Roll No……..….. **Total No. of Printed Pages: 1**
Total No. of Questions: [09]

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?