

C 27123

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Name _____

Reg. No. _____

**EIGHTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION
MAY 2012**

EE 04 805 (C)—BIOMEDICAL INSTRUMENTATION

Maximum : 100 Marks

Time : Three Hours

Answer all questions.

1. (a) Name any *four* physiological systems and state their functions.
- (b) Define Thermoelectric effect and explain the transducer used for measuring this effect.
- (c) Briefly describe the placement of arterial blood pressure transducer.
- (d) What is a sphygmomanometer ?
- (e) Draw the various EEG rhythms give their range of frequency and list their states.
- (f) What are pacemakers ? Differentiate between asynchronous and synchronous pacemaker.
- (g) Outline the principle of computer axial tomography.
- (h) Explain the features of telemedicine.

(8 × 5 = 40 marks)

2. (a) (i) Discuss the various components that make up the man-instrument system with the help of block diagram.
- (ii) What are the difficulties encountered in the measurement ?

(10 marks)

(5 marks)

Or

- (b) With neat sketch, explain the following :
 - (i) Needle electrode.
 - (ii) pH electrode.
 - (iii) Surface electrodes.

(5 + 5 + 5 = 15 marks)

3. (a) Write a short note on :
 - (i) Einthoven triangle.
 - (ii) Phonocardiography.

(8 + 7 = 15 marks)

Or

- (b) (i) Explain the cardiovascular system.
- (ii) Discuss the oscillometric non-invasive blood pressure measurement system.

(8 + 7 = 15 marks)

Turn over

4. (a) With neat circuit and the 10-20 electrode system explain the EEG unit.

Or

- (b) (i) List the various respiratory parameters.
(ii) With diagram, explain the operation of heart-lung machine.
5. (a) Explain the various modes of ultrasonic imaging system.

Or

- (b) Discuss the various physiological effects of electric currents.

(4 × 15 = 60 marks)