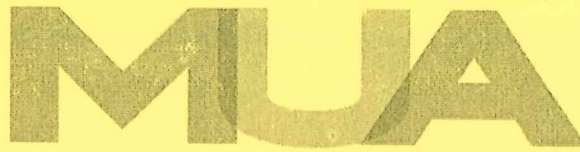


The  
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UNDERGRADUATE UNIVERSITY EXAMINATIONS

SCHOOL OF MANAGEMENT AND LEADERSHIP

DEGREE OF BACHELOR OF ARTS IN DEVELOPMENT STUDIES/BACHELOR OF  
COMMERCE

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*BDS 211/UCU 108 : ENVIRONMENT AND DEVELOPMENT/  
ENVIRONMENTAL SCIENCE*

*DATE: 9<sup>TH</sup> AUGUST 2019*

*DURATION: 2 HOURS*

*MAXIMUM MARKS: 70*

INSTRUCTIONS:

1. Write your registration number on the answer booklet.
2. **DO NOT** write on this question paper.
3. This paper contains **SIX (6)** questions.
4. Question **ONE** is compulsory.
5. Answer any other **THREE** questions.
6. Question **ONE** carries **25 MARKS** and the rest carry **15 MARKS** each.
7. Write all your answers in the Examination answer booklet provided.

## QUESTION ONE

Read the Case Study below carefully and answer the questions that follow:

### FOSSIL FUEL

Rising fossil fuel burning and land use changes have emitted, and are continuing to emit, increasing quantities of greenhouse gases into the Earth's atmosphere. These greenhouse gases include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrogen dioxide (N<sub>2</sub>O), and a rise in these gases has caused a rise in the amount of heat from the sun withheld in the Earth's atmosphere, heat that would normally be radiated back into space. This increase in heat has led to the greenhouse effect, resulting in climate change. The main characteristics of climate change are increases in average global temperature (global warming); changes in cloud cover and precipitation particularly over land; melting of ice caps and glaciers and reduced snow cover; and increases in ocean temperatures and ocean acidity - due to seawater absorbing heat and carbon dioxide from the atmosphere.

The Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC 2007) dispelled many uncertainties about climate change. Warming of the climate system is now unequivocal. It is now clear that global warming is mostly due to man-made emissions of greenhouse gases (mostly CO<sub>2</sub>). Over the last century, atmospheric concentrations of carbon dioxide increased from a pre-industrial value of 278 parts per million to 379 parts per million in 2005, and the average global temperature rose by 0.74° C. According to scientists, this is the largest and fastest warming trend that they have been able to discern in the history of the Earth. An increasing rate of warming has particularly taken place over the last 25 years, and 11 of the 12 warmest years on record have occurred in the past 12 years. The IPCC Report gives detailed projections for the 21st century and these show that global warming will continue and accelerate. The best estimates indicate that the Earth could warm by 3° C by 2100. Even if countries reduce their greenhouse gas emissions, the Earth will continue to warm. Predictions by 2100 range from a minimum of 1.8° C to as much as 4° C rise in global average temperatures.

Human beings have been adapting to the variable climate around them for centuries. Worldwide local climate variability can influence peoples' decisions with consequences for their social, economic, political and personal conditions, and effects on their lives and livelihoods. The effects of climate change imply that the local climate variability that people have previously experienced and have adapted to is changing and changing at relatively great speed.

The major impacts and threats of global warming are widespread (Figure II-1). Increasing ocean temperatures cause thermal expansion of the oceans and in combination with melt water from land-based ice this is causing sea level rise. Sea levels rose during the 20th century by 0.17 metres. By 2100, sea level is expected to rise between 0.18 and 0.59 metres. There are uncertainties in this estimate mostly due to uncertainty about how much water will be lost from ice sheets (Bindoff et al. 2007), for example Greenland is showing rising loss of mass in recent years (UNEP 2007). Increased melting of sea ice and freshwater influx from melting glaciers and ice sheets also has the potential to influence global patterns of ocean circulation.

At the centre of efforts to address climate change on the international stage is the United Nations Framework Convention on Climate Change (UNFCCC). "The UNFCCC provides the basis for concerted international action to mitigate climate change and to adapt to its impacts. Its provisions are far-sighted, innovative and firmly embedded in the concept of sustainable development" (UNFCCC 2006a).

**Required:**

- a) Using knowledge expressed in the case study explain the causes of climate change and its consequences? ( 10Marks)
- b) Explain response measures Kenya as a country have put in place to combat climate change effects in the country (10 Marks)
- c) In the case study the term sustainable environmental development. What does this term mean? (5 Marks)

## QUESTION TWO

- a) Strategies to enhance the contributions of the world's forests to social development, livelihoods and poverty eradication are vital at a time when unsustainable practices and economic crises continue to threaten healthy forests and the people who depend upon them. Discuss this statement focusing on interactions of people and forests. (10 Marks)
- b) What is the difference between agroforestry and social forestry? (5 Marks)

## QUESTION THREE

- a. State and explain five reasons why policy-makers and researchers recommend decentralized natural resource management. (5 Marks)
- b. Identify and discuss the principles of sustainable development. (10 Marks)

## QUESTION FOUR

- a) What are the challenges of Sustainable Development in Africa? (10 Marks)
- b. What do you understand by the term Natural resource management? (5 Marks)

## QUESTION FIVE

- a) Why do you think population dynamics matters for sustainable development? (7 Marks)
- b) How can the Government of Kenya address the challenges mentioned in (a) above and harness the opportunities of population dynamics to promote sustainable development in the country (8 Marks)

**QUESTION SIX**

Write short notes on the following:

- i. Water pollution ( 5 Marks)
- ii. Renewable energy (5 Marks)
- iii. Environmental education (5 Marks)

