

[LB 0212]

AUGUST 2012
B.Sc. CARDIAC TECHNOLOGY
SECOND YEAR
PAPER – III – ECHOCARDIOGRAPHY
Q.P. Code : 801513

Sub. Code: 1513

Time : Three hours

Maximum : 100 marks

(180 Mins) Answer ALL questions in the same order

I. Elaborate on:

Pages Time Marks
(Max.)(Max.)(Max.)

- | | | | |
|---|---|----|----|
| 1. Describe the technique of transoesophageal echocardiogram with illustrations of structures visualised at different levels. | 7 | 20 | 10 |
| 2. Describe with diagrams the 17 segment model of left ventricle for regional wall motion assessment. | 7 | 20 | 10 |
| 3. Echocardiographic differentiation of different types of cardiomyopathies. | 7 | 20 | 10 |

II. Write Notes on:

- | | | | |
|--|---|----|---|
| 1. Colour flow doppler imaging – Technique, utility and limitations. | 4 | 10 | 5 |
| 2. Describe with illustration the structures visualised in parasternal long axis view. | 4 | 10 | 5 |
| 3. Echocardiographic assessment of aortic stenosis. | 4 | 10 | 5 |
| 4. Echocardiographic signs of constrictive pericarditis. | 4 | 10 | 5 |
| 5. Echocardiographic detection of vegetations and complications of infective endocarditis. | 4 | 10 | 5 |
| 6. Differential diagnosis of echogenic mass lesions in left atrium. | 4 | 10 | 5 |
| 7. Echocardiographic evaluation of Tetralogy of Fallot. | 4 | 10 | 5 |
| 8. 2-D and Doppler assessment of prosthetic valves. | 4 | 10 | 5 |

III. Short Answers on:

- | | | | |
|---|---|---|---|
| 1. Merits and limitation of M mode echocardiogram. | 2 | 4 | 3 |
| 2. Usefulness of colour B mode scanning. | 2 | 4 | 3 |
| 3. Illustrate the structures visualised in parasternal short axis view at mitral valve level. | 2 | 4 | 3 |
| 4. Illustrate the structures visualised in apical 2 chamber view. | 2 | 4 | 3 |
| 5. Pulse doppler study of pulmonary venous flow. | 2 | 4 | 3 |
| 6. Echocardiographic assessment of stroke volume. | 2 | 4 | 3 |
| 7. Determination of mitral valve by pressure half time. | 2 | 4 | 3 |
| 8. Echocardiographic assessment of suitability of mitral valve for balloon valvuloplasty. | 2 | 4 | 3 |
| 9. Echocardiographic features of perimembranous ventricular septal defect. | 2 | 4 | 3 |
| 10. Echocardiographic features of patent ductus arteriosus. | 2 | 4 | 3 |

[LC 0212]

FEBRUARY 2013
B.Sc. CARDIAC TECHNOLOGY
SECOND YEAR
PAPER – III – ECHOCARDIOGRAPHY
Q.P. Code : 801513

Sub. Code: 1513

Time : Three hours

Maximum : 100 marks

I. Elaborate on:

(3 x 10 = 30)

1. Technique of subcostal examination in a child and describe the structures visualised with diagrams
2. Describe with diagrams the 17 segment model of left ventricle for regional wall motion assessment
3. Echocardiographic indices of LV diastolic dysfunction

II. Write Notes on:

(8 x 5 = 40)

1. Compare pulse doppler and continuous wave doppler
2. Different methods of calculation of ejection fraction by Echo & their limitations
3. Calculation of QP & QS by Echo in congenital heart disease
4. Echocardiographic assessment of aortic stenosis
5. Echocardiographic signs of cardiac tamponade
6. 2-D and Doppler assessment of prosthetic valves
7. Parasternal long axis view shows ventricular septal defect with aortic override. What are the differential diagnosis and how to differentiate?
8. Assessment of pulmonary stenosis for suitability of balloon valvuloplasty. How to identify dysplastic valve.

