BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF SCIENCE AND ENGINEERING

JUN 2025

DEPARTMENT OF SUSTAINABLE DEVEOPMENT

BACHELOR OF SCIENCE HONOURS DEGREE IN DEVELOPMENT STUDIES (HBSc.DG)
BACHELOR OF SCIENCE HONOURS DEGREE IN DISASTER MANAGEMENT (HBSc.DMSc)

DG 109: INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS

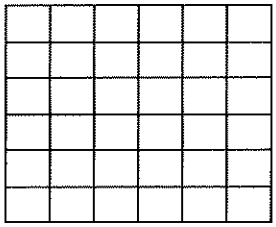
EXAMINATION TIME: 3 HOURS

ANSWER THREE QUESTIONS. MARKS ALLOCATED FOR EACH QUESTION ARE INDICATED IN BRACKETS [ ].

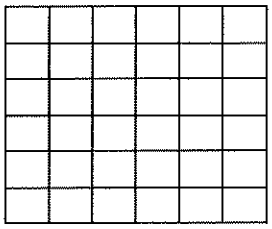
SECTION A: COMPULSORY *(You can attach this page as part of your answer)*

1a) Model the following geographic phenomena using a raster data model;

i) River network with two tributaries [4]

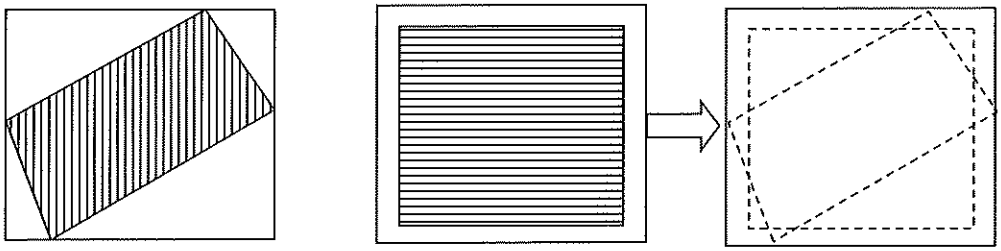


ii) Conical hill [4]

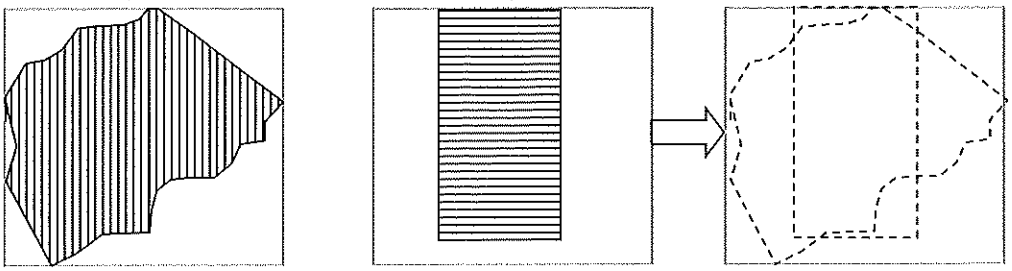


1b) Perform the GIS overlay functions by shading the Output layer:

i) Data layer Clip layer Output layer [3]



ii) Data layer Union layer Output layer [3]



1c) Briefly describe the activities involved in each of the phases of geographic information systems;

i) data management [2]
ii) Data capture [2]
iii) Information visualization [2]

1d) Describe one application of information visualization for either development initiatives or disaster management initiatives in a rural community [5]

SECTION B: ANSWER ANY TWO QUESTIONS FROM THIS SECTION

2 Explain the importance of a geographic information systems in either a development or disaster management institution in a developing country of your choice. [25]

3 With a specific example, describe the utility of a digital elevation model (DEM) in either development or disaster preparedness planning. [25]

4 a) Define the term spatial database. [5]
b) Explain the importance of a spatial database in either development initiatives or disaster mitigation. [20]

5 Describe any five challenges faced when implementing geographic information systems in an organization with either a development or disaster management mandate. [25]

END OF EXAMINATION