



MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL
(A constituent unit of MAHE, Manipal)

SEVENTH SEMESTER B.TECH. (INSTRUMENTATION AND CONTROL ENGG.)
END SEMESTER DEGREE EXAMINATIONS, DECEMBER - 2020

SUBJECT: BIOMEDICAL EQUIPMENTS [ICE 4016]

26-12-2020

TIME: 3 HOURS

MAX. MARKS: 50

Instructions to candidates :Answer ALL questions and missing data may be suitably assumed.

- 1A. What is positive pressure ventilator? Explain.
- 1B. What are audiometers? How are they classified? Explain pure tone audiometry.
- 1C. With the help of a neat block diagram, explain the principle and working of cochlear implants.
(2+3+5)
- 2A. What is the basic principle of Fleisch pneumotachometer?
- 2B. Enumerate the factors that contribute to the Laser properties. What are the essential units of a LASER system?
- 2C. With the help of a neat diagram explain the process of surgical diathermy.
(2+3+5)
- 3A. List the medical applications of Ruby LASERs.
- 3B. Write a note on the materials used in generation and detection of ultrasounds.
- 3C. With a neat block diagram, explain working of a real time computer based ultrasonic scanner.
(2+3+5)
- 4A. List any four differences between hemodialysis and peritoneal dialysis.
- 4B. What is endoscopy? Explain different types of endoscopy briefly.
- 4C. With the help of a neat sketch explain extracorporeal shock wave lithotripsy (ESWL).
(2+3+5)
- 5A. Mention any four advantages of thermography.
- 5B. What are the basic elements of an intensive care monitoring unit for cardiac care?
- 5C. With the help of a neat diagram, explain automatic optical method of blood cell counting.
(2+3+5)
