



M.TECH DEGREE EXAMINATIONS: MAY 2015

(Regulation 2013)

Third Semester

BIOTECHNOLOGY

P13BTE402: Biomedical Engineering And Clinical Research

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 2 = 20 Marks)

1.	Give the classification of transducers with examples.
2.	Differentiate between chemoreceptors and baroreceptors.
3.	Explain the term: Rheology. State briefly physical characteristics of blood.
4.	Define a biomaterial? How are they classified?
5.	What is a bioelectric potential? How is it measured?
6.	How will you measure gas exchange in the body?
7.	What is the basis behind Magnetic Resonance Imaging?
8.	Write the components of radiographic imaging system.
9.	Mention the seven principle framework in ethical guidelines of clinical research.
10.	Explain randomized control trials? Differentiate between single and double blinded trials.

Answer any FIVE Questions:-

PART B (5 x 16 = 80 Marks)

Q.No:11 is Compulsory

11.	Give a detailed account on implantable cardiac devices, their types and applications.
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12.	Elaborate on the salient features and classification of biomaterials used in tissue engineering.
13.	Describe in detail the different types of transducers and their applications.
14.	Discuss the working and applications of Heart-lung machine.
15.	Discuss the instrumentation, working principle and applications of echocardiogram and echoencephalogram.
16.	Describe in detail the process of discovery and development of new drugs.
