarred and Tall QRS
  - (4) Short PR interval
54. In patient with wide complex tachycardia, the presence of all of the following in ECG indicates ventricular tachycardia, except :
- (1) A - V dissociation
  - (2) Fusion beats
  - (3) Typical RBBB
  - (4) Capture Beats
55. All of the following are ECG features of severe hyperkalaemia, except :
- (1) Peaked T waves
  - (2) Presence of 'U' waves
  - (3) Sine waves pattern
  - (4) loss of 'P' waves
56. External cardiac massage is given at least at the rate of :
- (1) 100/mt
  - (2) 50/mt
  - (3) 80/mt
  - (4) 40/mt
57. Earliest manifestation in the fatty streak of atherosclerosis is :
- (1) Collection of lipid in endothelial cells
  - (2) Collection of lipid in smooth muscles
  - (3) Endothelial cell damage
  - (4) None of above
58. The Dicrotic notch of Aortic pressure curve is caused by :
- (1) Closure of Pulmonary valve
  - (2) Rapid filling of LV
  - (3) Closure of Aortic valve
  - (4) Contraction of Atria



59. In an Atrial flutter with 2 : 1 Block, if the Atrial rate is 400/mt then the ventricular rate shall be :
- (1) 400/mt                      (2) 800/mt                      (3) 82/mt                      (4) 200/mt
60. Verapemil belongs to which class of anti arrhythmic drugs :
- (1) Class I                      (2) Class II                      (3) Class III                      (4) Class IV
61. Most common type of ASD is :
- (1) ostium primum                      (2) ostium secundum  
(3) sinus venosus type                      (4) endocardial cushion defects
62. Vegetations on undersurface of A - V valves are found in :
- (1) Acute Rheumatic fever  
(2) Libman Sach's Endocarditis  
(3) Non thrombotic Bacterial Endocarditis  
(4) Chronic Rheumatic carditis
63. Severity of MS is assessed by :
- (1) Left atrial Enlargement                      (2) Loudness of  $S_1$   
(3) Calcification of valve                      (4)  $A_2$  - OS gap
64. Area of Aortic valve orifice to be called critical, should be less than :
- (1) 1.5  $\text{cm}_2$                       (2) 1  $\text{cm}_2$                       (3) 0.6  $\text{cm}_2$                       (4) 0.3  $\text{cm}_2$
65. Enzyme earliest to rise in MI :
- (1) CPK                      (2) LDH                      (3) Troponin                      (4) SGPT
66. Systemic and pulmonary embolism together can be seen in :
- (1) Anterior MI                      (2) Posterior MI                      (3) Inferior MI                      (4) Septal MI
67. CAG can visualize vessels with lumen upto :
- (1) 5 mm                      (2) 1 mm                      (3) 0.5 mm                      (4) 0.1 mm

68. Left ventriculography is useful in the assessment of the following except :
- (1) Segmental and global left ventricular function
  - (2) Mitral valve regurgitation
  - (3) Aortic regurgitation
  - (4) Hypertrophic cardiomyopathy
69. Best test for Myocardial viability :
- (1) Stress thallium
  - (2) Cardiac MRD
  - (3) CAG
  - (4) Echo
70. Commonest Arrhythmia encountered in Digi-toxicity :
- (1) CHB
  - (2) AF
  - (3) Bigeminy
  - (4) PSVT
71. In Benign HTN commonest vascular pathology :
- (1) Atherosclerosis
  - (2) Fatty infiltration of intima
  - (3) Fibrinoid necrosis
  - (4) Hyaline arteriosclerosis
72. Conduction velocity is maximum in :
- (1) Purkinje fibers
  - (2) Bundle of his
  - (3) SA node
  - (4) AV Bundle
73. First symptom of Digoxin over dose is :
- (1) GI disturbance
  - (2) U - waves of ECG
  - (3) Ectopics on ECG
  - (4) Fainting spell
74. Fibrous scar in MI is well established by :
- (1) 6 wks
  - (2) 6 months
  - (3) 6 days
  - (4) 30 days
75. What is called as 'widow's artery' :
- (1) RCA
  - (2) LAD
  - (3) Internal mammary artery
  - (4) Femoral artery

76. Best semi quantitative assessment of RV function is :
- (1) Pulmonary valve movement
  - (2) Tricuspid annulus movement
  - (3) Pulmonary doppler flow assessment
  - (4) RA dilatation
77. Which of following structures are poorly visualised by TEE ?
- (1) Mitral valve
  - (2) Aortic valve
  - (3) Left Atrium
  - (4) LV Apex
78. Typical frequency produced by an echo is :
- (1) 1 MHz
  - (2) 2.5 MHz
  - (3) 5 MHz
  - (4) 20 MHz
79. Amiodasone \_\_\_\_\_ all are true, except.
- (1) 40% Iodine
  - (2) Potentiate effects of Digoxin
  - (3) Corneal deposits are usually reversible
  - (4) Prolong plateau phase of action potential
80. Following improve survival figure in Chronic Heart failure, except :
- (1) Bisoprolol
  - (2) Atenolol
  - (3) Metoprolol
  - (4) Spironolactone
81. The following cardiac lesions are considered high risk of IE, except :
- (1) VSD
  - (2) HOCM
  - (3) Combined mitral valve disease
  - (4) MS
82. LVH is commonly seen with :
- (1) Pure mitral stenosis
  - (2) ASD with fossa ovalis
  - (3) Aortic incompetence
  - (4) Carcinoid syndrome
83. Osler's nodes are seen at :
- (1) Heart
  - (2) Knee jt.
  - (3) Tip of palm and sole
  - (4) Anterior abdominal wall

84. Current of injury is :  
(1) P - wave (2) ST. segment (3) QRS complex (4) QT - interval
85. Beck's triad of cardiac tamponade includes all except :  
(1) Hypotension (2) Neck vein distension  
(3) Paradoxical pulse (4) Silent heart
86. Rapid X descent is unlikely in :  
(1) Constrictive pericarditis (2) Cardiac tamponade  
(3) RV - MI (4) Restrictive cardiomyopathy
87. In severe Aortic stenosis, true finding is :  
(1) Late systolic ejection click (2) Hyperkinetic and outward Apex  
(3) ST - segment deviation in EKG (4) Loud S<sub>2</sub>
88. Digital clubbing is seen in all except :  
(1) Endocarditis (2) Pulmonary AV. fistula  
(3) Tricuspid atresia (4) Aortic dissection
89. Troponin - I is preferred over CK-MB in acute MI, in all except :  
(1) Bed side diagnosis of MI (2) After CABG  
(3) Re-Infarction (4) Small Infarcts
90. Peripheral Edema in CHF is due to :  
(1) atrial natriuretic peptide (2) Pulmonary Hypertension  
(3) Increased hydrostatic pressure (4) Decreased sympathetic tone
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