C 60502 (Pages : 2) Name.....

Reg. No.....

EIGHTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, APRIL 2014

(2009 Scheme)

Applied Electronics and Instrumentation Engineering

AI 09 803 L09 – ADVANCED BIOMEDICAL INSTRUMENTATION

Time : Three Hours Maximum : 70 Marks

Part A

Answer **all** *questions.*

1. Distinguish between nuclear fission and nuclear fusion.
2. State the principle of NMR imaging.
3. What is macro-shock?
4. Name the components of a drug infusion system.
5. List out the properties of a Huffman Code.

(5 × 2 = 10 marks)

Part B

Answer any **four** *questions.*

6. Mention the biological effects of NMR imaging.
7. Define the terms coagulation and blending.
8. List out the functions of Kidneys.
9. Explain the principle of a Geiger Muller Counter.
10. What are incubators?
11. Write short notes on signal averaging.

(4 × 5 = 20 marks)

Part C

Answer **all** *questions.*

12. (a) Describe in detail about the working principle of a Gamma Camera with a neat block diagram.

Or

(b) Discuss in detail about the image reconstruction techniques employed in NMR imaging.

(10 marks)

Turn over

13. (a) Explain the working principle of an Ultrasonic therapy unit with a neat sketch.

Or

(b) Explain in detail about working principle of a Hemo-dialyser.

(10 marks)

14. (a) Explain the working principle of an Lithotripsy unit with a neat block diagram.

Or

(b) Describe in detail about functioning of a Pressure Cycled Ventilator.

(10 marks)

15. (a) Explain in detail about working of a portable arrhythmia monitor.

Or

(b) Discuss in detail about any *two* data reduction techniques.

(10 marks)

[4 × 10 = 40 marks]