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18BT743

Seventh Semester B.E. Degree Examination, July/August 2022 Tissue Engineering

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Discuss the importance of tissue engineering in therapeutics. (10 Marks)
b. Enumerate the methods to determine cell viability. (10 Marks)

OR

- 2 a. Discuss the cell characteristics that needs to be monitored for invitro cell/tissue culture. (10 Marks)
b. Elaborate the measurement of tissue characteristics. (10 Marks)

Module-2

- 3 a. Classify the tissue based on their structure and functions. (10 Marks)
b. Vascular Endothelial Growth factor plays a vital role in angiogenesis. – Justify. (10 Marks)

OR

- 4 a. Elaborate the cell-cell interaction mechanisms. (10 Marks)
b. Describe the process of wound healing with a neat labelled diagram. (10 Marks)

Module-3

- 5 a. Define biomaterials. Discuss the properties that confirms a good biomaterial. (10 Marks)
b. Discuss the biopolymers that could be used as implants. (10 Marks)

OR

- 6 a. Classify the biomaterials based on their material property. (10 Marks)
b. Discuss the role of nanotechnology in building new biomaterials. (10 Marks)

Module-4

- 7 a. Describe stem cells. Explain the types of stem cells. (10 Marks)
b. Cells can be sorted by tagging fluorophores on them – uphold the statement. (10 Marks)

OR

- 8 a. With a neat labelled diagram, delineate the sources of embryonic stem cells. (10 Marks)
b. Describe the hematopoietic differentiation pathway. (10 Marks)

Module-5

- 9 a. Describe invitro organogenesis. (10 Marks)
b. Discuss the treatment strategies for 3rd degree burns. (10 Marks)

OR

- 10 a. Explain the patent protection and regulation of tissue engineered products. (10 Marks)
b. Detail the process of preservation of cells/tissues. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.