

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

Term-End Examination

December, 2012

MCC-001 : FUNDAMENTALS OF CARDIOVASCULAR SYSTEM - I

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) *There will be **90** questions in this paper and each question carries equal marks.*
- (vi) *There will be no negative marking for wrong answers.*
- (vii) *No candidate shall leave the examination hall at least for **one** hour after the commencement of the examination.*

1. The sternocostal surface of the heart consists of all the following "except".
 - (1) Right atrium
 - (2) Left atrium
 - (3) Right ventricle
 - (4) Left ventricle

2. The right atrium and ventricle are separated by :
 - (1) Anterior part of AV groove
 - (2) Posterior part of AV groove
 - (3) Anterior interventricular groove
 - (4) Posterior interventricular groove

3. The upper border of the heart is formed mainly by :
 - (1) Right atrium
 - (2) Left atrium
 - (3) Ascending aorta
 - (4) Pulmonary artery

4. The inferior border of the heart or diaphragmatic of the heart is formed by :
 - (1) Right atrium
 - (2) One third by right ventricle and two third by left ventricle
 - (3) Two third by right ventricle and one third by left ventricle
 - (4) Only right ventricle

5. The "Sinus Venarum" is :
 - (1) Appendage
 - (2) Rough anterior part of right atrium
 - (3) Smooth part of right atrium where all large veins drains
 - (4) None of above

6. Venae, Cordis Minimae are opening of small veins of the heart seen mainly in :
 - (1) Right atrium
 - (2) Left atrium
 - (3) Right ventricle
 - (4) Left ventricle

7. Which is "true" regarding Crista terminalis :
 - (1) It is located in the right atrium
 - (2) It is the muscular ridge where sinus venarum and atrium proper meets
 - (3) It corresponds to a groove externally called Sulcus terminalis
 - (4) All of above

8. Which is "true" regarding Limbus fossa ovalis :
 - (1) It represents the embryonic septum primum
 - (2) It represents the lower curved edge of septum secundum
 - (3) It forms the lower margin of Fossa ovalis
 - (4) None of above

9. The papillary muscles are functionally related to :
- (1) Atria (2) Atrioventricular valves
(3) Ventricles (4) All of above
10. The Septo - marginal trabeculae which connects the base of anterior papillary muscles to the interventricular septum is located in :
- (1) Right atrium (2) Left atrium
(3) Right ventricle (4) Left ventricle
11. Which is **true** regarding coronary arteries ?
- (1) The coronary arteries are functional end arteries
(2) There is no effective anastomosis between right and left coronary arteries
(3) Both are true
(4) Both are false
12. Which is **not** correct regarding right coronary artery ?
- (1) It arises from the posterior aortic sinus
(2) It runs along the anterior part of coronary sulcus
(3) It supplies to right atrium, right ventricle and conducting system of the heart
(4) All are correct
13. The diagonal artery is the branch of :
- (1) Anterior interventricular artery (2) Left circumflex artery
(3) Right coronary artery (4) None of above
14. True statement regarding the coronary sinus is :
- (1) It lies in the coronary sulcus (2) It open into the right atrium
(3) It open into right ventricle (4) (1) + (2)
15. The "atrial systole" corresponds to :
- (1) The beginning of P wave (2) PR interval
(3) Beginning of QRS complex (4) None of above
16. The Isovolumetric Contraction phase corresponds to :
- (1) Beginning of R wave on the ECG
(2) First heart sound on auscultation
(3) During this phase AV valve and semilunar valve are closed
(4) All of above

