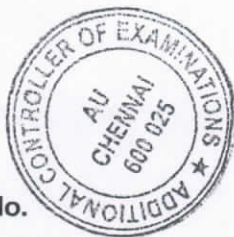


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ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

April / May 2024

B.E. /B.Tech / B. Arch (Full Time) - END SEMESTER EXAMINATIONS,

Biomedical Engineering

BM7014 PRINCIPLES OF TISSUE ENGINEERING

(Regulation 2015)

Time: 3hrs

Max. Marks: 100

Out comes

Acquire ability to function on multi-disciplinary teams

Apply the knowledge of professional and ethical responsibility in use of stem cells and gene therapy in creating tissue engineered therapies.

Gain knowledge in research or clinical application on tissue repair/ engineering.

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	BL
1	What is cell cycle?	2	1
2	Enumerate the applications of tissue engineering.	2	1
3	Mention the types of stem cells.	2	1
4	Brief about fetal cord blood.	2	1
5	How the transplants are classified?	2	1
6	Write short note on confocal microscope.	2	2
7	Differentiate degradable and non degradable materials with examples	2	1
8	Define bio-compatibility.	2	1
9	List the types of cartilages.	2	1
10	When the cell regenerate?	2	1

PART- B (5x 13=65Marks)

(Restrict to a maximum of 2 subdivisions)

Q.No	Questions	Marks	BL
11 (a)	Discuss about i) Cell Aggregation	6	2
	ii) Cell migration	7	
OR			
11 (b)	Explain about cell adhesion and the molecules associated with it.	13	2
12 (a)	Discuss about i) Pluripotency and immortalization	7	2
	ii) germ cells	6	
OR			
12 (b)	Explain about i) cancer stem cells	7	2
	ii) Induced pluripotent stem cells	6	

13 (a)	Explain about i) Fluorescent microscope	7	2
	ii) SEM	6	
OR			
13 (b)	Describe the drug delivery system with suitable example.	13	2
14 (a)	Discuss the different types and applications of polymers	13	2
OR			
14 (b)	Discuss about i) Extra cellular matrix	7	2
	ii) cell interaction with polymers	6	
15 (a)	Discuss about i) Artificial skin	5	2
	ii) Artificial Pancreas	8	
OR			
15 (b)	When the liver transplant is required? Explain about artificial liver.	13	2

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

Q.No	Questions	Marks	BL
16.	i) Describe about the nerve regeneration process with necessary diagram	8	3
	ii) Discuss about any transplant method and its advantages and disadvantages	7	

