



**FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
SCHOOL OF NATURAL AND APPLIED SCIENCES
DEPARTMENT OF MICROBIOLOGY**

FIRST SEMESTER EXAMINATION 2013/2014 SESSION

COURSE CODE: MCB516

COURSE TITLE: INTRODUCTION TO BIOTECHNOLOGY

CLASS: 500 LEVEL

TIME ALLOWED: 2 Hours

INSTRUCTION: Answer QUESTION ONE and any other TWO.

Q1a. In an experiment to carry out Pea DNA Extraction in the Laboratory state the purpose and **outline** the appropriate procedures

- Q1(b) i. What was the purpose of blending the peas?
ii. What was the purpose of adding liquid detergent to the mixture?
iii. What was the purpose of adding the enzyme to the mixture?
iv. What was the purpose of adding the alcohol to the mixture?
v. How will you quantify the amount of DNA you extracted?

Q1(c). Define DNA. Is it possible to make DNA extraction kit from household chemicals and use it to extract DNA from strawberries?

Q2.(a) What is an immobilized enzyme? What are the advantages of using them

Q2(b) What energy source and carbon source do the following metabolic groups have?

- (i) Photoautotrophs
(ii) Chemoautotrophs
(iii) Photoheterotrophs
(iv) Chemoheterotrophs

Q2.(c) "*Agrobacterium* is considered as a natural genetic engineer of plants." Explain.

Q3(a). What is the difference between the traditional biotechnology and modern biotechnology?

Q3(b). How many categories of cell lines are available?

Q3(c). Discuss the advantages and disadvantages of adding serum in the animal culture medium.

Q4(a). What is IPR? Differentiate between Trade secret, Trademark and Copyright

Q4(b). Differentiate between plant cell culture and animal cell culture?

Q4(c). Define the following terms:

- (i) Explant
(ii) Callus culture
(iii) Totipotency