Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov/Dec– 2017**

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| **Code :** | **15EI2016** | **Duration :** | **3hrs** |
| **Sub. Name :** | **MEDICAL THERAPEUTIC EQUIPMENT** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Draw the circuit diagram of a fixed rate pacemaker and explain its working details. | CO1 | 10 |
| b. | It is desired to deliver pacemaker pulses with period 0.857 second and energy per pulse 10.286 microJoules. The amp-hour rating of lithium cell is equal to 0.1 A-H and its terminal voltage is equal to 2.8 volts. Calculate the energy in joules stored in the lithium cell and life time of that cell. | CO1 | 10 |
| (OR) | | | | |
| 2. | a. | Differentiate between internal and external defibrillators. | CO1 | 10 |
| b. | A defibrillator delivers a square pulse of 4000V with a duration of 4 milliseconds. The internal resistance of the defibrillator is about 15 ohms. The skin-electrode resistance is 50 ohms and the thorax resistance is 30 ohms. Compute the energy delivered to the patient’s thorax and the total energy available from the defibrillator. Also calculate the percentage of loss of energy. | CO1 | 10 |
| 3. | a. | Discuss the different types of Oxygenators with their merits and demerits. | CO1 | 10 |
|  | b. | State the working principle of surgical diathermy. Illustrate the various types of waveforms used in surgical diathermy. | CO2 | 10 |
| (OR) | | | | |
| 4. | a. | Elaborate on the working of a lithotripter machine with the help of a block diagram. | CO1 | 10 |
|  | b. | Comment on the principle and methodology of Interferential current Therapy. | CO2 | 10 |
| 5. | a. | Draw the block diagram of a hemodialysis machine and explain the importance of each building block. | CO1 | 15 |
|  | b. | Compare the features between hemodialysis and peritoneal dialysis. | CO1 | 5 |
| (OR) | | | | |
| 6. | a. | Explain the mechanism of ventilation and the need for use of artificial ventilation. | CO1 | 10 |
|  | b. | Identify the features of Electro diagnosis and Electro therapy. | CO2 | 10 |
| 7. | a. | Outline the features of transcutaneous electric nerve stimulator. | CO2 | 10 |
|  | b. | Summarize the advantages of using ultrasonic for therapeutic purposes. Explain the working of an ultrasonic therapy unit with the help of a block diagram. | CO2 | 10 |
| (OR) | | | | |
| 8. |  | Illustrate the principle of Argon-ion laser as a photo coagulator. | CO3 | 20 |
|  | | **Compulsory**: |  |  |
| 9. |  | Comprehend the working of helium neon laser. What has been its main application? | CO3 | 20 |

ALL THE BEST