Question Paper Code: 99B03

B.E./B.Tech. DEGREE EXAMINATION, DEC 2021

Elective

Biomedical Engineering

19UBM 903- Principles of Tissue Engineering

(Regulation 2019)

Duration: Three hours | Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1.	Explain – Cell aggregation.	CO1 U
2.	What are the Bio-materials? Give examples.	CO1 U
3.	Comparative study of log and lag phase with neat growth cycle diagram.	CO1 U
4.	Draw the key concepts of tissue engineering.	CO1 U
5.	Define stem cell	CO1 U
6.	Comparative analysis of specialized cells with progenitor cells.	CO1 U
7.	Define Tissue Engineering practice.	CO1 U
8.	Draw the key concepts of Cell Margination and Interaction with Endothelial Cells.	CO1 U
9.	Summarize biomaterials and its role in artificial organ development?	CO1 U
10.	Explain the key concepts of Cell interaction with synthetic materials.	CO1 U

PART – C (5 x 16= 80Marks)

11.	(a)	Give short notes on state of the art in tissue exchange and illustrate the process of tissue engineering with neat diagram.	CO1-U	(16)
		Or		
	(b)	Write a detailed note on Cell growth and differentiation. Demonstrate how stem cell approach is implanted in tissue engineering.	CO1-U	(16)

12.	(a)	Explain Living –skin Equivalent. How do you examine several models for prosthetic devices?	CO3-Ana	(16)
		Or		
	(b)	Write a detailed note on in vivo synthesis of tissues and organs. Analyze how the cells are responding to various factors.	CO3-Ana	(16)
13.	(a)	Give short notes on stem cells and categorize different sources of stem cells with neat diagram and its application.	CO1-U	(16)
		Or		
	(b)	Write a detailed note on stem cell and illustrate the different types of stem cell and Pluripotent Stem Cells with the examples of diabetes.	CO1-U	(16)
14.	(a)	Write a detailed note on Microchimerism. Analyze how the Cell Penetration into Three-Dimensional Tissues.	CO1-U	(16)
		Or		
	(b)	How do you conclude Cell Movement within the Circulatory in tissue engineering practice approach?.	CO1-U	(16)
15.	(a)	Write a detailed note on Artificial organ and illustrate the design and operation of an artificial pancreas.	CO1-U	(16)
		Or		
	(b)	Give short notes on Tissue engineering and illustrate the case studies in skin tissue engineering with schematic diagram.	CO1-U	(16)