

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)**

**CLASS: B. TECH.
BRANCH: CHEM ENGG / CP&P**

**SEMESTER: V
SESSION: MO/2022**

SUBJECT: CL325 BIOMATERIALS

TIME: 2 HOURS

FULL MARKS: 25

INSTRUCTIONS:

1. The total marks of the questions are 25.
 2. Candidates attempt for all 25 marks.
 3. Before attempting the question paper, be sure that you have got the correct question paper.
 4. The missing data, if any, may be assumed suitably.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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Q1	(a) Quote two names of bioabsorbable materials, their application and limitations.	[2]	1	Quote
Q1	(b) "We prefer polymer composites over copolymers." Illustrate this fact with suitable example in biomedical application.	[3]	2	Illustrate
Q2	(a) Classify bioceramics. How do these bioceramics work in tissue engineering? Give examples.	[3]	4	Classify
Q2	(b) Cite the factors affecting biodegradability of polymers. Give example of uses of biodegradable metals.	[2]	5	Cite
Q3	(a) Explain the limitations of ceramic and metal biomaterials? How can we overcome these. Cite at least two suggestions for each.	[2]	3	Explain & Cite
Q3	(b) Define cold flow? Why does PE show low creep? Why do we prefer vicryl as suture materials over catgut?	[3]	4&3	Define
Q4	(a) Describe the chemical composition of bioglass.	[2]	4	Describe
Q4	(b) How do we manufacture SME? Explain the working mechanism of SME.	[3]	4	Explain
Q5	(a) Judge the fact that Ti and Co alloys have greater mechanical strength than stainless steel.	[2]	5	Judge
Q5	(b) Recall the different types of sterilization done on biomaterials. Discuss about at least two of them and write down the limitations of these methods.	[3]	4	Discuss, Recall

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