III. Short Answers on:

(10 x 3 = 30)

1. Doppler shift
2. Myocardial speckle
3. Determination of mitral valve area by pressure half time
4. Echo features of restrictive cardiomyopathy
5. Echo features of hypertrophic obstructive cardiomyopathy
6. Echocardiographic diagnosis of Ebstein anomaly
7. Echocardiographic assessment of suitability of mitral valve for balloon valvuloplasty
8. Echo differentiation of valvular vegetation from other differential diagnosis
9. Echocardiographic differentiation of true ventricular aneurysm from pseudoaneurysm
10. Echo features of double outlet right ventricle

[LD 0212]

AUGUST 2013
B.Sc. Cardiac Technology
Second year
Paper III – Echocardiography
Q.P. Code : 801513

Sub. Code: 1513

Time: Three hours

Maximum: 100 Marks

Answer all questions

I. Elaborate on: **(3 x 10 = 30)**

1. Segmental echocardiographic approach to congenital heart disease
2. Usefulness and limitation of echocardiography in diagnosis of dissection of aorta
3. Usefulness of Echocardiogram in differential diagnosis of a person reporting with chest pain.

II. Write Notes on: **(8 x 5 = 40)**

1. Echocardiographic findings in corrected transposition
2. Usefulness of Echocardiogram in post MI mechanical complications
3. Calculation of regurgitant volume and fractions
4. Differential diagnosis of a continuous flow in PA
5. Quantification of pericardial effusion and rule out tamponade
6. Echo features of constrictive pericarditis
7. Sinus venosus atrial septal defect – Echo features
8. Double outlet right ventricle – Echocardiographic features and difference from Tetralogy of fallot

III. Write Notes on: **(10 x 3 = 30)**

1. Determination of situs by Echocardiogram
2. Principles of doppler
3. LA volume and its usefulness
4. Vegetation Vs thrombus in Echocardiogram
5. TEE criteria to decide on suitability for device closure
6. Wilkinson score of mitral valve
7. Sinus of valsalva rupture – Echo features
8. Calculation of PA pressure from TR & PR
9. Myocardial sparkle
10. Ebsteins anomaly Echocardiogram and calculation of severity

Time: Three hours**Maximum: 100 Marks****Answer all questions****I. Elaborate on:****(3 x 10 = 30)**

1. Echocardiographic assessment of prosthetic valve, Parameters to be assessed, difficulties in assessment and methods of circumventing the same
2. Echo doppler assessment of regurgitant lesion and their limitation
3. Diagnosis and assessment of hypertrophic cardiomyopathy by Echo Doppler methods of bringing out the obstruction.

II. Write Notes on:**(8 x 5 = 40)**

1. Situations where Transoesophageal echocardiogram is superior to Transthoracic echocardiogram.
2. Long axis parasternal view showing ventricular septal defect with aortic override. What are the differential diagnoses? How do you differentiate?
3. Tetralogy of Fallots – The echocardiographic findings.
4. Assessment of severity of mitral stenosis and suitability for balloon mitral valvuloplasty
5. Echo assessment of pulmonary artery hypertension
6. Assessment of pulmonary stenosis for suitability of balloon pulmonary valvuloplasty. Identification of dysplastic valve.
7. Echo Doppler assessment of severity of mitral regurgitation. Is TEE SUPERIOR?
8. Echocardiogram in a cyanotic new born.

III. Write Notes on:**(10 x 3 = 30)**

1. Calculation of valve areas in prosthetic valves.
2. Echocardiography in assessment of prosthetic valve obstruction.
3. Differentiation of wall motion abnormalities due to ischemia from conduction abnormalities.
4. Determinants of prognosis in dilated cardiomyopathy.
5. Draw and label the LV myocardial segments.
6. Assessment of Atrial septal defect by Echocardiogram, the views and their usefulness and limitations.
7. Best view for assessing great artery relation by Echocardiogram. Draw a normally related great artery relation.
8. Mention the limitation and usefulness of pulse Doppler.
9. Modified Bernoulli's equation and their application.
10. Limitation of using peak gradient in assessing a stenosis.

