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

FIRST SEMESTER EXAMINATION 2013/2014 SESSION

COURSE CODE: MCB512
COURSE TITLE: FERMENTATION TECHNOLOGY
CLASS: 500 LEVELS
TIME ALLOWED: 2hrs. 30min

INSTRUCTION: Attempt **5 questions** in all; **3 questions** in section A and **2 questions** in section B.

SECTION A. Answer three questions from this section

1.(a) List the five (5) major groups of commercially important fermentation with examples

1(b) Define industrial fermentation and show clearly the chemical equation for glucose fermentation

1(c) Explain briefly homolactic and heterolactic acid fermentaion with appropriate chemical equations.

2. Discuss the following processes as they occur in fermentation technology and give specific equations for the reactions :
   (i) Glycolysis
   (ii) Aerobic respiration
   (iii) Hydrogen gas production

3. In an autecological study, describe how you can model bacterial growth in a batch culture

4. Explain the following terms:
   (i) Continuous culture
   (ii) Fed-batch culture
   (iii) Productivity of culture medium

SECTION B : Answer two questions from this section

5. The type of aeration-agitation system used in the fermenter is dictated by the characteristics of the fermentation process. Discuss.

6. Write short notes on the following;
   i. Agitation
   ii. Filtration
   iii. Chemical methods of cell disruption

7. Describe the steps in protein purification?