M.Sc. 3rd Semester Examination, 2022

REMOTE SENSING AND GIS

(*Fundamentals of Research and Geospatial Project Management/Geostatistics*)

PAPER – RSG-302.1 & 302.2

Full Marks : 40

Time : 2 hours

Answer **all** questions

The figures in the right hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary

PAPER–RSG–302.1

(*Fundamentals of Research and Geospatial Project Management*)

GROUP – A

Answer any **two** questions : 2×2

1. What is the purpose of ground truthing ?

2. What is dependent and independent variable ?

3. Distinguish between research methods from Research methodology.

4. What are the criteria for good research ?

GROUP – B

Answer any **two** questions : 4×2

5. Explain the improtance of research design.

6. What is sampling ? Define probability sampling.

7. What are the differences between conceptual and physical data models ?

8. Distinguish between Null and Alternative Hypothesis.

GROUP – C

Answer any **one** question : 8×1

9. How can a GIS application be evaluated ? Discuss the role of flowcharts in the management and design of GIS projects with suitable example. 3 + 5

10. Explain the importance of 'literature review' while selecting the *aim* and *methodology* of a research problem citing an example. 8

PAPER–RSG-302.2

(*Geostatistics*)

GROUP – A

Answer any **two** questions : 2×2

11. What do you mean by mean center of population ?

12. What is spatial interpolation ?

13. What do you mean by linear regression ?

14. What is the full form of RMSE ?

GROUP – B

Answer any **two** questions : 4×2

15. What are the importance of spatial interpolation ?

16. Write a short note on Theisen polygon.

17. Differentiate between local and global interpolators.

18. What is spatial autocorrelation ?

GROUP – C

Answer any **one** question : 8×1

19. Discuss different types of spatial interpolation methods.

20. Discuss different types of kriging in spatial interpolation with suitable example.

M.Sc. 3rd Semester Examination, 2022

REMOTE SENSING AND GIS

(*Fundamentals of Earth System/Application of Geo-informatics in Earth Science*)

PAPER – RSG-303C.1 & 303C.2

Full Marks : 40

Time : 2 hours

Answer **all** questions

The figures in the right hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary

PAPER—RSG-303 C.1

[*Marks* : 20]

(*Fundamentals of Earth System*)

GROUP – A

Answer any **two** questions : 2×2

1. Mention the major rock types present in earth.

2. What is lineament ?

3. Diagrammatically represent the inter-relationship among different components of earth system.

4. What is Geomorphology ?

GROUP – B

Answer any **two** questions : 4×2

5. What is the difference between topography and landform ? Define the principle of uniformitarianism.

6. Distinguish between fault and lineament.

7. What are the major coastal erosional features ?

8. How are the following distinguished in satellite images ?

(*a*) Igneous and Sedimentary terrain.

(*b*) Limestone and shale.

GROUP – C

Answer any **one** question : 8×1

9. Discuss briefly about plate boundaries with recent examples. What do you mean by plate tectonics ? $4 + 4$

10. Enumerate the relationship between the drainage pattern and geological features of an area with illustration. 8

PAPER–RSG-303 C.2

[*Marks* : 20]

(*Application of Geo-informatics in Earth Science*)

GROUP – A

Answer any **two** questions : 2×2

11. What do you mean by Risk and Vulnerability ?

12. What are the main causes of Landslides ?

13. What is an aftershock ?

14. What is metamorphism of rocks and their types ?

GROUP – B

Answer any **two** questions : 4×2

15. What are the digital image enhancement techniques for lithology discrimination ?

16. Describe the role of GNSS technology in earthquake early warning system.

17. What are the Components of Disaster Management with example ?

18. Describe factors affecting slope stability.

GROUP – C

Answer any **one** question : 8×1

19. Discuss Seismic hazard & vulnerability.

20. Write a detail note on the processes of erosion and transportation by water in the upstream areas.