



TECHNICAL UNIVERSITY OF MOMBASA

SCHOOL OF APPLIED & HEALTH SCIENCES

DEPARTMENT OF MEDICAL SCIENCES

P1

UNIVERSITY EXAMINATION FOR:
DIPLOMA IN INDUSTRIAL MICROBIOLOGY AND BIOTECHNOLOGY
SEP 2023 J&S FT
ABT 2209 : INTRODUCTION TO MOLECULAR BIOLOGY
END OF SEMESTER EXAMINATION
SERIES: DECEMBER 2024
TIME: 2 HOURS
DATE: Pick Date Dec 2024

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** Question(s). Attempt question ONE (Compulsory) and any other TWO questions.

QUESTION 1

- I. Describe the chemical composition of DNA molecule (5 marks)
- II. What are the properties of the DNA molecule (5 marks)
- III. What are the implications of having operons in prokaryotic cells versus individual genes in eukaryotic cells? (2 marks)
- IV. Describe the metabolic processes in Eukaryotes (4 marks)
- V. What are the fundamental characteristics of genes (3 marks)
- VI. Outline the four primary levels of control of gene activity in control gene expression (4 marks)



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VII. What are the main organelles found in prokaryotes(4 marks)

QUESTION 2

- I. What are the characteristic features of a eukaryotic cell (10 marks)
- II. Outline the DNA repair mechanisms (5 marks)

QUESTION 3

- I. With an aid of a diagram, describe Watson's and Crick's structural model of DNA (10 marks)
- II. Explain environmental factors as sources of DNA damage (5 marks)

QUESTION 4

- I. Describe the lac operon system of gene regulation (10 marks)
- II. Outline the mitosis process (5 marks)

QUESTION 5

- I. Outline the differences between DNA and RNA (10 marks)
- II. Describe the metabolism pathways in prokaryotes (5 marks)

