

[KZ 0811]

AUGUST 2011

Sub. Code: 1504

**B.Sc., CARDIAC TECHNOLOGY**

**FIRST YEAR**

**PAPER IV - MEDICAL ELECTRONICS, BIOPHYSICS AND  
COMPUTER USAGE RELEVANT TO CARDIAC TECHNOLOGY**

*Q.P. Code: 801504*

**Time : Three Hours**

**Maximum : 100 marks**

**Answer ALL questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Cathode Ray Tube (CRT).
2. Diagnostic applications of ultrasound.
3. Measures to reduce radiation exposure.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Two basic categories of analog pressure sensors.
2. Digital monitoring.
3. Pulse oximeter.
4. Calculation of valve area.
5. Role of medical imaging in short.
6. Ionic channels.
7. Computer application in medical care in short.
8. Electrical wave fronts of normal heart.

**III. Short Answers on:**

**(10 x 3 = 30)**

1. Importance of blood pressure recording.
2. Peripheral vascular resistance.
3. Placement of resuscitation electrodes.
4. Doppler equation.
5. Special application of monitors.
6. Real time scanning system.
7. Magnetic resonance imaging – principle.
8. ECG graph paper.
9. Piezo electric crystal.
10. Depolarisation and repolarisation.

\*\*\*\*\*

[LB 0212]

AUGUST 2012

Sub. Code: 1504

B.Sc. CARDIAC TECHNOLOGY

FIRST YEAR

PAPER – IV – MEDICAL ELECTRONICS, BIOPHYSICS AND  
COMPUTER USAGE RELAVANT TO CARDIAC TECHNOLOGY

Q.P. Code : 801504

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. Explain Electrocardiography system?	7	20	10
2. Techniques of Monitoring radiation Exposure?	7	20	10
3. Explain Computer usage in Medical Field?	7	20	10

II. Write Notes on:

1. What is importance of Blood pressure recording?	4	10	5
2. What is impedance plethsmography?	4	10	5
3. What are the sources of Biomedical signals?	4	10	5
4. Types of Pressure Transducer?	4	10	5
5. What are SPO2 and PLETH?	4	10	5
6. Explain Ionic current?	4	10	5
7. What is CRT?	4	10	5
8. Types defibrillator?	4	10	5

III. Short Answers on:

1. Draw Normal ECG Waveform?	2	4	3
2. Application of the Ultrasound?	2	4	3
3. Types of Blood pressure measurement?	2	4	3
4. What is radiation? Types of radiation?	2	4	3
5. What is synchronisation in defibrillator?	2	4	3
6. What is MRI?	2	4	3
7. What are the procedure can be done using fluoroscopy Exposure?	2	4	3
8. What is Piezo Electric crystal?	2	4	3
9. What is the maximum energy in Defibrillator?	2	4	3
10. What Ultrasound transducer for adult & paediatric echocardiography?	2	4	3

\*\*\*\*\*

[LD 0212]

August 2013

Sub.code: 1504

**B.Sc. CARDIAC TECHNOLOGY  
FIRST YEAR  
PAPER IV – MEDICAL ELECTRONICS, BIOPHYSICS AND COMPUTER  
USAGAE RELAVENT TO CARDIAC TECAHNOLOGY**

*Q.P. Code : 801504*

**Time: Three hours**

**Maximum: 100 Marks**

**Answer ALL questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Explain the function of Defibrillator?
2. Explain How to measure blood pressure in Direct Method or Indirect Method?
3. Explain the measures to reduce the radiation exposure?

**II. Write Notes on:**

**(8 x 5 = 40)**

1. What are the basic functional components present in the medical Instrumentation system?
2. Explain Oscillometric Measurement Method of BP measurement?
3. What are all the lead configuration, Electrode position of the ECG?
4. What is SPO2 and PLETH waveform?
5. What is Bio-Electric Signals and Bio Impeadance Signals?
6. What is importance of blood pressure recording? Types of BP measurement?
7. What is AED mode and Synchronisation? Explain
8. Explain the techniquies used for monitoring radiation exposure?

**III. Write Notes on:**

**(10 x 3 = 30)**

1. Placement of ECG electrodes?
2. What is Depolarisation? Repolarisation?
3. What is the sensor used in Pulse oximetry?
4. Mention the Normal Heart rate, Systolic, Diastolic & Mean pressure Value for Adult & Paediatric ?
5. What is the maximum energy in Defibrillator?
6. What is radiation? Types of radiation?
7. What is Impeadance Plethesmography?
8. Application of the Ultrasound?
9. Explain the ionic activity of the cell?
10. What are the Procedures can be done using fluroscopy Exposures?

