

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2023

B.Tech-VII Semester (BT/BI)

COURSE CODE (CREDITS): 14B1WBT739 (3)

MAX. MARKS: 35

COURSE NAME: Stem Cells & Regenerative Medicines

COURSE INSTRUCTORS: Dr. Uday

MAX. TIME: 2 Hours

Note: (a) All questions are compulsory.

(b) Marks are indicated against each question in square brackets.

(c) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

1. With a neat diagram mention the different layers of human skin. Explain the structure of skin epidermis. [5 Marks]
2. How would you assess the surface properties of scaffold materials? Briefly discuss about the different parameters and its evaluation. [5 Marks]
3. Biocompatibility is an essential criteria for implantable biomedical devices. Design a strategy to evaluate the biocompatibility of materials. [5 Marks]
4. Explain the properties, application and the polymers used for the fabrication of [5*2 = 10 Marks]
 - a. Porous scaffold
 - b. Hydrogel scaffold
5. Scaffolds have to be fabricated by different methodology to facilitate the cell distribution and guide their growth into three-dimensional space. Explain the procedure, advantage and disadvantage of particulate leaching and gas foaming technique. [5 Marks]
6. What is the major challenge faced by tissue engineers for the development of scaffold for liver? Describe the ideal liver scaffold properties and the polymers suitable for the fabrication. [5 Marks]