

ANNA UNIVERSITY :: CHENNAI – 600 025

MODEL QUESTION PAPER

VI Semester

B.E. ELECTRONICS AND COMMUNICATION ENGINEERING

EC041 – MEDICAL ELECTRONICS

Time: Three Hours

Maximum : 100 Marks

Answer All The Questions

PART – A (10 x 2 = 20 Marks)

1. Draw the equivalent circuit of an electrode used for bio-potential recording. Mention about each component of the circuit.
2. Draw a typical ECG waveform and mark the various events.
3. What is eletrophoresis?
4. What do you mean by korotkoff's sound? How is it useful in the medical field?
5. What is a dialyser? What are the essential components of a dialyser?
6. What are the parameters to be monitored when the patient is connected to a heart – lung machine?
7. Discuss about the parameters to be taken into account in deciding the carrier frequency of a biotelemetry unit.
8. Write about the types of electrodes for short wave diathermy?
9. Name the laser most commonly used for ophthalmic application. Why?
10. What is hypothermia? Is it useful in the field of medicine?

PART – B (5 x 16 = 80 Marks)

- 11.i) Explain about the generation of bio-potential? (8)
- ii) Describe the method applied to study about the activity of brain centre for vision and highlight the method of processing the signal? (8)

12.a)i) Write about the blood cell counter working on the principle of conductivity. What are the problems associated with this method? (8)

ii) What is an autoanalyser? Explain. (8)

(OR)

12.b)i) What do you mean by cardiac output? Explain the principle of dye dilution technique for the measurement of the same. (8)

ii) Describe in detail, the electromagnetic blood flow meter. What are its advantages and how are they overcome. (8)

13.a) What is atrial fibrillation? How is it arrested? Explain what are the precautions to be followed when this equipment is used? (16)

(OR)

13.b) Explain the operation of a pacemaker working on demand. Compare its performance with the triggered type. (16)

14.a)i) Write briefly about radio pill. (8)

ii) What is diathermy? Discuss about ultrasound diathermy? How is the frequency of operation selected for this type? (8)

(OR)

14.b) How are the muscles and nerves stimulated by electronic means? Explain the complete set up of a medical stimulator. (16)

15.a) Explain about the imaging method applied to study about the peripheral circulation? What are its other applications? (16)

(OR)

15.b)i) How can a high frequency generator be used as a surgical knife? Explain. (10)

ii) Write about the terms “microshock” and “macroshock” hazards. (6)
