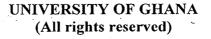
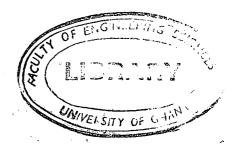
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FACULTY OF ENGINEERING SCIENCES

DEPARTMENT OF FOOD PROCESS ENGINEERING

B.Sc FIRST SEMESTER FINAL EXAMINATION, 2012/2013

FPEN 309: INTRODUCTION TO BIOTECHNOLOGY (2 Credits)

Time Allowed: 2 Hours

Section 1: Answer any two questions (10 marks each)

- 1. Describe one method that can be used to enrich mutant plaques in site directed mutagenesis (make use of diagrams)
- 2. Explain the formation of okazaki fragments in DNA replication
- 3. Compare and contrast random and site directed mutagenesis

Section 2: Answer all questions

- 1. Define the biochemical pathways for anaerobic respiration from glucose. Indicate intermediate steps in the biochemical pathway (5 marks).
- 2. What is the status and applications of Biotechnology in Ghana today (3 marks)
- 3. Name 4 factors that affect cell growth (2 marks)
- 4. Name the nucleobases classified as purines (2 marks)
- 5. What are operons and how are they regulated during transcription? (3 marks)
- 6. How is cDNA processed before cloning into a vector? (2 marks)
- 7. What is bioinformatics and how is it relevant to biotechnology (3 marks)

Section 3: Answer any two questions (10 marks each)

- 1. Describe one application of fermentation technology in the food industry and name 5 parameters that important in the fermentation reactions
- 2. Describe all steps involved in the formation of complementary DNA (cDNA) from mRNA
- 3. Write short notes on the following and give one example of each
 - a. Plasmid vector
 - b. Recombinant DNA technology
 - c. Restriction enzymes
 - d. Real time PCR
 - e. Protein separation

Examiner: Dr. Angela Parry Hanson

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