

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION-2022

B.Tech-VII Semester (BT)

COURSE CODE (CREDITS): 18B1WBT739 (3)

MAX. MARKS: 35

COURSE NAME: Stem Cells and Regenerative Medicines

COURSE INSTRUCTORS: Dr. Udayabanu, M.

MAX. TIME: 2 Hours

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

- Q1. Justify that Muscle-Derived Stem Cells can be used as a model for Stem Cell Therapy in Regenerative Medicine. Discuss about the stages of myogenesis. [5 Marks] (CO3,4)
- Q2. State the major challenges faced by tissue engineers for the development of scaffold for liver tissue engineering. Design a fabrication method using Matrigel for liver tissue engineering. [5 Marks] (CO3,4)
- Q3. Scaffolds are materials that have been engineered to contribute to the formation of new functional tissues for medical purposes. (CO5)
- Can ceramics be used as a scaffold material? If so what would be the advantages or disadvantages of ceramics. [3 Marks]
 - The criteria for selecting the materials as biomaterials. [3 Marks]
 - Fabricate a polymeric scaffold using phase separation technique and state its advantages and disadvantages. [4 Marks]
- Q4. Consider a person has acquired an external injury/wound. How would you characterize a biomaterial for such kind of injury on skin? Explain what kind of surface and biological characterizations are necessary? [5 Marks] (CO5)
- Q5. What are the three unique features of a stem cell? State the advantages and disadvantages of adult stem cells. [5 Marks] (CO1,2)
- Q6. Explain the composition and its utilization of the following skin grafts.[5 Marks] (CO3,4)
- ALLODERM
 - APLIGRAF