



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF ENVIRONMENTAL SCIENCES

DEPARTMENT OF ENVIRONMENTAL HEALTH

MASTERS DEGREE IN ENVIRONMENTAL HEALTH

HEALTH AND HOUSING

EEH 5104

Examination Paper

October 2024

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

SECTION A (Compulsory, 40 Marks)

Question One

Read the following extract from an article titled: “*Green roof benefits, opportunities and challenges – A review*” and answer questions that follow:

Elsevier: <https://doi.org/10.1016/j.rser.2018.04.006>

Green roof benefits, opportunities and challenges – A review

Renewable and Sustainable Energy Reviews, 90, 757-773.

Shafique, M., Kim, R., & Rafiq, M. (2018).

Abstract

Research on the green roof has been raised expeditiously over the past decade. Green roof have been proposed as the sustainable practice to mitigate the adverse effects of urbanization. This review paper includes the history of the green roof, green roof components and multiple benefits (environmental, social and economical) associated with the green roof technology. This paper also emphasizes how the green roof works in different areas, their performance in reducing the stormwater and energy costs, improving air and ecological performance. The benefits of green roof show that it plays an important role in making cities safe, sustainable and resilient to climate change. Therefore, many countries are giving incentives to the house owners for the application of green roof. However, initial high construction costs, high maintenance costs and roof leakage problems are the main challenges associated with the application of green roofs. These challenges can be overcome with the of new cost effective green roof design that can work more effectively and efficiently in any area. Advanced modification and trends of green roof application are also included in this paper. The paper also highlights the research challenges and research gap of the green roof. At the end, for the better performance of the green roofs, some of the recommendations are also provided.

Key words: Green roof, Components, Evolution, Retrofitting, Benefits, Promotional policies, Advanced modification

- (a) Based on the abstract, give a comprehensive argument that green roofing is a sustainable measure in urban development. [10]
- (b) Compare and contrast the characteristics of city and a growth point. [10]
- (c) With the aid of a case-study, give a detailed account on strategies implemented in Zimbabwe to control squatter settlements in order to maintain urban land value. [20]

SECTION B (60 Marks)

Question Two

A long standing debate in the housing sector has been of particular concern among countries where there is shortage of land. Some argue that there is a direct link between housing development and health while others are against the notion. State theory that you will adopt to construct a city and justify. [20]

Question Three

Despite measures put in place by relevant stakeholders to curb housing problems, they continue to be a health menace in most developing countries. Urban planners and inspectors are using a number of scientific tools to monitor, evaluate and predict health and housing threats. Comparing Zimbabwe with any other developed country, give a detailed account of scientific tool (s) that can be used as a panacea to health and housing problems in rural and urban areas. [20]

Question Four

With the aid of examples, give a detailed account on the effectiveness of housing interventions in curbing family homeless in urban areas of developing countries. [20]

Question Five

(a) Evaluate the pros and cons of the Ramsar Convention and Environmental Management Act in construction of dwellings in Wetlands. [20]

Question Six

(a) Give a comparison between gentrification and urban renewal [10]

(b) With the aid of examples, examine Zimbabwean demolition procedure in relation to illegal settlements. [10]