

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI  
(END SEMESTER EXAMINATION)

CLASS: BTECH  
BRANCH: BT

SEMESTER : VI  
SESSION : SP/2023

SUBJECT: BE312 BIOMATERIALS

TIME: 3 Hours

FULL MARKS: 50

**INSTRUCTIONS:**

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
  2. Attempt all questions.
  3. The missing data, if any, may be assumed suitably.
  4. Before attempting the question paper, be sure that you have got the correct question paper.
  5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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		CO	BL
Q.1(a)	Explain different mechanical and thermal properties of the biomaterials.	[5] 1	2
Q.1(b)	Describe the functional requirements of the biomaterials and tissue replacement.	[5] 1	2
Q.2(a)	Compare the stainless steel and Ti alloys biomaterials based on properties with clinical applications.	[5] 2	4
Q.2(b)	What are the polymerization methods used in manufacturing the polymeric biomaterials?	[5] 2	3
Q.3(a)	Illustrate the wound healing process.	[5] 3	3
Q.3(b)	Explain the cellular responses to the implants.	[5] 3	2
Q.4(a)	Illustrate the application of biodegradable material in tissue engineering.	[5] 4	3
Q.4(b)	Explain the instrumentation of x-ray photoelectron spectroscopy in examining the surface chemistry of the biomaterials.	[5] 5	4
Q.5	Write short notes on		
Q.5(a)	Implants for blood interface	[5] 6	3
Q.5(b)	Hip joint replacement	[5] 6	3

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