17. Which is **true** regarding Isovolumetric Relaxation phase :
- (1) It corresponds to the 3rd heart sound
 - (2) During this phase, the semilunar valve and atrioventricular valve both are opened
 - (3) The volume of ventricle remains the same and the ventricular pressure arises
 - (4) None of above
18. Which of the following is a negative wave in Atrial pressure wave formed :
- (1) "a" wave
 - (2) "x" wave
 - (3) "c" wave
 - (4) "v" wave
19. Which of the following Atrial pressure wave forms indicates ventricular diastole :
- (1) "a" wave
 - (2) "x" descent
 - (3) "v" wave
 - (4) "y" descent
20. Which of the following is **not** a part of primitive heart tube ?
- (1) Sinus venosus
 - (2) Primitive atria
 - (3) Ventricle
 - (4) Aortic sac
21. The partitioning and complete formation of fetal heart is seen by :
- (1) 4 weeks of gestation
 - (2) 6 weeks of gestation
 - (3) 8 weeks of gestation
 - (4) 12 weeks of gestation
22. Which is of the following is **not** a part of "Bulbus cordis"
- (1) Bulbus cordis - the proximal portion forms the right ventricle
 - (2) Conus cordis
 - (3) Truncus arteriosus
 - (4) Aortic sac
23. Which is **correct** statement regarding Atrial partitioning :
- (1) The partitioning of atrium begins with the appearance of septum primum
 - (2) It occurs about the 28th day
 - (3) The ostium secundum is formed by perforation in septum primum
 - (4) All are correct
24. The free edge of foramen ovale is formed by :
- (1) Septum primum
 - (2) Septum secundum
 - (3) Septum spurium
 - (4) All of above
25. In the fetal heart, the sinus venosus receive blood from :
- (1) Vitelline vein
 - (2) Umbilical vein
 - (3) Common cardinal vein
 - (4) All of above

26. The Sinoatrial Orifice is :
- (1) Communication between right and left horn of sinus venosus
 - (2) It is communication between sinus venosus and vitelline vein
 - (3) It is communication between sinus venosus and common cardinal vein
 - (4) It is communication between sinus venosus and primitive atrium
27. Which of the following structure get obliterated in post natal life :
- (1) The right sinus horn
 - (2) Right anterior cardinal vein
 - (3) Right vitelline vein
 - (4) Right umbilical vein
28. The superior vena cava forms by :
- (1) The right horn of sinus venosus
 - (2) The right anterior cardinal vein
 - (3) The right vitalline vein
 - (4) Right umbilical vein
29. The inferior vena cava forms by :
- (1) Right vitelline vein
 - (2) The right umbilical vein
 - (3) The left horn of sinus venosus
 - (4) Right anterior cardinal vein
30. The coronary sinus forms by :
- (1) The right horn of sinus venosus
 - (2) The left horn of sinus venosus
 - (3) The umbilical vein
 - (4) The common cardinal vein
31. The persistent atrioventricular canal is caused by :
- (1) Failure of the superior and inferior cushion to fuse
 - (2) Deficient development of conus swelling
 - (3) Failure of muscular portion of interventricular septum to fuse with free edge of conus septum
 - (4) Excessive diventricular of the muscular interventricular septum
32. Which of the following factor is responsible for occurrence of ventricular septal defect ?
- (1) Deficient development of the proximal conus swellings
 - (2) Failure of the muscular portion of the interventricular septum to fuse with the free edge of conus septum
 - (3) Failure of the endocardial cushions to fuse
 - (4) All of above
33. Which is **not** correct regarding Dextrocardia ?
- (1) It occurs when the primitive heart tube holds to the left
 - (2) It occurs when primitive heart tube holds to the right
 - (3) It usually occurs when all the organs systems are reversed (sinus inversus)
 - (4) All are correct

34. The Ventricular septal defect in Tetralogy of Fallot is located in :
- (1) Membranous septum
 - (2) Muscular septum
 - (3) Outlet septum
 - (4) It can be located anywhere
35. The single embryological error which leads to the occurrence of TOF is :
- (1) The straddling of aorta over the VSD
 - (2) The conal septum develops too far anteriorly
 - (3) Both of above
 - (4) None of above
36. Which of the following structure forms right border in postero - anterior view of X-ray :
- (1) Right atrium plus SVC
 - (2) Right atrium plus IVC
 - (3) Right atrium plus right ventricle
 - (4) All of above
37. The best radiological view to demonstrate lesions in restrosternal and costophrenic regions is :
- (1) Postero - anterior view
 - (2) Lateral view
 - (3) Right anterior oblique view
 - (4) Left anterior oblique view
38. The anterior margins of cardiac contours in lateral view is formed by :
- (1) Right ventricle and pulmonary trunk
 - (2) Left atrium and left ventricle
 - (3) Right atrium and right ventricle
 - (4) Right ventricle alone
39. The best radiological view to see the aorta is :
- (1) Lateral view
 - (2) Postero - anterior view
 - (3) Right anterior oblique view
 - (4) Left anterior oblique view
40. The "Hoffman Rigler Sign" is suggestive of :
- (1) Right atrial enlargement
 - (2) Left atrial enlargement
 - (3) Left ventricular enlargement
 - (4) Right ventricular enlargement
41. 'Sternal Contact Sign' denotes :
- (1) Right atrial enlargement
 - (2) Right ventricular enlargement
 - (3) Pulmonary artery dilatation
 - (4) RV enlargement with pulmonary artery dilatation

