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MCC-001

483

Total No. of Questions : 90]

[Total No. of Printed Pages : 16

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

Term-End Examination

June, 2014

**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.

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(1)

Turn Over

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1. All of the following statements while obtaining a chest X-rays are correct except :
 - (1) If patients condition permits an antero-posterior view must be obtained
 - (2) If the patients condition permits a postero-anterior view must be obtained
 - (3) The PA view helps reduce magnification of heart and mediastinum
 - (4) The distance of the focus and film is ideally 6 feet

2. All of the following statements regarding Cardiothoracic ratio (CT Ratio) are correct except :
 - (1) CTR is the ratio of the transverse cardiac diameter and transverse chest diameter
 - (2) The transverse chest diameter is measured from the outer rib margin at the widest point above the costophrenic angles on a PA chest film
 - (3) CTR > 0.5 is usually abnormal in adults
 - (4) CTR can be upto 0.6 in elderly

3. The epicardium which lies on the surface of the heart is :
 - (1) the fibrous pericardium
 - (2) the outer parietal layer of the serous pericardium
 - (3) the inner parietal layer of the serous pericardium
 - (4) the inner visceral layer of the serous pericardium

4. The coronary sinus opens into the :

(1) Right ventricle	(2) Right atrium
(3) Left ventricle	(4) Left atrium

5. Breathlessness on lying down in the lateral decubitus posture is called :

(1) Orthopnoea	(2) Platypnea
(3) Trepopnea	(4) PND

6. Dresslers Syndrome is chest pain due to :
 - (1) Costochondral involvement
 - (2) Is characterised by pleuropericardial pain, postoperatively
 - (3) is due to RV ischemia
 - (4) due to oesophageal rupture

7. A patient with mitral stenosis develops hoarseness of voice. This condition is called :
- (1) Ortner's syndrome (2) Boerharves syndrome
(3) Tietzes syndrome (4) Levines sign
8. Which of the following principles governs the relationship between left ventricular filling (preload) and contractile performance ?
- (1) Laplace law (2) Bernoulli's principle
(3) Frank-Starling equation (4) None of these
9. A 38 years old male with cyanotic congenital heart disease on examination has parrot beaking of nails. He has clubbing :
- (1) Grade 4 (2) Grade 2
(3) Grade 3 (4) Grade 1
10. Hypertrophic cardiomyopathy is characterised by which type of pulse ?
- (1) Pulsus alternans (2) Pulsus Bisferiens
(3) Pulsus Paradoxus (4) Collapsing pluse
11. In case of difficulty in appreciating the JVP waves one can time it with the contralateral carotid pulsations. Which of the following is true ?
- (1) 'v' wave occurs after and 'a' wave before carotid pulsations
(2) 'a' wave occurs after and 'v' wave before carotid pulsations
(3) 'a' wave occur after and 'v' wave with carotid pulsations
(4) 'a' wave occurs before and 'v' wave with carotid pulsations
12. A non-pulsating very high venous pressure suggests :
- (1) Constrictive pericarditis (2) Pericardial effusion
(3) Superior mediasatinal obstruction (4) Tricuspid stenosis
13. All the conditions produce continuous murmur except :
- (1) Venus hum
(2) Patent ductus arteriosus
(3) A combination of aortic stenosis and aortic regurgitation
(4) Rupture sinus of valsalva aneurysm into right ventricle

14. All of the following statements regarding measurement of Blood pressure are incorrect except :
- (1) Measurement should begin after at least 10 minutes of rest
 - (2) Patient should refrain from smoking during 20 minutes preceding the test
 - (3) Two or more readings separated by 2 minutes should be averaged if first two readings differ by more than 5 mm Hg, additional reading should be taken
 - (4) The bladder within the cuff should encircle at least 70% of the arm
15. Which chest deformity is associated with Noonans, syndrome ?
- (1) Pectus excavatum
 - (2) Pecius carinatum
 - (3) Straight Back syndrome
 - (4) Shield chest
16. The normal P wave axis falls between :
- (1) + 30° and + 45°
 - (2) + 45° and + 60°
 - (3) + 40° and + 75°
 - (4) + 30° and + 60°
17. All of the following statements regarding Ventricular Activation Time (VAT) are correct except :
- (1) VAT is the time taken by the ventricles to depolarise
 - (2) It is measured from on set of QRS to the sudden downstroke of QRS
 - (3) The sudden downstroke is also called 'Intrinscoid deflection'
 - (4) In the right oriented leads the normal VAT is 0.04s and on the left it is 0.06 sec
18. Which of the following statements is false for ECG ?
- (1) Time is represented on the horizontal X-axis
 - (2) The paper speed usually is 25 mm per sec
 - (3) The distance between 2 vertical lines is 1 mm and represents 0.04 sec. at the usual speed
 - (4) Each horizontal line on Y-axis represents 1 mV (millivolts)
19. Which of the following is not a cause of ST segment elevation ?
- (1) acute pericarditis
 - (2) hynothermia
 - (3) advanced hypokalemia
 - (4) early repolarisation

