THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 1122] NOVEMBER 2022 Sub. Code: 1510

B.Sc. CARDIAC TECHNOLOGY
FIRST YEAR (Regulation 2014-2015)
PAPER III – MEDICAL ELECTRONICS, BIOPHYSICS AND COMPUTER USAGE RELEVANT TO CARDIAC TECHNOLOGY AND BASIC ELECTROCARDIOGRAPHY
Q. P. Code: 801510

Time: Three hours **Maximum : 100 Marks**

Answer ALL Questions

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

1. Explain the principle involved in blood pressure measurement using sphygmomanometer. What is normal range of blood pressure in an adult? Brief on Mean Arterial Pressure.

2. Draw the Cathode ray tubes and discuss the working principle of the equipment.

3. Describe the concept of augmented limb leads in Electrocardiogram (ECG).

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

1. What is SpO2 and Plethysmography waveform?
2. What are the applications of Computer in Medicine?
3. Discuss the phases of action potential.
4. Personnel Monitoring TLD badge.
5. Draw the normal electrocardiogram and name the waves and heart activity these waves denote.
6. Types of radiation and mention three methods of reducing radiation exposure.
7. What are the differences between a transducer and sensor?
8. Describe Einthoven triangle and what is normal cardiac axis?

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

1. Location of chest leads V7, V8, V9 and Right side chest leads in ECG.
2. U wave in ECG.
3. Calibration check in ECG.
4. Principle and uses of pulse oximeter.
5. Advantages of Intra Arterial Blood Pressure monitoring.
6. PR interval in ECG.
7. Types of radiation.
8. Application of Medical Ultrasound in Cardiology.
9. Frequency of ultrasound probe used in Cardiology.
10. Define Tachycardia and Bradycardia.

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