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Name.....

Reg. No.....

**EIGHTH SEMESTER B.TECH. (ENGINEERING) [2014 SCHEME] DEGREE
EXAMINATION, APRIL 2018**

Electrical and Electronics Engineering
EE 14 804 B—BIOMEDICAL ENGINEERING

Time : Three Hours

Maximum : 100 Marks

Part A

I. Answer any *eight* questions out of ten. Each question carries 5 marks :

- 1 How the bioelectric potentials are measured ? Name some of the equipments using such measurement.
- 2 What is the difference between active and passive transducer ? Explain working principle of any active transducer.
- 3 Explain about pulse sensor and respiration sensor.
- 4 Draw different ECG lead configurations and explain recording of ECG.
- 5 Write in detail about the Respiratory therapy Equipment.
- 6 Explain about resting and action potential.
- 7 What are the elements of intensive care monitoring ? Explain about patient monitoring displays.
- 8 Explain the working principle of CT scan with neat block diagram.
- 9 Discuss the physiological effects of electrical current.
- 10 Explain about the shock hazards of electrical equipment.

(8 × 5 = 40 marks)

Part B

II. Answer *all* questions. Each question carries 15 marks :

- 11 What is EEG ? Why is it much more difficult to recognize than ECG ? How can certain characteristic EEG Waveforms be related to sleep ?

Or

- 12 What are the various effects of a transducer on various biomedical measurements ? Discuss.
- 13 Discuss in detail the blood pressure measurement by indirect method.

Or

- 14 Draw the Plethysmograph and explain how the blood volume is recorded.

Turn over

15. Explain the working principle of Electro-retinogram with a block diagram.

Or

16. What is the function of defibrillator ? Draw and explain the working principle of d.c. defibrillator.

17. What is ultrasonic imaging ? Compare ultrasonic diagnosis with X-ray diagnosis.

Or

18. What are the components of a bio-telemetry system ? What are the applications of telemetry in emergency patient monitoring ?

(4 × 15 = 60 marks)