

GANPAT UNIVERSITY

B.Tech Sem. VIIIth Biomedical & Instrumentation Engineering

Regular Examination May / June-2013

BME-802 Biomedical Instrumentation-II

Time: 3 Hours

Total Marks-70

Instructions:-

1. All the questions are compulsory.
2. Answer of each section must be written in separate answer books.
3. Figure to the right indicate marks.
4. Assume data, if needed.
5. Conventional terms / notations are used.

Section - I

Que.1

[12]

- a). With schematic diagram explain capacitive discharge Dc defibrillator. Also give the reason why Inductor (L) is used in Dc defibrillator?
- b). Draw the schematic of a closed circuit anesthesia machine and describe.

OR

Que.1.

[12]

- a). Explain microprocessor base discharge control and recording circuit of defibrillator monitor.
- b). Explain the function of (i) Vaporizer (ii) Breathing bag in a closed circuit anesthesia machine. Describe a measured flow vaporizer giving neat diagram.

Que.2.

[11]

- a). How the performance of the dialysers can be analyzed?
- b). Discuss application, construction, working advantages and disadvantages of He-Ne LASER giving neat diagram.

OR

Que.2

[11]

- a). What is dialyser? Explain hollow fiber type dialyser. What should be the design consideration of dialyser?
- b). Draw and explain argon laser. What makes argon laser suitable for ophthalmic surgery? Explain giving absorption curves.

- Que.3. Answer any three. [12]
- Discuss the Diffusion and Ultra filtration for dialysis.
 - Describe laser hazards and laser safety.
 - What is monophasic & Biphasic waveform for defibrillator? Which is better? Why? How much energy required for external and internal defibrillation? What should be the human body resistance for external and internal defibrillation?
 - Which device is used for flow measurement in anesthesia machine? How it is mounted over the system?

Section – II

- Que.-4 [12]
- Explain and draw schematic of ultrasonic therapy unit.
 - Draw and explain solid state Electro Surgical unit.

OR

- Que.4 [12]
- Explain apparatus for Electro therapy with neat block diagram.
 - Explain “Spinal cord” and “Bladder” stimulator.

- Que.5 [11]
- Explain different methods used to provide heating to infants with its advantages.
 - What is the need of pacemaker? Describe different types of Pacemaker.

OR

- Que.5 [11]
- Discuss different Lead configuration, location of lead, and Pacing modes with respect to Pacemaker.
 - Types of current used for electro therapy with its typical application.

- Que.6 (12)
- What is magnetron? Describe construction of magnetron with figure.
 - Discuss 5 letter code for pacemaker.
 - Describe methods of applying electrodes in Shortwave diathermy.

END OF PAPER