## NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

### FACULTY OF ENVIRONMENTAL SCIENCES

### DEPARTMENT OF ENVIRONMENTAL SCIENCE

### MASTERS DEGREE IN CLIMATE CHANGE AND SUSTAINABLE DEVELOPMENT

### ECS 6103

**Main Examination Paper**

**January 2025**

This examination paper consists of 3 typed pages

| | |
|---|---|
| Time Allowed: | 3 hours |
| Total Marks: | 100 |
| Special Requirements: | None |
| Examiner's Name: | Mr N Mudonhi |

### INSTRUCTIONS

1. Answer Question **One** in **Section A** and **ANY** other **THREE** questions in **Section B**.
2. Question one carries 40 marks whilst each question in Section B carries 20 marks.
3. Where the question is subdivided, part marks are indicated in brackets at the end of the sub question.

### MARK ALLOCATION

| QUESTION | MARKS |
|---|---|
| 1. | 40 |
| 2. | 20 |
| 3. | 20 |
| 4. | 20 |
| 5. | 20 |
| 6. | 20 |
| TOTAL | 100 |

ECS 6103

## SECTION A (40 Marks)
## Question One

Indigenous Knowledge Systems utilisation has been on the upsurge in several African countries as it plays a vital role during antenatal care. It could contribute positively or negatively towards the attainment of SDG 13. You have been confronted by the Ministry of Health and Child Care (MOHCC) of Zimbabwe in conjunction with Meteorology Department to come up with sustainable mechanisms of utilising IKS in predicting climatic conditions. Read the following extract and answer questions that follow:

Indigenous Knowledge Systems in Agriculture Systems in Southern Africa: A Review Obert Jiri1,2, Paramu L. Mafongoya1, Chipo Mubaya1,3 & Owen Mafongoya1

Erratic rainfall and increasing temperature is rapidly emerging as one of the most serious global problems affecting many sectors in the world. It is considered to be one of the most serious threats to sustainable development with adverse impact on environment, human health, food security, economic activities, natural resources and physical infrastructure. Southern Africa is one of the most vulnerable regions to climate change in the world, particularly because of widespread poverty, recurrent droughts, inequitable land distribution, over-dependence on rain-fed agriculture and low adaptive capacity. Yet rural farmers in southern Africa have managed to survive the vagaries of climate change over the years. This review reveals that these rural farmers can use indigenous knowledge to cope and adapt to climate change. Availability and access to scientific weather information to make cropping and other decisions at the local level remain key issues to usage of climatic data by rural farmers. On the other hand, indigenous knowledge is what rural farmers have been using but is also becoming unreliable due to climate change and variability. Integration of indigenous knowledge and scientific seasonal forecast seems to be a key possible thrust to reduce vulnerability, enhance resilience of rural farmers and increase their adaptive capacity.

**Keywords**: climate change, indigenous knowledge, seasonal weather prediction, adaptation

(a) Scrutinise factors to mitigate and adapt to erratic conditions stated in the abstract with the aid of indigenous knowledge System **[15]**.

(b) Justify why the Ncube and Dziba people are well known for calling upon rains **[10]**.

(c) Describe unique activities done by birds to determine prevailing weather patterns **[15]**.

ECS 6103

## SECTION B (60 Marks)

### Question Two

With reference to different African countries that were colonised by Western countries, explain how Indigenous Knowledge System has been invaded and eroded [20].

### Question Three

The Tonga and Lemba people of Zimbabwe are well known of their deep rooted cultural values and beliefs, based on one tribe: link their Indigenous Knowledge System and Climate Change [20].

### Question Four

Flora and Fauna were preserved by our fore fathers in different ways, based on your knowledge, how can our great great fathers including the current generation determine sustainability of indigenous Flora and Fauna [20].

### Question Five

The treatment of diseases using indigenous plants is predominant in Southern African Countries, with reference to Zimbabwe, state and explain how IKS is used in the management of Malaria [20].

### Question Six

In Zimbabwean context, Indigenous Knowledge System and Western System has been operating parallel even though both systems are recognised in predicting weather changes. Majority of people utilise IKS secretly and rarely disclose to other service providers. Elaborate mechanisms that can be used to integrate the two systems [20]

ECS 6103