

FEDERAL UNIVERSITY OF TECHNOLOGY, OWERRI
DEPARTMENT OF BIOMEDICAL TECHNOLOGY
2013/2014 HARMATTAN SEMESTER EXAMINATION

BMT 551: Genetic and Tissue Engineering

TIME ALLOWED 2 HOURS

Instruction: Answer Five (5) questions in all, 2 questions from Section A and 3 questions from section B

Section A (Answer 2 questions only)

1a. Give a historical account of the emergence of the field of genetic Engineering

b. Discuss the application of Genetic Engineering in

i. Agriculture

ii. Medical Sciences

2a Write short notes on Monoclonal antibodies and discuss two of their uses

b. Define Tissue Engineering

c. Distinguish between tissue Engineering and Regenerative medicine

3a(i). Mention any four types of cells employed for Tissue Engineering

ii. Discuss the advantageous properties of each of the cell types mentioned in (i) above

b. Give four (4) examples of materials that have been investigated and found satisfactory for use as scaffolds in tissue engineering.

Section B (Answer 3 question only. Motivate your answers with examples and diagrams)

1. Write the appropriate cell type(s) found in the organs and tissues listed in the table below (10 Marks).

Tissue/Organ	Cell Type
Bone	
Cartilage	
Adipose tissue	
Skin	
Muscle	
Pancrease	
Heart	
Bone marrow	
Liver	
Blood vessel	

2.(a) With the help of a labelled diagram, describe central paradigm of tissue engineering.(5mks)

b. With the help of a labelled diagram only, show how regenerative medicine is classified (5Mks)

3.(a) Describe five advantages of scaffold in tissue engineering and regenerative medicine

b. Briefly discuss challenges facing tissue engineering (5mks)

4. Describe in a half page why cartilage hardly regenerates its self unlike bone. What are the tissue engineering strategies to induce regeneration (10Mks)