C-83

TTL746 Minor-2

Time 30 minutes **Answer any two questions**

1. (a) Electrospinning is a fascinating method to prepare nanofibrous matrix. It has been extensively used for tissue engineering. What are the advantages and limitations of electrospun scaffolds for tissue engineering? 3 + 3

(b) In human body all cells get nutrients and oxygen due to continuous blood flow. Cartilage has no blood vessel. How chondrocytes survive in cartilage tissue? 4

2. (a) Tissue engineers are trying to develop engineered cartilage since last 30 years. This is one of the most simple tissue of our body. There is no blood vessel, or nerve. It is made up of one type of cell- chondrocytes. What are the limitations with existing engineered cartilages? 5

(b) Prof. Farshid Guilak's lab from Duke University has developed 3D woven scaffold fo cartilage tissue engineering. What are the advantages of using 3D woven fabric? 5

3. (a) Millions of elder people around the world are suffering from low back pain ("S disc"). In last class. Maumita presented her research work on Intervertebral disc. How prepared scaffolds and what was the rationale for her work?

(b) In the Biomaterials paper, why the authors selected PEGT-PBT for preparation of scaff Although both scaffolds were made of same polymer composition, but why 3D fibre depo scaffold performed better than porogen leached scaffold? 3