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Question Paper Code : 21427

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2013.

Seventh Semester

Electrical and Electronics Engineering

EI 2311/EI 65/10133 EI 606 – BIOMEDICAL INSTRUMENTATION

(Common to Fifth Semester – Instrumentation and Control Engineering and
Sixth Semester – Electronics and Instrumentation Engineering)

(Regulation 2008/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Classify the Biomedical Instrumentation.
2. Define resting potential.
3. What is ERG?
4. What are the major advantages of chopper amplifier?
5. What is plethysmograph?
6. What are the automated indirect methods of blood pressure measurement?
7. List the modes of operation of ultrasonic imaging.
8. What are the limitations of CT scan?
9. What are the classifications of defibrillator?
10. What is the need for heart lung machine?

PART B — (5 × 16 = 80 marks)

11. (a) List the cell components and their functions.

Or

- (b) What are the difficulties in measuring living system? Explain in detail.

12. (a) With the help of functional block diagram, explain the working of a typical electrocardiograph.

Or

- (b) Explain how the electrical hazards protection can be provided in the biomedical instrumentation systems.

13. (a) Explain the working of Spirometer with the help of functional diagram.

Or

- (b) Explain the rheographic method of blood pressure measurement.

14. (a) Explain the working of a biotelemetry system with sub carrier.

Or

- (b) Explain the principle of operation of MRI with suitable illustrations.

15. (a) Explain with a block diagram the working of servo controlled ventilator.

Or

- (b) Draw and explain the heart-lung machine model.