42. The "double density sign" (increased density producing a convex border overlying or to the right of right heart border) indicates :
- (1) Posterior enlargement left atrium
 - (2) Rightward enlargement of left atrium
 - (3) Superior enlargement of left atrium
 - (4) All of above
43. The superior enlargement of left atrium manifest as :
- (1) An increased density producing a convex border overlying the right heart border (double density)
 - (2) Widening of carinal angle to more than 90 degrees
 - (3) Straightening and convexity of left heart border
 - (4) All of above
44. Right atrial enlargement in PA view is suggested by :
- (1) The right heart border more than 3 cm from the midline
 - (2) Right heart border 4 cm more from the midline
 - (3) Right heart border more than 5.5 cm from midline
 - (4) Right heart border more than 7 cm from midline
45. Pulmonary plethora indicated by :
- (1) Pulmonary branches are visualized beyond the inner 2/3rd of lungs
 - (2) Vessels in the upper and lower lobes are dilated to the same degree
 - (3) The number of end on vessels seen is 5 or more in both lung fields (or 3 or more in one lung field)
 - (4) All of above
46. Pericardial calcification is better seen on :
- (1) AP view
 - (2) Lateral view
 - (3) RAO view
 - (4) LAO view
47. Which of the following is **not** a radiological feature of pulmonary embolism ?
- (1) Ring sign
 - (2) Westermark sign
 - (3) Fleischner's sign
 - (4) Hampton hump
48. Which of the following radiological features is suggestive of dissection of the aorta ?
- (1) Widened mediastinum
 - (2) Ring sign
 - (3) Abnormal aortic knob
 - (4) All of above

58. The QRS amplitude is much higher than P wave because of :
- (1) Longer distance of travel of impulse
 - (2) Slower rate of conduction through ventricular muscles
 - (3) Depolarization of larger muscle mass
 - (4) All of above
59. Which of the following is **not** a cause of ST segment elevation in EKG ?
- (1) Acute pericarditis
 - (2) Mitral valve prolapse
 - (3) Early repolarization
 - (4) Aneurysm
60. Which of the following is a non-ischæmic cause of ST segment depression ?
- (1) Sub-endocardial ischaemia
 - (2) Non Q Wave MI
 - (3) Secondary ST segment changes with Bundle Branch Block
 - (4) Reciprocal changes in acute Q wave MI
61. The most Labile waveform in EKG is :
- (1) P wave
 - (2) QRS wave
 - (3) T wave
 - (4) U wave
62. In normal EKG, "T" wave is always upright in lead :
- (1) I, II and V3-V6
 - (2) I, II, III and avF
 - (3) avR, avL and avF
 - (4) avL and V1 to V6
63. The "T" wave is always inverted in :
- (1) Lead II, III and avF
 - (2) Lead avR
 - (3) Lead V1 to V3
 - (4) All of above
64. All the following produces tall "T" wave in ECG "except" :
- (1) Idiopathic apical hypertrophy
 - (2) Hyperkalemia
 - (3) Early repolarization abnormality
 - (4) Early stage of ST elevation
65. "Dressinerl" Beat is a :
- (1) Fusion beat
 - (2) Is a capture beat
 - (3) It is an ectopic beat
 - (4) None of the above
66. Pulsus parvus at tardus is seen in :
- (1) MS
 - (2) MR
 - (3) AS
 - (4) AR
67. Pulsus alternans occurs in :
- (1) Constrictive pericarditis
 - (2) Viral Myocarditis
 - (3) Hypokalemia
 - (4) CHF

