



MACHAKOS UNIVERSITY

University Examination 2020/2021 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

FIFTH YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE IN CIVIL ENGINEERING

ECV 505: ENVIRONMENTAL ENGINEERING

DATE: 23/3/2021

TIME: 2.00-4.00 PM

INSTRUCTIONS

Answer questions ONE and any other two questions.

Reasonable assumptions should be made where necessary

QUESTION ONE (COMPULSORY) (30 MARKS)

Development objectives and the need to protect and maintain the natural environment must go hand in hand. Because environmental sustainability underpins human wellbeing according to United Nations. In light of this discuss the concept of sustainable development.

QUESTION TWO (20 MARKS)

- a) Discuss the greenhouse effect phenomenon with respect to global warming and climate change (10 marks)
- b) Forest provide an array of benefits. However, unregulated exploitation and improper management has resulted in large and expanding areas of degraded forest ecosystems. Discuss ways of improving forest cover and indicate benefits of forest restoration (10 marks)

QUESTION THREE (20 MARKS)

Environmental Impact Assessment (EIA) is the process of identifying future consequences of a current and or proposed project action on the environment. Discuss the steps for carrying out an EIA

QUESTION FOUR (20 MARKS)

- a) Define groundwater contamination and discuss three sources of groundwater contamination (10 marks)
- b) Natural hazards can be geological or meteorological and it is essential to know how they impact on our environment. The study and proper management of such hazards is a prerequisite for developing operational planning, training and simulation programs. What does this entail? (10 marks)

QUESTION FIVE (20 MARKS)

- a) Define marine water pollution and identify its sources. What is the effect of pollution on water resources? (10 marks)
- b) List and describe the importance of the five water towers of Kenya (10 marks)