20. Which of the following statements regarding 'U' wave is incorrect ?
- (1) is a small rounded deflection seen at the end of T wave
 - (2) it is seen in hypokalemia
 - (3) normally the amplitude is about 25% of that of a normal T wave
 - (4) the 'v' wave may originate from repolarisation of papillary muscle or Purkinje network
21. Which of the following statements regarding ECG findings in Pulmonary Embolism is incorrect ?
- (1) Atrial fibrillation may be seen
 - (2) $S_1Q_3T_3$ was first described by Mc Ginn and White
 - (3) The $S_1Q_3T_3$ pattern is seen in upto 50% cases
 - (4) $S_1Q_3T_3$ pattern occurs due to repolarisation abnormalities
22. Which of the following ECG changes characterises stage 3 of pericarditis ?
- (1) Diffuse ST elevation
 - (2) ST segment resolution and T wave flattening
 - (3) T wave inversion in direction opposite of ST segment
 - (4) Resolution of T wave changes
23. In hypokalemia the U waves reach giant size and fuse with T waves when serum potassium levels drop to :
- | | |
|------------|------------|
| (1) 3mEq/L | (2) 1mEq/L |
| (3) 2mEq/L | (4) 4mEq/L |
24. "PAT with block" is an arrhythmia classically associated with toxicity of which drug ?
- | | |
|----------------|-----------------|
| (1) Amiodarone | (2) Propafenone |
| (3) Digitalis | (4) Ibutilide |
25. "Pseudonormalisation" of T waves during TME is :
- (1) Increase in T wave amplitude in lead V_2
 - (2) Inverted or flat T waves at baseline become upright
 - (3) Deep T waves appearing during exercise
 - (4) Tall T waves occurring during exercise

26. All of the following help to localise proximal LAB lesion before the 1st Diagonal except (at TMT) :
- (1) ST elevation in v_1
 - (2) ST depression in 2, 3, av_F
 - (3) Decreased T wave negatively in v_1
 - (4) ST depression in $v_4 v_5 v_6$
27. A scoring system which combines changes in R wave. S waves and Q waves to predict CAD is :
- (1) Benedicts scale
 - (2) Athens score
 - (3) William's score
 - (4) Feldmans score
28. All of the following are true about nuclear cardiac imaging except :
- (1) Technetium scannig produces higher quality images than thallium scanning
 - (2) After initial injection, technetium undergoes redistribution within the myocardium which allows assessment of myocardial viability
 - (3) Stress thallium scanning is preferred over exercise stress ECG in patients with LBBB at baseline
 - (4) Technetium has shorter half-life than thallium isotope used for myocardial scintigraphy
29. A long QT syndrome which is autosomal recessive and associated with neural deafness is :
- (1) Romano word Syndrome
 - (2) Jervell Lange Nielsen syndrome
 - (3) Brugada Syndrome
 - (4) Williams Syndrome
30. All of the following are true about the stethoscope except :
- (1) Concept developed by Lennac
 - (2) is an airtight instrument with a metal tubing joined to a single flexible 12" long rubber tubing with 1/8" internal diameter and with dual chest pieces
 - (3) Too long a tubing attenuates high frequencies, low frequencies are unaffected by tube length
 - (4) Diaphragm is used to damp out high frequencies and is best for low frequency events

31. All of the following are correct about the left coronary artery except :
- (1) The average diameter of the Left Main Coronary Artery is 4 mm
 - (2) It arises from the left anterior aortic sinus
 - (3) It divides into LAD and left circumflex vessels
 - (4) The left coronary artery supplies the Left ventricle, Left atrium, anterior 2/3 of the IVS and adjacent part of the RV
32. The obtuse marginals are branches of the :
- (1) LAD
 - (2) LCX
 - (3) RCA
 - (4) Ramus Intermedius
33. The septum primum begins to appear at about the :
- (1) 20th day
 - (2) 28th day
 - (3) 35th day
 - (4) 40th day
34. The commonest type of ASD is the :
- (1) ostium primum variety
 - (2) Secundum type
 - (3) Sinus venosus type
 - (4) Coronary sinus variety
35. Which of the following statements regarding chest X-rays in Pulmonary Arterial hypertension is incorrect ?
- (1) Central arterial enlargement, manifesting as an increased concavity of the pulmonary conus
 - (2) Enlarged descending pulmonary artery of more than 16 mm
 - (3) Sharp pruning of peripheral vasculature
 - (4) Right descending arterial calibre of more than 25 mm
36. Which of the following statements regarding pericardial Rub is incorrect ?
- (1) Superficial, scratchy, leathery sound
 - (2) In sinus rhythm it has 3 components (one systolic and two diastolic)
 - (3) In Atrial fibrillation the midsystolic component disappears
 - (4) It may be heard in uremic patients

