

Roll No.....
Total No. of Questions: [09]

Total No. of Printed Pages: 1

B.Sc. (Cardiac Care Technology) (Semester-4th)
MEDICAL INSTRUMENTATION RELEVANT TO CARDIAC CARE
Subject Code: BCCTS1403
Paper ID: [21132421]

Time: 03 Hours

Maximum Marks: 60

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A

(2 marks each)

Q1. Attempt the following:

- a) What kind of safety hazards are associated with electrical equipment in a medical environment?
- b) Name the typical waveforms observed in an ECG, with its physiological events
- c) What are some common indications for the use of medical physics in clinical practice
- d) How does a stethoscope aid in the assessment of cardiovascular health?
- e) How does finger-tip oximeter contribute to patient monitoring?
- f) What is the significance of measuring activated clotting time (ACT) in medical procedures
- g) Explain in brief about different types of pacemakers in clinical practice
- h) Elaborate about different types of ventilators used in medical settings
- i) What is the role of a C-Arm in medical imaging?
- j) What is PTCA and how it is used in the treatment of coronary artery disease?

Section – B

(5 marks each)

- Q2. Write down impact of advanced technology on the practice of medical physics
- Q3. Explain different types of electrodes used in electro-physiological measurements along with its specific applications?
- Q4. Explain in detail about principle of operation behind piezoelectric ultrasonic transducers in medical imaging?
- Q5. What are the various methods for measuring blood pressure, and how do they differ in terms of accuracy and applicability?
- Q6. What do you understand by body plethysmography, and how is it used in the assessment of lung function?

Section – C

(10 marks each)

- Q7. How are measurements of erythrocyte sedimentation rate (ESR) and galvanic skin response (GSR) utilized in clinical practice and what information do they provide about physiological states?
- Q8. What is the significance of TLD (thermoluminescent dosimeter) in medical imaging, and how is it used in radiation dose monitoring?
- Q9. How do medical physicists can help and collaborate with other healthcare professionals to optimize patient care?