B.Sc. CARDIAC TECHNOLOGY
SECOND YEAR
Paper III – ECHOCARDIOGRAPHY
Q.P. Code : 801513

Time: Three hours**Maximum: 100 Marks****Answer all questions****I. Elaborate on:****(3 x 10 = 30)**

1. Describe with diagrams the 17 segment model of left ventricle for regional wall motion assessment.
2. Echocardiographic assessment of hemodynamic parameters.
3. A cyanotic newborn child on echocardiographic examination has a single large vessel arising from ventricles. Discuss the differential diagnosis with specific features of each condition.

II. Write Notes on:**(8 x 5 = 40)**

1. Colour flow doppler imaging – Technique, utility and limitations.
2. Calculation of QP & QS by echo in congenital heart disease.
3. Different methods of calculation of ejection fraction by Echo & their limitations.
4. Echodoppler assessment of regurgitant lesions and their limitations.
5. Echocardiographic detection of prosthetic valve complications.
6. Contrast echocardiogram – Techniques and usefulness.
7. Echocardiographic signs of cardiac tamponade.
8. Differential diagnosis of echogenic mass lesions in left atrium.

III. Write Notes on:**(10 x 3 = 30)**

1. Echocardiographic assessment of suitability of mitral valve for balloon valvuloplasty.
2. Usefulness of colour B mode scanning.
3. Illustrate the structures visualised in suprasternal view.
4. Contraindications for Transoesophageal echocardiogram.
5. Myocardial performance index.
6. Pulse doppler study of pulmonary venous flow.
7. Limitations of using peak gradient to assess valvular stenosis.
8. Echo features of restrictive cardiomyopathy.
9. Echo features of hypertrophic obstructive cardiomyopathy.
10. Echocardiographic differentiation of true ventricular aneurysm from Pseudoaneurysm.

[LG 0215]

FEBRUARY 2015

Sub. Code: 1513

**B.Sc. CARDIAC TECHNOLOGY
SECOND YEAR
PAPER III – ECHOCARDIOGRAPHY**

Q.P. Code: 801513

Time: Three Hours

Maximum: 100 Marks

Answer all questions

I. Elaborate on:

(3 x 10 = 30)

1. Calcification of left to right shunt and QP:QS ratio by Echo in congenital heart disease.
2. Echocardiographic assessment of prosthetic valve, parameters to be assessed, difficulties in assessment and methods of circumventing the same.
3. Echo features of constrictive pericarditis Vs restrictive cardiomyopathy.

II. Write notes on:

(8 x 5 = 40)

1. Situations where Transoesophageal echo is superior to transthoracic echo.
2. Tetralogy of fallots – the echocardiographic findings.
3. Assessment of severity of aortic stenosis, usefulness and limitation of continuity equation.
4. Parameters of diastolic dysfunction and grading of diastolic dysfunction by Echo.
5. Principles of doppler.
6. LA volume and its usefulness.
7. TEE criteria to decide on suitability for device closure.
8. Ebstein's anomaly echo and calculation of severity.

III. Short answers on:

(10 x 3 = 30)

1. Draw and label the LV myocardial segments.
2. Assessment of atrial septal defect by echo, the view and their usefulness and limitation.
3. Assessment of LA function by doppler.
4. Structures seen in Long axis parasternal view.
5. Diagnosis of corrected transposition by echocardiogram.
6. Parasternal short axis views and their usefulness.
7. Mention the limitation and usefulness of pulse doppler.
8. Calculation of valve area in prosthetic valve.
9. Echo assessment of pulmonary artery hypertension.
10. Echocardiographic findings in corrected transposition.

B.Sc. CARDIAC TECHNOLOGY**SECOND YEAR****Paper III – ECHOCARDIOGRAPHY***Q.P. Code : 801513***Time: Three Hours****Maximum: 100 Marks****Answer all questions****I. Elaborate on:****(3 x 10 = 30)**

1. Assessment and Grading of Diastolic dysfunction with diastolic filling pattern in Atrial Fibrillation and Sinus Tachycardia.
2. Techniques of Transoesophageal Echocardiography with illustrations of structures visualised at different levels.
3. Describe with neat diagrams the 17 segments model of Left Ventricle for Regional Wall Motion assessment.

