



SEVENTH SEMESTER B. TECH. (INSTRUMENTATION AND CONTROL ENGG.)

END SEMESTER DEGREE EXAMINATIONS, DECEMBER – 2018

SUBJECT: BIOMEDICAL EQUIPMENT [ICE 4016]

TIME: 3 HOURS

MAX. MARKS: 50

Instructions to candidates

- Answer **ALL** questions.
- Missing data may be suitably assumed.

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| 1A | What is Impedance Pneumography? | 2 |
| 1B | With the help of a block diagram explain the principle of Impedance pneumograph. | 3 |
| 1C | What are respirators? Explain the different modes of operation of respirators based on initiating the inspiration phase? | 5 |
| 2A | What is speech audiometry? Explain briefly. | 3 |
| 2B | Write a note on types of hearing losses. | 3 |
| 2C | What is electro surgery? Draw the block diagram of an electrosurgical unit and explain its functioning. | 4 |
| 3A | Define the term attenuation in ultrasound transmission. What is the relation between attenuation and frequency? | 2 |
| 3B | Draw the block diagram of helium-neon laser technique and explain its working. | 3 |
| 3C | What is endoscopy? What are its advantages? | 2 |
| 3D | With the help of a neat sketch explain the M-scan display mode of ultrasonic imaging. | 3 |
| 4A | What do you mean by apnea monitoring? What are the sensors used? | 2 |
| 4B | What is heart lung machine? With schematic briefly explain the functioning of a heart lung machine. | 3 |
| 4C | Write about two types of patient breathing systems used in an anaesthesia machine. | 2 |
| 4D | With the help of a neat sketch explain the functioning of peritoneal dialysis. | 3 |
| 5A | What do you mean by ambulatory and patient controlled analgesia infusion pumps? | 2 |
| 5B | Explain the basic components of a thermographic equipment. | 3 |
| 5C | Explain the principle and functioning of Coulter counter method for blood cell counting. | 5 |
