

Total number of printed pages-4

14 (GGY-4) 4206 (OP) GEO

2022

GEOGRAPHY

(Optional)

Paper : GGY-4206

(*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. What is vector data ? Is it always necessary to integrate vector data with raster data in a GIS ? Can GIS analysis be carried out completely without using raster data at all ? Provide examples to illustrate your views.

2+6+8=16

Contd.

2. What is spatial analysis ? With illustrations explain the purpose of using spatial analysis for an area of interest. $4+12=16$
3. Write short notes on **any two** of the following : $4 \times 2 = 8$
- (i) Buffer
 - (ii) Interpolation
 - (iii) The dynamic nature of a GIS
4. What is environmental impact analysis ? What thematic layers would you prepare for such an exercise ? $3+5=8$
5. What is attribute data in a GIS and how is it dynamically linked with the map data ? $2+6=8$
6. A DEM has diverse utilities in GIS analysis. Discuss certain analyses when you would need to use a DEM. 8

Unit-II

(Image Analysis, Interpretation and Processing)

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

7. What does the term image enhancement mean? What are the commonly used techniques of image enhancement?
3+7=10
8. What are the basic principles of image interpretation? 10
9. What is image rectification and registration? 5
10. What are the main elements of image interpretation? 5

Unit-III

(Digital Image Classification)

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

11. What is image classification? What are the differences between supervised and unsupervised classification? 2+8=10

12. What is accuracy assessment in image analysis and what does it reveal?

2+8=10

13. What are classification algorithms? Discuss *any one* in detail.

1+4=5

14. What is ground truthing and why is it undertaken?

2+3=5

Unit-IV

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

Answer any one question carrying 10 marks.

15. What geo-spatial data and tools are helpful for optimal land governance?

10

16. Can you use geo-spatial data and techniques to assess and manage resources such as land, water, forests and/or urban areas? Elaborate.

10