Q. P. Code : 39175

(3 Hours) Total Marks: 80

N.B.: (1) Question **no. 1 is compulsory.**
(2) Answer **any 3** out of remaining 5 questions.
(3) Figures on the right indicate full marks.
(4) Assume data wherever necessary.

Q.1 (a) Explain the physiological effects of heat on human body. [05]
(b) Explain principle of Condenser method in Shortwave diathermy. [05]
(c) How is Bipolar Mode different from unipolar mode in ESU? [05]
(d) Explain why conductivity of dialysate needs to be monitored. [05]

Q.2 Explain using suitable circuit diagram, working of following sections in external pacemaker. [20]
(a) Rate generator.
(b) Rate generator reset and reset disable.
(c) Monostable multivibrator.

Q.3 (a) List various types of lasers used for medical applications. Explain with the help of a neat diagram working of Ruby Lasers. Give applications. [10]
(b) Explain with the help of a neat circuit diagram, the COAG and BICOAG modes in an ESU machine. [10]

Q.4 (a) Explain with the help of neat block diagram the working of a haemodialysis Machine. [10]
(b) Explain using suitable diagram, the working of ultrasound therapy unit, also mention the technical specifications. [10]

Q.5(a) Explain using suitable diagram the working of a Short wave diathermy, also mention the technical specifications. [10]
(b) Explain the circuit diagram of D.C. defibrillator in INST mode [10]

Q.6 Write short notes on (Any 2) [20]
(a) Heart rate variability.
(b) UV and IR lamps.
(c) Blood leak detector.
