



UNIVERSITY OF GHANA
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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