

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI- EXAMINATION – SUMMER 2016

Subject Code:160303

Date:09/05/2016

Subject Name:Therapeutic Instrumentation

Time: 10:30 AM to 01:00 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q-01 (A) What is fibrillation? Explain the working principle of DC defibrillator. Why it is not used to cure atrial fibrillation? 07
(B) Draw and explain the basic circuit diagram of DC defibrillator. 07
- Q-02 (A) Explain the risk associated with surgical diathermy and the safety measures for them. 07
(B) Draw and explain the block diagram of typical electrosurgical unit. 07
OR
(B) Explain the modes of ESU with current waveforms. 07
- Q-03 (A) Write a short note on short-wave diathermy. 07
(B) Write a short note on ultrasonic diathermy. 07
OR
- Q-03 (A) Write a short note on TENS. 07
(B) What is electrotherapy? Discuss the types of waveforms used in electrotherapy. 07
- Q-04 (A) Draw and explain the basic block diagram of hemodialysis machine. 07
(B) Explain the types of dialyzers used in hemodialysis machine with their advantages and disadvantages. 07
OR
- Q-04 (A) Explain the following components of hemodialysis machine. 07
a) Proportionating pump
b) Blood leak detector
c) Air bubble detector
d) Heparin infusion pump
e) Ultrafiltration rate monitor
(B) Draw the schematic representation of heart-lung machine and explain its working. 07
- Q-05 (A) What is LASER? Explain the process of LASER generation. Also explain the conditions which are necessary for LASER generation. 07
(B) Enlist and explain the components of LASER system. 07
OR
- Q-05 (A) Explain in brief: the components of anaesthetic delivery system. 07
(B) Explain the vapour delivery unit and types of vaporizers in anaesthesia machine. 07