

M. SC. (GEOINFORMATICS)
(MSCGI)

Term-End Examination
June, 2026

MGY-010 : COMPUTER PROGRAMMING FOR
DIGITAL IMAGE PROCESSING AND GIS

Time : 3 Hours

Maximum Marks : 75

Note : (i) *All questions are compulsory.*

(ii) *Marks for each question are indicated against it.*

(iii) *Draw well-labelled diagrams, wherever necessary.*

1. Answer any *two* of the following : $2 \times 15 = 30$

- (a) Write at least *three* ways in which GEE is helpful. Give *four* examples of Google Earth Engine applications.

- (b) What are the distinctions between Sobel and Laplace enhancement techniques ? Do the original and enhanced images have different value ranges ? What is the likely explanation ?
 - (c) Give an account of geospatial data analysis using python with emphasis on data processing.
 - (d) Give an overview of vector data analysis using R.
2. Answer any *two* of the following : $2 \times 10 = 20$
- (a) Discuss the GEE function used to plot the spectral profiles of a feature. Write the pseudocode for supervised classification in GEE.
 - (b) Write pseudocode for downloading a DEM and deriving slope and aspect using GEE.
 - (c) Write R pseudocodes for generating NDVI and EVI.
 - (d) Give an account of GIS customisation using Python.

3. Write short notes on any *five* of the following : 5×5=25

- (a) Which function is used to import Landsat data ? Give suitable examples in GEE.
- (b) Functions for applying spatial filters in GEE.
- (c) Data plotting using R.
- (d) Image enhancement using R.
- (e) Image classification using R.
- (f) Python libraries useful in data exploration.
- (g) Scope of PostgreSQL.
- (h) Role of geo server in Web GIS.

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