37. Eddy sounds are :
- (1) characteristic of venous hum
 - (2) seen with AV fistulas
 - (3) are often associated with systolic arterial murmurs
 - (4) are clicking sounds characteristic of PDA murmur
38. Phase 3 of Valsawa manoeuvre is characterised by :
- (1) Narrowing of A_2P_2 interval
 - (2) Overshoot of systemic BP and reflex tachycardia
 - (3) Abrupt, transient reduction in BP as straining ceases
 - (4) Reduced venous return and systolic BP with reflex tachycardia
39. The only right sided event to diminish with inspiration on auscultation is :
- (1) RVS_3
 - (2) RVS_4
 - (3) Both RVS_3 and RVS_4
 - (4) Pulmonary ejection click in patients with pulmonic stenosis
40. The pericordial knock is
- (1) Early loud S_3
 - (2) Early loud S_4
 - (3) Ejection click
 - (4) Loud P_2 heard in constrictive pericarditis
41. A prominent but not loud Murmur is Grade :
- | | |
|-------------|-------------|
| (1) Grade 2 | (2) Grade 5 |
| (3) Grade 4 | (4) Grade 3 |
42. A patient who has WPW syndrome and associated Ebstein's anomaly has a :
- (1) Higher risk of sudden cardiac death (SCD)
 - (2) lower risk of SCD.
 - (3) Same risk of SCD as WPW patients without Ebstein's an anomaly
 - (4) No such association exists

43. Which of the following statements regarding MET (Metabolic Equivalent) is incorrect ?
- (1) 1 MET = 3.5 ml O₂/min.
 - (2) A test can be accurately interpreted if at least 6 METs are achieved
 - (3) Healthy individuals can achieve 10—11 METs
 - (4) Aerobic trainers can achieve more than 16 METs
44. Early Repolarisation syndrome is also called :
- (1) Edwards Syndrome
 - (2) Grucins Syndrome
 - (3) Glads Syndrome
 - (4) Brugadas Syndrome
45. Which statement regarding apex beat is correct ?
- (1) Normally felt in 6th intercostal space
 - (2) Occupies an area of 2.5 cm²
 - (3) Placed just lateral to mid-clavicular line
 - (4) has 2 components
46. The Aortic valve is surface marked at :
- (1) Sternal end of left 3rd costal cartilage
 - (2) Sternal margin of left 3rd intercostal space
 - (3) Sternal margin of left 4th costal cartilage
 - (4) Midsternum opposite to the 4th intercostal space
47. Sinus venosus depicts which internal part of the right atrium ?
- (1) rough anterior part
 - (2) atrium proper
 - (3) smooth part
 - (4) appendage
48. Phase 4 of the cardiac cycle corresponds to :
- (1) Iso volumetric contraction
 - (2) Reduced filling
 - (3) Reduced Ejection
 - (4) Rapid Ejection

56. Atrial flutter and Atrial fibrillation are said to be controlled when the ventricular rates are :
- (1) < 120 bpm (2) < 100 bpm
(3) < 80 bpm (4) < 75 bpm
57. All of the following are characterised by 'RP shorter than PR' except :
- (1) AVRT (2) AVNRT
(3) PJRT (4) atrial tachycardia
58. The typical AVNRT is the :
- (1) Fast slow form (2) Slow fast form
(3) Slow slow form (4) Fast fast form
59. All of the following statements is incorrect regarding Bruce protocol :
- (1) Patients start out at 1.7 Mph on a 15° grade
(2) Can be extended upto 7th stage
(3) Stages change every 3 minutes
(4) Is the most commonly used protocol
60. Which of the following is associated with greater probability of CAD when it rises during TMT.
- (1) Systolic BP (SBP)
(2) Diastolic BP (DBP)
(3) No such association exists
(4) Both are equally associated
61. All of the following are correct regarding S₃ except :
- (1) Generated during rapid filling phase
(2) It is a high frequency event
(3) Physiological S₃ is rarely heard in normal subjects after 30 years age
(4) Pathological S₃ associated with high LA pressure and reduced LV compliance

62. "Carvallo Sign" is :

