

C 80509

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**EIGHTH SEMESTER B.TECH. (09 SCHEME) ENGINEERING DEGREE  
EXAMINATION, APRIL 2015**

**AI 09 803 L09—ADVANCED BIOMEDICAL INSTRUMENTATION**

Time : Three Hours

Maximum : 70 Marks

**Part A**

*Answer all questions.*

*Each question carries 2 marks.*

1. What is radiation detectors ?
2. What is ECT
3. Mention few types of electrodes which are used in diathermy machines ?
4. What is surgical instruments ?
5. What is QRS peak detection from ECG signal ?

(5 × 2 = 10 marks)

**Part B**

*Answer any four questions.*

*Each question carries 5 marks.*

6. Explain the principles of PET analyser for medical imaging.
7. Discuss electrotherapy methods in heat frequency heating healing procedures.
8. Discuss about membranes used in haemodialysis machines.
9. Discuss about infant incubator with neat block diagram.
10. Discuss about the principles of infusion pumps for automated drug delivery system.
11. Discuss about template matching method for QRS peak detection in ECG waveforms.

(4 × 5 = 20 marks)

**Part C**

*Answer all questions.*

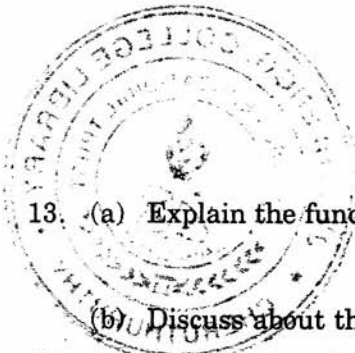
*Each question carries 10 marks.*

12. (a) Explain the principle of NMR imaging systems.

*Or*

- (b) Discuss about randon transform for image reconstruction in MRI systems.

**Turn over**



13. (a) Explain the function of kidney with neat schematic diagram.

*Or*

(b) Discuss about the principles of haemodialysis machines.

14. (a) Discuss about implantable infusion system with an example.

*Or*

(b) Explain about the operation of ventilators with a neat schematic diagram.

15. (a) Discuss about different algorithms for QRS filtering in ECG waveforms.

*Or*

(b) Explain about data compression methods for arrhythmia monitor.

(4 × 10 = 40 marks)