BLDE (DEEMED TO BE UNIVERSITY)

1/1/26

B.Sc. in Cardiac Care Technology

[Time: 3 Hours] [Max. Marks: 80]

III SEMESTER

PAPER - I (Applied Anatomy, Physiology & Pharmacology)

QP CODE: 8335/8338

Your answer should be specific to the questions asked.

Write Question No. in left side of margin.

Section 8335 (Anatomy & Physiology)

Long Questions — 10X1 = 10 Marks

1. Describe the structure of the heart under the following headings:
   a) Location b) Surfaces c) Borders d) Chambers e) Valves

Short Essays: (Any – 4) — 5 X 4 = 20 Marks

2. Arch of Aorta- course, branches, relations.
3. Pericardium.
4. Systemic circulation
5. Right coronary artery- course, branches and areas of distribution.
6. Regulation of blood pressure

Very Short Essay (Any – 5) — 2 X 5 = 10 Marks

7. Define cardiac output
8. Sinusoids
9. Define stroke volume
10. Enumerate the branches of Axillary artery.
11. Name the major veins of the upper limb
12. What is homeostasis?

Section 8338 (Pharmacology)

Long Questions — 10X1 = 10 Marks

1. Describe the mechanism of action, therapeutic uses, and adverse effects of Beta-blockers.

Short Essays: (Any – 4) — 5 X 4 = 20 Marks

2. Write pharmacological basis for the use of Salbutamol in asthma.
3. Mechanism of action and uses of Organic nitrates.
4. Mechanism and uses of Morphine.
5. Mechanism and uses of Penicillin antibiotics.
6. Write a short note on NSAIDs.

Short Answers (Any – 5) — 2 X 5 = 10 Marks

7. Name three Cardio-selective beta-blockers.
8. Write three antithrombotic drugs.
9. Name three drugs used in atrial fibrillation.
10. Mention three advantages of 2nd generation antihistamines.
11. Name three hepatic enzyme inducers.
12. Write three uses of Prazosin.

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III SEMESTER

PAPER - II (Basic Electrocardiography)

QP CODE: 8336

Your answer should be specific to the questions asked.
Write Question No. in left side of margin.

Long Questions **10X1 = 10 Marks**

1. Describe the indications, procedure, and reasons for termination of a Treadmill Test (TMT).

Short Essays: (Any – 8) **5 X 8 = 40 Marks**

2. Explain the conduction system of the heart with a diagram.
3. Describe the normal ECG waves and intervals.
4. Write about the types of atrioventricular (AV) blocks.
5. Explain rate measurement methods in ECG (six-second, large-box, small-box).
6. Write about the ECG features in Left Bundle Branch Block (LBBB) and Right Bundle Branch Block (RBBB).
7. Explain augmented limb leads and their importance.
8. Describe the electrical axis of the heart and its clinical importance.
9. Write a short note on ventricular hypertrophy (LVH, RVH).
10. Discuss cardiac rotation and how it appears on ECG

Short Answers: (Any – 10) **3 X 10 = 30 Marks**

11. Define biventricular hypertrophy.
12. What is the P wave?
13. Mention three features of atrial fibrillation on ECG.
14. What is the transition zone in chest leads?
15. Define ST segment and state its significance.
16. What is an incomplete RBBB?
17. Write the normal PR interval value.
18. Explain QRS complex briefly.
19. What is the U wave and when is it seen?
20. Name the precordial leads and their positions.
21. Define electrical alternans.

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III SEMESTER

PAPER - III (Basic Echocardiography)

QP CODE: 8337

Your answer should be specific to the questions asked.
Write Question No. in left side of margin.

Long Questions **10X1 = 10 Marks**

1. What is a Transducer? Explain the Parts of it and write the Types.

Short Essays: (Any – 8) **5 X 8 = 40 Marks**

2. Explain the basics of ultrasound waves – explain the relation between frequency & wavelength.
3. Draw neat and labelled diagrams of 2 D echocardiographic views.
4. Write about M-mode echocardiography – principle and application.
5. Explain continuous wave Doppler and pulsed wave Doppler.
6. Describe color flow mapping in echocardiography.
7. Write about measurement of cardiac output and stroke volume using echo.
8. Explain contrast echocardiography – indications and complications.
9. Describe the assessment of systolic and diastolic left ventricular function.
10. Define resolution and describe the difference between axial and lateral resolution.

Short Answers: (Any – 10) **3 X 10 = 30 Marks**

11. Define Doppler shift.
12. Mention three applications of Doppler echocardiography.
13. What is tissue Doppler imaging?
14. Draw neat and labelled diagram of M-mode of Mitral valve.
15. What is aliasing?
16. Mention various types of echocardiography.
17. Define E/A ratio in diastolic function assessment.
18. What is a continuous murmur?
19. Define color M-mode echocardiography.
20. What are normal variants in echocardiography?
21. Write two uses of contrast echocardiography.

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[Time: 3 Hours] [Max. Marks: 80]

III SEMESTER

PAPER - IV (CCT Directed Clinical Education I)

QP CODE: 8339

Your answer should be specific to the questions asked.
Write Question No. in left side of margin.

Long Questions **10X1 = 10 Marks**

1. Explain about cath lab

Short Essays: (Any – 8) **5 X 8 = 40 Marks**

2. Explain patient care and management in ICU
3. Actions of heart
4. Management of Hypertension
5. Explain role and responsibilities of cardiac care technologist
6. Explain Emergency Situations and its management
7. Write Anatomy of heart
8. Pathophysiology of tachycardia & bradycardia
9. Explain conduction system of heart
10. Management of Cardiac arrest

Short Answers: (Any – 10) **3 X 10 = 30 Marks**

11. What is Hypotension?
12. Circulatory system of heart
13. What are cardiomyocytes?
14. What is hypoxemia?
15. Led aprons
16. Beta Blockers
17. Contrast media
18. Depolarization
19. Calcium channel blockers
20. C arm machine
21. How to calculate hemoglobin from hematocrit?