- (1) Murmur of TR becoming louder with Inspiration
- (2) Murmur of MR becoming louder with Inspiration
- (3) Murmur of TR becoming fainter with Inspiration
- (4) Murmur of MR becoming fainter with expiration

63. Spider waves in JVP are characteristic of :

- (1) Ventricular tachycardia
- (2) Junctional tachycardia
- (3) Atrial flutter
- (4) Sinus arrhythmia

64. A 40 years old male gives history of : "having to stop for breath after walking for 100 yards or after a few minutes on the level". According to American Thoracic Society Scale of Dyspnoea his dyspnoea grade is :

- (1) Grade 3
- (2) Grade 2
- (3) Grade 4
- (4) Grade 1

65. Which of the following is associated with cannon 'a' wave in JVP ?

- (1) TS
- (2) Pulmonary stenosis
- (3) Pulmonary hypertension
- (4) Nodal rhythm

66. Klingfield index depicts :

- (1) ST Heart rate slope
- (2) ST Heart Rate Index
- (3) ST hysteresis
- (4) Intermittent ST depression

67. Short QT interval is seen in :

- (1) Hypokalemia
- (2) Hyperkalemia
- (3) Hypocalcemia
- (4) Phenothiazines use

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68. The base of the anterior papillary muscle is attached to the IVS by a special bond called :

- (1) Tendon of Todaro
- (2) Trigonum fibrosum dextrum
- (3) Septomarginal trabecula
- (4) Trigonum fibrosum sinistrum

69. The inferior or diaphragmatic surface of the heart is formed by the :

- (1) 2/3rd by LV and 1/3rd by RV
- (2) 2/3rd by RV and 1/3rd by LV
- (3) entirely by RV
- (4) 1/2 by LV and 1/2 by RV

70. The VSD in tetralogy of Fallot is :

- (1) Restrictive VSD
- (2) Non-restrictive VSD
- (3) Muscular VSD
- (4) Never Seen

71. The Right atrium is formed from the :

- | | |
|---------------------|--------------------------|
| (1) Pulmonary Veins | (2) Endocardial cushions |
| (3) Bulbus cordis | (4) Sinus venosus |

72. The Bachmans bundle is :

- | | |
|--------------------------------|------------------------------|
| (1) Anterior internodal bundle | (2) Middle internodal bundle |
| (3) Posterior bundle | (4) Interatrial bundle |

73. The most anterior valve of the human heart is :
- (1) Mitral (2) Aortic
(3) Tricuspid (4) Pulmonary
74. The crux of the heart is located on which surface ?
- (1) Apical (2) Anterobasal
(3) Posterobasal (4) Lateral
75. Trabecular carneae are found in the :
- (1) Left atrium (2) Right ventricle
(3) Right atrium (4) Left ventricular outflow tract
76. Septum Primum type ASD involves :
- (1) Endocardial cushions
(2) Septum Primum
(3) Septum Secundum
(4) Septum primum + Septum Secundum
77. Which view on chest X-ray helps best demonstrate retrosternal and costophrenic regions ?
- (1) AP view (2) PA view
(3) RAO view (4) Lateral view
78. All of the following are features of left atrial enlargement on chest X-ray except :
- (1) Double density
(2) Straightened left heart border
(3) Displaced descending thoracic aorta
(4) Rounding of apex

85. All of the following are ECG features of Left atrial enlargement except :
- (1) A hatched broad based P. wave in lead II with a duration of 0.12 m sec.
 - (2) P/PR segment > 1.6
 - (3) P wave axis $> +75^\circ$
 - (4) Terminal portion of P wave in V_1 (depth \times time) > 0.04 mm sec
86. A patient with acute inferior wall MI has raised JVP but lungs are clear. What would you suspect additionally :
- (1) Posterior wall MI
 - (2) Right ventricular infarction
 - (3) Anterior wall MI
 - (4) Lateral wall MI
87. The normal QRS duration is :
- (1) 0.04–0.08 sec
 - (2) 0.04–0.12 sec
 - (3) 0.12–0.20 sec
 - (4) 0.06–0.12 sec
88. In coarctation of aorta prominent pulsations may be seen :
- (1) In suprasternal notch
 - (2) over the scapulae
 - (3) In epigastric region
 - (4) In neck
89. The Aortic auscultatory area is located at :
- (1) 2nd left intercostal space near the sternum
 - (2) 2nd right intercostal space near the sternum
 - (3) Apex of the heart
 - (4) Lower end of body of sternum
90. Prominent J wave or Osborne wave is seen in :
- (1) Hypothyroidism
 - (2) Hypocalcemia
 - (3) Hypothermia
 - (4) Hypokalemia