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(*University of Choice*)

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

MAIN CAMPUS
MAIN EXAMINATIONS

UNIVERSITY EXAMINATIONS
2021/2022 ACADEMIC YEAR

SECOND YEAR SECOND SEMESTER EXAMINATIONS

FOR THE DEGREE
OF
BACHELOR OF SCIENCE IN BIOTECHNOLOGY

COURSE CODE: SBT 222

COURSE TITLE: MICROBIAL GENETICS

DATE: WEDNESDAY, 27TH APRIL 2022 TIME: 8:00 – 10:00 A.M.

INSTRUCTIONS TO CANDIDATES

Answer ALL questions in section A and ANY TWO selected from section B

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 2 Printed Pages. Please Turn Over.

SECTION A (SHORT ANWSER QUESTIONS, 40 MARKS)

1. State the cell theory and differentiate between eukaryotic and prokaryotic cell. (6 marks)
2. Make short notes about plasmids. (5 marks)
3. Describe the molecular structure of DNA (Deoxyribonucleic acid). (5 marks)
4. State the functions of the LAC operon gene products in the cell. (6 marks)
5. Distinguish between allosteric inhibition and allosteric activation. (5 marks)
6. Describe the structure and function of inverted repeats. (4 marks)
7. Define bacterial transduction and state its application in biotechnology. (4 marks)
8. State the principle of the yeast two hybrid test. (5 marks)

SECTION B (ESSAY QUESTIONS, 30 MARKS)

9. Describe the processes of mRNA capping and splicing and state their purpose. (15 marks)
10. Explain the three (3) phases of translation of mRNA into peptide. (15 marks)
11. Explain a Blue-White Screening experiment and the relevance of selection steps. (15 marks)