II. Write Notes on:**(8 x 5 = 40)**

1. Various methods to assess Left Ventricular Systolic Function.
2. Principles of Doppler Effect.
3. Echocardiographic features of Left Atrial Myxoma.
4. Techniques and Usefulness of Contrast Echocardiogram.
5. Echocardiographic features of Tetralogy of Fallot.
6. Echocardiographic features of Ebstein's Anomaly.
7. Assessment of Pulmonary Arterial Hypertension in ECHO.
8. Proximal Isovelocity Surface Area.

III. Short Notes on:**(10 x 3 = 30)**

1. Difference between Pulse Wave and Continuous Wave Doppler.
2. Structures seen in Suprasternal View.
3. Isovolumetric Relaxation Time.
4. Patent Ductus Arteriosus.
5. Pulmonary Systemic Flow Ratio (Qp/Qs).
6. Contraindications of Transoesophageal Echocardiography.
7. ECHO features of Coarctation of Aorta.
8. Difference between True and Pseudo Aneurysm of Left Ventricle.
9. Determination of Situs by Echo.
10. Continuity Equation.

B.Sc. CARDIAC TECHNOLOGY**SECOND YEAR****Paper III – ECHOCARDIOGRAPHY***Q.P. Code : 801513***Time: Three Hours****Maximum: 100 Marks****Answer all questions****I. Elaborate on:****(3 x 10 = 30)**

1. Echo features of Constrictive Pericarditis Vs Restrictive Cardiomyopathy.
2. Describe with neat diagrams the 17 segments model of Left Ventricle for Regional Wall Motion assessment.
3. Assessment and Grading of Diastolic Dysfunction with Diastolic filling pattern in Atrial Fibrillation and Sinus Tachycardia.

II. Write Notes on:**(8 x 5 = 40)**

1. Wall Motion Score Index.
2. Complications of Myocardial Infarction.
3. Features of Cardiac Tamponade.
4. Echo features of Ebstein's Anomaly.
5. Estimation of Severe Aortic Regurgitation from 2D doppler and color flow.
6. Principles of Doppler Effect.
7. Echo features of complete transposition of great vessels.
8. Calculation of left ventricular Mass.

III. Short Notes on:**(10 x 3 = 30)**

1. Pulmonary - Systemic flow ratio (Qp/Qs).
2. Contraindications of Transoesophageal Echocardiography.
3. Various modes of doppler display.
4. Orientation, Uses and Limitations of Apical Five Chamber view.
5. Patent Ductus Arteriosus.
6. Assessment of Atrial Septal Defect, the views and their usefulness.
7. Pressure Half Time.
8. Four Cardinal Features of Tetralogy of Fallot.
9. Isovolumetric Relaxation Time.
10. Types of Stress Echocardiography.

[LJ 0816]

AUGUST 2016

Sub. Code: 1513

B.Sc. CARDIAC TECHNOLOGY

SECOND YEAR

Paper III – ECHOCARDIOGRAPHY

Q.P. Code : 801513

Time: Three Hours

Maximum: 100 Marks

Answer all questions

I. Elaborate on:

(3 x 10 = 30)

1. Echocardiographic evaluation of Left Ventricular diastolic dysfunction.
2. Assessment of stroke volume and cardiac output in Echo.
3. Uses of echocardiogram in the differential diagnosis of chest pain.

II. Write Notes on:

(8 x 5 = 40)

1. M-Mode Echocardiography.
2. Determination of situs by echocardiogram.
3. Left atrial thrombus.
4. Mitral valve prolapse.
5. Pericardial Effusion.
6. Echo features of Coarctation of Aorta.
7. Views in transthoracic Echocardiography.
8. Atrial septal defect.

III. Short Notes on:

(10 x 3 = 30)

1. Doppler Shift.
2. Restrictive Cardiomyopathy.
3. Pulmonary systemic flow ratio (Qp/Qs).
4. Assessment of pulmonary arterial hypertension in Echo.
5. Left atrium volume and its usefulness.
6. Principles of Doppler effect.
7. Trans valvular Gradient.
8. Patent ductus arteriosus.
9. Calculation of valve area in prosthetic valve.
10. Mitral regurgitation.
