Dr. Udaya Kanth

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2021

B.Tech VII Semester

COURSE CODE: 14B1WBT739 MAX. MARKS: 35

COURSE NAME: STEM CELLS & REGENERATIVE MEDICINE

COURSE CREDITS: 3 MAX. TIME: 2 Hours

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***Note:*** *All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.*

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1. Can Muscle derived stem cells be used for regeneration therapy? Justify by giving proper example and the characteristics of the MDSCs. How could you overcome scar formation during regeneration of muscle? (5Marks)
2. Haemotopoiesis region changes during different stages of embryogenesis and at birth. Explain the regional shift in brief. Give Support that "Bone marrow is a highly specialized tissue comprising a range of cells". What kind of effect would infection and high altitude exposure pose as haemotological stress? (5 Marks)
3. Skin has three primary layers with epidermis having different layers of cells. Wound healing is a complex process with different stages. Give a brief note and explain ALLODERM skin graft composition and application. (5 Marks)
4. Biological characterization of polymer materials involves Haemocompatibility assay, Cell adhesion and migration, Indirect contact in vitro cytotoxicity etc. Give a brief note and mention different types of tests involved and its importance. (5 Marks)
5. Scaffolds are fabricated to facilitate cell distribution and guide their growth. Which of the following facilitate cell distribution and growth in 3D: Particulate leaching technique and freeze drying method? Explain both methods. (5 Marks)
6. Why Liver transplantation is the only alternative for the patients with end stage liver failure? What is the major Challenge while handling hepatocytes? (3 Marks)
7. Where does Carbohydrate – ASGPR interaction property is utilized? With an example for a carbohydrate explain its utility and advantage over other systems. (2 Marks)
8. Write a note on the following: (2.5 Marks Each)
    a. Ceramics as a biomaterial for bone tissue engineering
    b. Hydrogel scaffold as engineering of replacement connective tissue