B.E. / B.Tech (Full Time) DEGREE EXAMINATIONS, APRIL/MAY 2011

ELECTRONICS AND COMMUNICATION BRANCH

SIXTH SEMESTER

EC9351 – MEDICAL ELECTRONICS

(REGULATIONS 2008)

Time: 3 Hours Max. Marks:100

Answer All Questions

Part-A(10 x 2 = 20 marks)

1) Draw the equivalent circuit of Bio electrodes.
2) Why Instrumentation amplifier is preferred for Bio potential recording?
3) Define PH value. What is the PH value for arterial and venous blood?
4) Define cardiac output.
5) Mention the requirements of pacemaker pulse generation.
6) Differentiate between peritoneal and hemodialysis?
7) Mention few applications of Medical Stimulator.
8) What is known as micro and macro shock?
9) What is meant by Telemedicine?
10) List out any four commonly available endoscopes.

Part-B(5 x 16 = 80 marks)

11. a)i) What is known as Bio-Potential? Draw the typical waveform of various Bio signals and indicate its characteristics. (8)
ii) Describe about the 12 lead ECG electrode configuration with necessary diagram. (8)

12. a) What is known as Blood Flow meter? Explain how the flow of blood can be measured using Ultra sound Blood Flow meter with transit time principles. (16)

(OR)

b)i)What is meant by mean arterial pressure? Explain how BP can be recorded with indirect method. (8)
ii)Discuss in detail about Electronic Blood Cell Counter with suitable diagram. (8)

13. a).What is known as Defibrillator? Explain clearly how various types of waveform can be produced using DC defibrillator (16)

(OR)

b)With necessary circuit diagram explain the operation of Heart Lung Machine. (16)

14.a)i) Explain how electrical shock on humans can be reduced using GFI. (8)
ii) Explain the biotelemetry principles with one suitable application. (8)

(OR)

b) Define Diathermy. Discuss in detail about shortwave diathermy technique and its applications. (16)

15.a)Write short notes on
i) Thermograph. (8)
ii) Lasers application in medicine. (8)

(OR)

b) Write short notes on
i) Principles of surgical Diathermy. (8)
ii) Cryogenic techniques in Medicine. (8)