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ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

B.E. / B. Tech / B. Arch (Full Time) - END SEMESTER EXAMINATIONS; NOV / DEC 2022

B.E. Biomedical Engineering

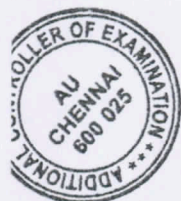
V - Semester

BM5006 - BIOMATERIALS AND ARTIFICIAL ORGANS

(Regulation 2019)

Time: 3hrs

Max. Marks: 100



CO1	Analyze different types of materials and its application in biomedical field.
CO2	Choose materials for design of implants in tissue replacement.
CO3	Evaluate response of biomaterials in living system
CO4	Assess compatibility and functioning of artificial organs inside the living system
CO5	Design and develop biomaterial based scaffold for biomedical application

BL – Bloom's Taxonomy Levels

(L1-Remembering, L2-Understanding, L3-Applying, L4-Analysing, L5-Evaluating, L6-Creating)

PART - A (10x2=20Marks)

(Answer all Questions)

Q. No.	Questions	Marks	CO	BL
1	List mechanical properties to be studied in a biomaterial fabrication	2	CO1	L1
2	What is elusion assay method define?	2	CO1	L1
3	Define stainless steel	2	CO2	L2
4	What is an alloy give few examples?	2	CO2	L2
5	List out difference between thermoset polymer and thermoplastics	2	CO3	L2
6	Give features of hydrogels	2	CO3	L2
7	Define decellularization	2	CO4	L1
8	List out the materials used in joint replacements	2	CO4	L2
9	Define artificial blood advantages and disadvantages	2	CO5	L2
10	What are the materials used in dental implants?	2	CO5	L2

PART - B (5x 13=65Marks)

(Restrict to a maximum of 2 subdivisions)

Q. No.	Questions	Marks	CO	BL
11 (a)	What are the physical characters of a biomaterials to be studied explain in detail with at least one method?	13	CO1	L1
OR				
11 (b)	How body respond against implant materials explain in detail?	13	CO1	L1
12 (a)	Explain in detail about metals, its character and its application in biomedical field.	13	CO1	L1
OR				
12 (b)	i) Describe Ti based alloys and its application	8	CO1	L1
	ii) How glass ceramics prepared and explain its application?	5	CO1	L1
13 (a)	Write detailed information about suture materials.	13	CO2	L2
OR				

13 (b)	Explain contact lens, its types and different materials used in contact lens materials.	13	CO2	L2
14 (a)	Describe stem cells, its characters and different types of stem cells with some illustrative diagrams.	13	CO3	L3
OR				
14 (b)	Explain different materials used in tissue adhesives and Surgical tapes with its pros and cons	13	CO4	L4
15 (a)	How prosthetic heart valves replacement is done with different materials explain?	13	CO5	L5
OR				
15 (b)	Write detailed information about artificial skin	13	CO5	L5

PART- C (1x 15=15Marks)
(Q.No.16 is compulsory)

Q. No.	Questions	Marks	CO	BL
16.	Design and develop artificial blood with available resources and explain its pros and cons.	15	CO6	L6

