



ZIMBABWE EZEKIEL GUTI UNIVERSITY

FACULTY OF SCIENCE, TECHNOLOGY, AGRICULTURE AND FOOD SYSTEMS DEVELOPMENT

DEPARTMENT OF INFORMATION SYSTEMS

EXAMINATION PAPER

DIPLOMA IN GEOGRAPHICAL INFORMATION SYSTEM

COURSE CODE : GISRS 214
COURSE TITLE : URBAN PLANNING
SPECIAL REQUIREMENTS : None
DURATION : 2 Hours
LEVEL : 2.1
DATE : 2024 25 NOV 2024

INSTRUCTIONS TO CANDIDATES:

- 1. Section A: Question 1 is compulsory (40 marks).*
- 2. Section B: Answer any 3 questions from Questions 2 to 6 (20 marks each).*

Overall Total Marks: 100 Marks

ADDITIONAL MATERIALS

- *Answer Booklet.*

Section A: Compulsory Question (40 Marks)

Question 1:

Discuss the role of Geographic Information Systems (GIS) and Remote Sensing (RS) in Urban Planning. Your discussion should cover the following aspects:

a. Introduction to GIS and RS in Urban Planning.

[10 Marks]

b. The applications of GIS and RS in urban growth management, zoning, and land use planning. [10 Marks]

c. The benefits and challenges of using GIS and RS for urban planning in Southern Africa. [10 Marks]

d. Provide examples of successful applications of GIS and RS in urban planning in Southern Africa. [10 Marks]

Section B: Optional Questions (Answer Any 3; Each Question Carries 20 Marks)

Question 2

a. Explain the role of GIS in managing urban transportation systems.

[6 Marks]

b. Describe the use of Remote Sensing in monitoring urban sprawl and its implications for sustainable urban development.

[8 Marks]

c. Discuss how GIS is used in transportation planning, with examples of urban mobility challenges in Southern Africa.

[6 Marks]

Question 3

a. Define the concept of urban sustainability and explain the role of GIS and Remote Sensing in promoting sustainable cities.

[6 Marks]

b. Describe how GIS and Remote Sensing can be used to monitor environmental impacts in urban areas, particularly in relation to air quality and green spaces.

[8 Marks]

c. Discuss the challenges of integrating GIS and RS into urban sustainability planning in Southern Africa. (6 Marks)

Question 4

a. Outline the steps involved in using GIS for urban land-use planning.

[6 Marks]

b. Explain how Remote Sensing contributes to assessing urban heat islands and managing urban climates. [8 Marks]

c. Discuss the limitations of using GIS and Remote Sensing for land-use planning in rapidly growing urban centers in Southern Africa.

[6 Marks]

Question 5

a. Discuss how GIS and Remote Sensing are used in risk assessment and disaster management in urban areas.

[6 Marks]

b. Provide examples of how GIS and RS have been applied to manage flood risks in urban areas in Southern Africa.

[(8 Marks)]

c. Discuss the role of spatial data analysis in urban disaster recovery and post-disaster planning. [6 Marks]

Question 6

- a. Identify key challenges in applying GIS and Remote Sensing for urban infrastructure planning. [6 Marks]
- b. Discuss the role of GIS and Remote Sensing in managing urban waste and sanitation systems. [8 Marks]
- c. Suggest solutions to overcome challenges faced in using GIS and RS for urban infrastructure management in Southern Africa. [6 Marks]

****END OF EXAMINATION****

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****END OF EXAMINATION****