68. Pulsus bigeminus is seen in :
 (1) AR (2) CHF (3) Ectopic beats (4) None of above
69. Dicrotic pulse is seen in ?
 (1) HOCM (2) Dilated Cardiomyopathy
 (3) CHF (4) Restrictive Cardiomyopathy
70. Water hammer pulse is seen in :
 (1) Aortic stenosis
 (2) Aortic regurgitation
 (3) Aortic stenosis and Aortic regurgitation
 (4) Mitral stenosis
71. Pulsus bisferiens is best felt in :
 (1) Carotid Artery (2) Brachial Artery
 (3) Radial Artery (4) Femoral Artery
72. 'c' wave in JVP is due to :
 (1) Atrial contraction (2) Tricuspid valve bulging into right atrium
 (3) Right atrial filling (4) Rapid ventricular filling
73. Typical finding in cardiac tamponade.
 (1) Absent 'y' descent (2) Prominent 'a' wave
 (3) Absent 'a' wave (4) Prominent 'y' wave
74. Loud S1 in Mitral stenosis is caused by :
 (1) Prolonged flow through mitral valve
 (2) 1st degree heart block
 (3) Calcification of the valve
 (4) Immobilization of valve
75. Fixed splitting of S2 may be seen in all except :
 (1) Pulmonary embolism (2) PS
 (3) ASD (4) LBBB
76. Third heart sound is seen in all except :
 (1) Athletes (2) Mitral Stenosis
 (3) Constrictive Pericarditis (4) LVF

77. True about third heart sound are all except :
- (1) Absent in Chr. Constrictive pericarditis
 - (2) Absent in aortic aneurysm
 - (3) Absent in MS
 - (4) Normal Physiologically in Athletes
78. Which of the following is true about fourth heart sound S4 :
- (1) Can be heard by the unaided ear
 - (2) Frequency is greater than 20 Hz
 - (3) Heard during ventricular filling phase
 - (4) Heard during ventricular ejection phase
79. S4 is seen in all of the following except :
- (1) AS
 - (2) Acute MI
 - (3) Atrial fibrillation
 - (4) HOCM
80. All of the following heart sounds occur shortly after S2 except :
- (1) Opening snap
 - (2) Pericardial knock
 - (3) Ejection click
 - (4) Tumor plop
81. Which of the following has mid systolic murmur ?
- (1) MVP
 - (2) AS
 - (3) HOCM
 - (4) TR
82. Which of the following has PAN systolic murmur :
- (1) TR
 - (2) MR
 - (3) VSD
 - (4) All of the above
83. Which of the following murmur is mid diastolic murmur ?
- (1) Graham steel murmur
 - (2) Carey Coombs
 - (3) Austin flint
 - (4) All of the above
84. What is false in relation of carey coombs murmur :
- (1) Delayed diastolic murmur
 - (2) Seen in Rheumatic Fever
 - (3) Associated with AR
 - (4) Low pitched murmur
85. Which of the following murmur increases with valsalva :
- (1) HOCM
 - (2) VSD
 - (3) AS
 - (4) MS

86. QT interval is shortened in :
- | | |
|-------------------|------------------|
| (1) Hypocalcaemia | (2) Hypokalemia |
| (3) Hypercalcemia | (4) Hyperkalemia |
87. Tall and Peaked T-wave are seen in ?
- | | |
|------------------|--------------|
| (1) Hyperkalemia | (2) Acute MI |
| (3) Both | (4) None |
88. All are ECG changes in hypokalemia, except :
- | | |
|------------------------------------|-------------------------|
| (1) U wave | (2) ST segments sagging |
| (3) T- waveflattening or inversion | (4) QT interval short |
89. All of the following are the electrocardiographic features of hyperkalemia except :
- | | |
|---------------------------|---------------------------|
| (1) Prolonged PR interval | (2) Prolonged QT interval |
| (3) Sine wave pattern | (4) Loss of P. wave |
90. All of the following electrocardiographic findings may represent manifestations of digitalis intoxication except :
- | | |
|--------------------|--|
| (1) Bigeminy | (2) Junction tachycardia |
| (3) Atrial Flutter | (4) Atrial tachycardia with variable block |
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