

TED (10)-4083

(REVISION-2010)

Reg. No.

Signature

FIFTH SEMESTER DIPLOMA EXAMINATION IN ENGINEERING/
TECHNOLOGY—MARCH, 2013

BIOMEDICAL INSTRUMENTS

(Common to EI and IT)

[Time : 3 hours

(Maximum marks : 100)

Marks

PART—A

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. Define diastolic pressure.
2. What is evoked potential ?
3. State the need of ventilator.
4. List the applications of A Scan.
5. What is cardiac fibrillation ?

(5x2=10)

PART—B

II Answer *any five* questions. Each question carries 6 marks.

1. Describe the working principle of piezo electric arterial pulse receptor.
2. What are the criteria for selecting biomedical transducers ?
3. Draw and explain typical ECG waveform.
4. Draw a typical EEG waveform and explain the classification of different waveforms.
5. Write short note on Respirators.
6. Describe the working of X-ray tube.
7. What are the applications of bio-telemetry ?

(5x6=30)

PART—C

(Answer *one* full question from each unit. Each question carries 15 marks.)

UNIT - I

- III (a) Describe the generation and propagation of action potential through cells. 8
- (b) Explain the working principle of strain gauge type respiration sensor. 7

OR

	Marks
IV (a) Describe catheterization method of direct blood pressure measurement.	6
(b) Explain the working principle of electromagnetic blood flow meter.	9
UNIT – II	
V (a) Explain different lead configurations in ECG measurement.	12
(b) What is needle electrode ?	3
OR	
VI (a) Draw the block diagram of an EEG machine and explain its operation.	8
(b) Draw the block diagram of an EMG machine and explain its operation.	7
UNIT – III	
VII (a) Explain the working of ventricular synchronous demand pacemaker with figure.	9
(b) Illustrate the working of DC defibrillator with figure.	6
OR	
VIII (a) Describe the working of short wave diathermy unit.	8
(b) Explain the working of blood cell counter.	7
UNIT – IV	
IX (a) Describe the basic components of an NMR imaging system.	10
(b) Write the principle of operation of ultrasonic imaging system.	5
OR	
X (a) Describe the effects of electric current on human body.	6
(b) Explain the working principle of CAT scanner.	9
