

- N.B. :** (1) Question No. 1 is **compulsory**  
 (2) Attempt any **four** questions from remaining **six** questions.  
 (3) Draw **neat** sketches wherever **required**.

**Q.1)** Answer the following questions :

20M

- a) List the electrodes used for surgical Diathermy
- b) Explain power sources used in implantable pacemaker
- c) Explain the placement of Electrodes in Defibrillator Machine
- d) Explain the Application of LASER

**Q.2)**

- a) Explain basic principle, Circuit description and application techniques of Short Wave Diathermy? 12M
- b) Explain the importance of CO<sub>2</sub> LASER used in Biomedical engineering . 08M

**Q.3)**

- a) What is pacemaker? Why it is used? Draw and explain block diagram of Demand type pacemaker . 12M
- b) Draw Block diagram of Ultrasonic therapy unit. How Dosages can be controlled? 08M

**Q.4)**

- a) Discuss in details Safety aspects in Electrosurgical units . 08M
- b) Draw and explain Haemodialysis machine. Also discuss in detail Dialysate temperature control and its measurement. 12M

**Q.5)**

- a) Explain the principle, construction and working of surgical diathermy machine. 16M  
 What are the various types of electro-surgery techniques commonly employed in practice?  
 Also draw types of waveforms generated by surgical diathermy machine .
- b) Explain the function of Natural Kidney. 04M

**Q.6)**

- a) Explain using suitable waveforms different types of Fibrillation. Also using circuit diagram Explain how fibrillation can be corrected? 12M
- b) Explain in detail IR and UV lamp . 08M

**Q.7)** Write short notes on :

- a) Heart rate variability measurement 10M
- b) Nerve and Muscle stimulator. 10M