



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

**UNIVERSITY EXAMINATIONS**

**2021/2022 ACADEMIC YEAR**

**MAIN CAMPUS  
MAIN EXAMINATIONS**

**FIRST YEAR SECOND SEMESTER EXAMINATIONS**

**FOR THE DEGREE  
OF  
MASTER OF SCIENCE IN ENVIRONMENTAL SCIENCE**

**COURSE CODE: SES 824**

**COURSE TITLE: WATERSHED AND ECOSYSTEM HEALTH**

**DATE: FRIDAY, 22<sup>ND</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. Discuss sustainable solutions to water resources use. (15 marks)
2. Traditionally, human activities have been managed on a piecemeal basis, treating the economy separately from social issues or the environment. But the ecosystem concept holds that these are inter-related, that decisions made in one area affect all the others. Managing watersheds in a sustainable manner is a 3-tiered approach. Discuss. (15 marks)
3. Discuss the concept of ecosystem health and sustainability according to Robert Costanza and Michael Mageau (1999) highlighting attributes of a healthy ecosystem. (15 marks)
4. (a) Explain why an integrated approach to water management is necessary. (7 marks)  
(b) Critically discuss the criticisms of Integrated Water Resources Management (IWRM). (8 marks)
5. The movement of water from land to a water body significantly alters hydrology and water chemistry. Critically discuss this statement. (15 marks)
6. Human actions can result in environmental change and affect watershed services and affect human wellbeing and ecosystem stability. Discuss this contention in relation to River Njoro Watershed Management Case Study. (15 marks)