

C 29721

(Pages : 2)

Name: .....

Reg. No: .....



**SEVENTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION  
OCTOBER 2012**

**EC—09 L25—BIOMEDICAL INSTRUMENTATION**

**(2009 Admissions)**

**Time : Three Hours**

**Maximum : 70 Marks**

**Part A**

**Short Answer Questions :**

1. Define conduction velocity.
2. List out the application of a Phono-cardiogram.
3. What is residual volume ?
4. Distinguish between internal and external pacemakers.
5. What is meant by let go current ?

**(5 × 2 = 10 marks)**

**Part B**

**Answer any four questions :**

1. What are surface electrodes ? List out their drawbacks.
2. Mention the characteristics of bio-amplifiers.
3. Explain the working principle of an electromagnetic blood flow meter.
4. Mention the advantages of LASER for therapeutic applications.
5. Explain about non-pulsatile blood pumps.
6. Mention the physiological effects of electric current on humans.

**(4 × 5 = 20 marks)**

**Part C**

**Answer one question from each Module :**

- I. (a) Explain in detail about Resting and Action Potentials.

*Or*

- (b) What is a electro-myogram ? Discuss in detail about the working principle of a EMG recorder.

**(10 marks)**

- II. (a) Explain in detail about the direct method for measuring blood pressure.

*Or*

- (b) Explain in detail about the various lung volumes and lung capacities. Discuss the working principle of a Spirometer.

**(10 marks)**

**Turn over**

III. (a) Describe in detail about the working principle of a Hemo-dialyser with a neat sketch.

*Or*

(b) Explain in detail about the working principle of a DC defibrillator with a neat circuit diagram.  
(10 marks)

IV. (a) Explain in detail about the various devices to protect against electrical hazards.

*Or*

(b) Discuss the measurement of pH with a neat diagram.

(10 marks)

[4 × 10 = 40 marks]