



**MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY  
(MMUST)**

**UNIVERSITY EXAMINATIONS**

**2021/2022 ACADEMIC YEAR**

**MAIN EXAMINATIONS  
MAIN CAMPUS**

**FIRST YEAR SECOND SEMESTER EXAMINATIONS**

**FOR THE DEGREE  
OF  
MASTER OF SCIENCE IN MOLECULAR BIOLOGY**

**COURSE CODE: SBB 825**

**COURSE TITLE: CYTOGENETICS & CHROMOSOMAL  
MANIPULATIONS**

**DATE: TUESDAY, 19<sup>TH</sup> APRIL 2022**

**TIME: 9:00 – 12:00 P.M.**

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**INSTRUCTIONS TO CANDIDATES**

Answer ANY FOUR questions (60 marks)

TIME: 3 Hours

MMUST observes ZERO tolerance to examination cheating

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

1. Using case examples in fish; discuss in detail how variation in shock application treatments after fertilization leads to differences in chromosome set number. (15 marks)
  
2. Describe a designed experiment on polyploidization highlighting the chemical agent used and the factors to manipulate that might be a source of variation in the output of the experiment. (15 marks)
  
3. Discuss the use of selected enzymes in chromosome manipulation emphasizing on the strengths and weaknesses of the strategy. (15 marks)
  
4. Discuss the use of laser technology as an emerging strategy of chromosome manipulation emphasizing on the drivers of the same. (15 marks)
  
5. Discuss the use of vectors and related agents in chromosome manipulation experiments. (15 marks)