14 (SEM–IV) GGY 4206 (A)

2025

Date................

GEOGRAPHY

(Optional)

Paper : GGY–4206 (A)

(Geoinformatics)

Full Marks : 80

Time : Three hours

**The figures in the margin indicate
full marks for the questions.**

Unit–I

(Spatial Analysis in GIS)

Answer *any one* question carrying **16** marks
and *three* questions carrying **8** marks each.

1. Critically examine the advantages of and
   constraints to the integration of spatial and
   non-spatial data in a GIS. 16

2. What are the various tools available in a
   GIS for the analysis of spatial data ? How
   is spatial analysis useful ? 8+8=16

3. Write short notes on *any two* of the following : 4×2=8

   (i) · DEM

   (ii) Attribute data

   (iii) Data conversion one format to another

4. Examine the factors that govern spatial data infrastructure. 8

5. How factors should be kept in mind when undertaking an environmental impact assessment of an ecologically vulnerable area ? 8

6. What constitutes topology in a GIS and what rules govern it ? 8

Unit–II

(Image Analysis, Interpretation and Processing)

Answer *any one* question carrying **10** marks and *any one* question of **5** marks.

7. Examine the principles underlying image interpretation. 10

8. Examine the methods of image enhancement and the need for this process. 10

9. What gains are derived from undertaking image rectification ? 5

10. How is image registration useful ? 5

Unit–III

(Digital Image Classification)

Answer *any one* question carrying **10** marks and *one* question of **5** marks.

11. Examine the concept of post-classification accuracy assessment and why does the need to undertake it arise. 10

12. Examine its benefits of ground truth verification and the conditions under which it can become a prohibitive exercise. 10

13. Do there exist any differences between supervised and unsupervised classification methodologies ? 5

14. "A variety of classification algorithms currently exist and this has increased the need to test their accuracy in different environmental settings." Briefly examine this view. 5

(Application of GIS and Remote Sensing in Modelling the Environment)

Answer **any one** question carrying **10** marks.

15. Can GIS aid in optimizing the efficiency of land governance efforts such as updating land records or geospatial mapping ? Could the cost of such an exercise be prohibitive in terms of financial resources and man hours ?

16. Critically evaluate the use of remotely sensed datasets in the management of urban areas under climate change scenarios.

———