



# MACHAKOS UNIVERSITY

University Examinations for 2021/2022

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

FOURTH YEAR SUPPLEMENTARY EXAMINATION FOR  
BACHELOR OF SCIENCE IN BIOLOGY

SZL 415: ECOLOGY & SUSTAINABLE DEVELOPMENT

DATE: 14/3/2022

TIME : 2:00 – 4:00 PM

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## INSTRUCTIONS

ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS

1.

- a. Describe the concept of social sustainability (3 marks)
- b. Explain why ecologists disagree with the economists' description of sustainability (4 marks)
- c. Outline three ways by which world nations can demonstrate commitment to international sustainable development principles (3 marks)
- d. Outline the significance the commission for sustainable development (2 marks)
- e. Outline three main goals of sustainable agriculture (3 marks)
- f. Describe three indicators of biodiversity in an ecosystem (3 marks)
- g. Explain why biodiversity conservation/protection is important (3 marks)
- h. Explain how consumer behaviour may contribute to environmental decline (3 marks)
- i. Explain three factors that may contribute to decline of world aquatic species (3 marks)
- j. Describe three challenges faced by the social component of environmental impact assessment (3 marks)

## SECTION B

2. Discuss global challenges in the advancement of sustainable development (20 marks)
3. Some scientists have argued that intensification of agriculture is unnecessary and unsustainable.  
Discuss (20 marks)
4.
  - a. Explain possible ecological effects of the construction of Thwake dam (10 marks)
  - b. Describe mitigation measures that can be used to protect forest ecosystems (10 marks)
5. Discuss sustainable practices that should guide the development of world cities (20 marks)