

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech. Winter 2022-23 Examination

Semester: 7

Subject Code: 203111403

Subject Name: Therapeutic Equipments

Date: 06/10/2022

Time: 10:30 am to 01:00 pm

Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Objective Type Questions - (All are compulsory, Each Question carry one mark)**(15)**

1. During Myocardial Infarction, one can use _____.
(a) Pacemaker (b) Heart Lung Machine
(c) Nerve Stimulator (d) Defibrillator
2. The electrodes required in case of defibrillator are
(a) Posterior (b) Anterior
(c) Anterior and Posterior (d) None of the mentioned
3. Atherosclerotic Plaque can be remove using _____ LASER.
(a) XeCl (b) Nd-YAG
(c) ArF (d) CO₂
4. During population inversion, the number of atoms in the higher level is _____ the number of atoms in the ground level.
(a) Twice (b) Equal to
(c) Less than (d) More than
5. What causes the pre-selected volume of air to flow into the patient by communicating directly with a breathing circuit?
(a) Nebulizer (b) Microcontroller
(c) Bellows (d) Humidifier
6. What is the full form of TENS?
7. Which membrane is commonly used for haemodialysis?
8. Give the name of Anesthetic agents used in medical field.
9. Give the frequency range of Microwave and Ultrasonic Therapy.
10. Define: Tidal Volume
11. The Gas exchange process Carried out within the Lungs is referred as _____.
12. What is Cardio version?
13. _____ Volts applied to the patient through the defibrillator.
14. What is the need for cardiac pacemaker?
15. _____ is the most commonly used material for vaporizer.

Q.2 Answer the following questions. (Attempt any three)**(15)**

- (A) Which types of electrodes used in surgical diathermy? Classify them.
- (B) Explain Pacer-Cardioverter-defibrillator in detail.

(C) Explain the Mechanical aids of Artificial Ventilation using Schematic Diagram.

(D) Define the following terms:

- | | |
|-------------------------------|------------------------------|
| 1. Vital Capacity | 3. Expiratory Reserve Volume |
| 2. Inspiratory Reserve Volume | 4. Forced Vital Capacity |

Q.3 (A) Write a brief note with necessary diagram: Fiber-optic gastric photo coagulator. **(07)**

(B) What is LASER? Explain Working of CO₂ LASER with its constructional diagram. **(08)**

OR

(B) Explain the apnoea monitoring system with block diagram. **(08)**

Q.4(A) What is the need of defibrillator? Explain DC defibrillator with necessary schematic diagram. **(07)**

OR

(A) Explain the various electrodes and current waveforms used in electrotherapy. **(07)**

Q.4 (B) What is Dialyser? Draw and explain schematic diagram of haemodialysis machine. **(08)**