

Reg. No. :

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**Question Paper Code : 11272**

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2014.

Sixth Semester

Electronics and Communication Engineering

080290046 — MEDICAL ELECTRONICS

(Regulation 2008)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is a spinal reflex, how it is related to the functions of the brain.
2. Differentiate between metallic and nonmetallic microelectrodes.
3. What is meant by arterial pressure?
4. What are the relative merits of dyes and cold saline methods if cardiac output measurements?
5. What is the energy required to excite heart muscles?
6. What are heart-lung machine?
7. Define NMR, FID.
8. What are the different artifacts produced during CT imaging.
9. What would be problems of telemeterized systems in future?
10. What is meant by pattern recognition system?

PART B — (5 × 16 = 80 marks)

11. (a) What are bioelectric potentials? Discuss the frequency and voltage range of ECG, EEG, EMG and ERG signals. How are they measured?

Or

- (b) With a block diagram, explain the working of an EEG recording setup.

12. (a) Draw a block diagram of doppla blood flow meter and explain its operation.

Or

(b) What is a pneumotachograph? Give its importance in the pulmonary function analyser and explain how they are used to determine the lung volumed capacities.

13. (a) Discuss the different modes of operation of cardiac pacemakers.

Or

(b) Discuss the different types of oxygenators and their merits and demerits.

14. (a) Draw a block diagram of a MRI system and explain the image reconstruction using it.

Or

(b) Describe the ultrasonic imaging system (M-mode) with a suitable diagram.

15. (a) Discuss the various method of monitoring and measuring various physiological parameters in space station.

Or

(b) Write brief notes on :

(i) Role of expert system (8)

(ii) E-health. (8)