

2710/305  
ENVIRONMENTAL PLANNING  
AND MANAGEMENT  
Oct./Nov. 2022  
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN ARCHITECTURE

MODULE III

ENVIRONMENTAL PLANNING AND MANAGEMENT

3 hours

**INSTRUCTIONS TO CANDIDATES**

*You should have the following for this examination:*

- answer booklet;*
- scientific calculator.*

*This paper consists of **EIGHT** questions.*

*Answer **FIVE** questions in the answer booklet provided.*

*All questions carry equal marks.*

*Maximum marks for each part of a question are as indicated.*

*Candidates should answer the questions in English.*

**This paper consists of 3 printed pages.**

**Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.**



1. (a) Outline **four** water management measures that an architect may employ in building design. (6 marks)
- (b) Describe **four** abiotic factors and their effects on the biotic components of an ecosystem. (6 marks)
- (c) Explain **four** effects of human activities on the hydrologic cycle. (8 marks)
2. (a) State **six** types of land use zones for development control. (6 marks)
- (b) Describe each of the following methods of land transfer:
- (i) compulsory acquisition;
- (ii) adverse possessions. (6 marks)
- (c) Explain **four** benefits of solid waste disposal by recycling. (8 marks)
3. (a) Describe the effect of each of the following properties of materials on a building's thermal performance:
- (i) thermal conductivity;
- (ii) thermal capacity. (6 marks)
- (b) (i) Explain the "green house effect".
- (ii) Explain **four** human causes of the ongoing global warming. (14 marks)
4. (a) Distinguish between airborne sounds and impact sounds. (4 marks)
- (b) Outline **four** negative effects of excessive noise on human well-being. (6 marks)
- (c) Explain **four** general approaches to noise control in buildings. (10 marks)
5. (a) Explain the term "day light factor". (2 marks)
- (b) Describe **four** building design techniques that affects daylighting inside a building. (8 marks)
- (c) Explain **five** ways in which building construction may contribute to environmental degradation. (10 marks)



6. (a) State **three** methods of reducing heat transfer through roofs of buildings. (3 marks)
- (b) Describe each of the following types of lighting in architecture:
- (i) ambient lighting;
  - (ii) task lighting;
  - (iii) accent lighting.
- (9 marks)
- (c) Explain **four** negative effects of human population growth on the environment. (8 marks)
7. (a) Explain each of the following resource use concepts:
- (i) sustainable use;
  - (ii) carrying capacity.
- (4 marks)
- (b) Outline **four** Acts of parliament in Kenya concerned with environmental management. (6 marks)
- (c) Explain **five** ways in which an architect may contribute to environmental sustainability in design of buildings. (10 marks)
8. (a) Outline **four** impacts of soil degradation. (6 marks)
- (b) Explain each of the following development controls:
- (i) land use zones;
  - (ii) building zones;
  - (iii) plot ratio.
- (6 marks)
- (c) Explain **four** environmental benefits of using local materials. (8 marks)

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