\*\*\*

[LE 0212]

FEBRUARY 2014

Sub. Code: 1504

B.Sc. CARDIAC TECHNOLOGY

FIRST YEAR

PAPER – IV – MEDICAL ELECTRONICS, BIOPHYSICS AND  
COMPUTER USAGE RELAVANT TO CARDIAC TECHNOLOGY

*Q.P. Code : 801504*

**Time : Three hours**

**Maximum : 100 marks**

**Answer ALL questions**

**I. Elaborate on:**

**(3X10=30)**

1. Explain how to measure blood pressure in direct method or indirect method.
2. Explain the applications of Ultrasound?
3. Explain the function of Defibrillator?

**II. Write Notes on:**

**(8X5=40)**

1. What are the basic functional components present in the medical instrument?
2. What is transducer? Types of pressure Transducer?
3. Basic principle of Pulse oximetry?
4. What is defibrillator & Synchronisation?
5. Explain Cathode Ray Tube?
6. Measures to reduce radiation exposure?
7. What is PLETH Waveform?
8. Explain Ionic Currents?

**III. Short Answers on:**

**(10X3=30)**

1. What is radiation? Classification of radiation?
2. What is radiation activity? What is Half life period?
3. Placement of ECG Electrodes?
4. What is depolarisation and repolarisation?
5. What sensor is used in Pulse oximetry?
6. What are all parameters can be measured in multiparameter monitor?
7. Computer application in medical field?
8. What is Doppler?
9. What is computed tomography?
10. What is internal Defibrillation?

\*\*\*\*\*

**B.Sc. CARDIAC TECHNOLOGY  
FIRST YEAR  
PAPER IV – MEDICAL ELECTRONICS, BIOPHYSICS AND COMPUTER  
USAGAE RELEVANT TO CARDIAC TECHNOLOGY**

*Q.P. Code : 801504*

**Time: Three hours**

**Maximum: 100 Marks**

**Answer ALL questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Explain the importance of blood pressure measurements and explain different types of blood pressure measurements.
2. How ultrasound image is formed and discuss the application of ultrasound in cardiology?
3. Explain various methods of monitoring radiation exposure.

**II. Write Notes on:**

**(8 x 5 = 40)**

1. Application of pressure transducer in medicine
2. Necessity of defibrillator.
3. Construction and working of cathode ray tube
4. Analysis of ECG waveform
5. Ionic current
6. Radioactive rays and their properties
7. Methods of reduction of radiation exposure.
8. Application of computers in medicine.

**III. Write Notes on:**

**(10 x 3 = 30)**

1. What is synchronization mode in defibrillator?
2. What is ultrasound?
3. What is the normal range of oxygen saturation in human being?
4. What is impedance plethysmography?
5. ECG graph paper
6. Mention different electromagnetic radiation.
7. What is CT?
8. What is the use of computer in patient monitoring?
9. Depolarisation and repolarisation
10. Uses of cathode ray tube.

\*\*\*\*\*

[LG 0215]

FEBRUARY 2015

Sub.code: 1504

**B.Sc. CARDIAC TECHNOLOGY**

**FIRST YEAR**

**PAPER IV – MEDICAL ELECTRONICS, BIOPHYSICS AND COMPUTER  
USAGE RELAVENT TO CARDIAC TECHNOLOGY**

*Q.P. Code : 801504*

**Time: Three hours**

**Maximum: 100 Marks**

**Answer All Questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Explain Electrocardiographic processing system and display system.
2. Explain the measurement of Blood pressure in Direct and Indirect Method.
3. Explain the measures to reduce the radiation exposure.

**II. Write notes on:**

**(8 x 5 = 40)**

1. What are the sources of Biomedical Signals?
2. Explain Indirect Method of BP measurement.
3. What is Ultrasound? Where it is used in Medical Field?
4. What is Pulse Oximetry and explain?
5. What is importance of blood pressure recording? Types of BP measurement.
6. What is AED mode and Synchronisation? Explain.
7. What is the technique of monitoring radiation exposure?
8. n, Electrode position of the ECG?

**III. Short answers on:**

**(10 x 3 = 30)**

1. What is Depolarisation? Repolarisation.
2. What are the physiological parameters are measured in Multiparameter Monitor?
3. What is the sensor used in Pulse Oximetry?
4. What is radiation? Types of radiation?
5. What is Impedance Plethysmography?
6. Application of the Ultrasound.
7. Explain the ionic activity of the cell.
8. Computed Tomography – Explain.
9. What are the Procedures can be done using fluroscopy Exposures?
10. What techniques are used to reduce radiation dose?

\*\*\*\*\*