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M. Sc. 3rd Semester Examination, 2024

REMOTE SENSING AND GIS

*(Research Methodology, Project Management
& Geostatistics)*

PAPER — RSG-302.1 & 302.2

Full Marks : 50

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

*(Fundamental of Research and Geospatial
Project Management)*

[Marks : 20]

(Turn Over)

(2)

GROUP – A

Answer any **two** questions of the following :

2×2

1. What is data model in the project design and management perspective ?
2. What is cartographic modelling ?
3. Define the concept of 'Construct'.
4. Define sampling.

GROUP – B

Answer any **two** questions of the following :

4×2

5. What are the sources for research problem identification and selection ?
6. Explain the types of hypotheses.

(3)

7. Define model calibration and its goal.
8. What is meant by observation in research ?

GROUP—C

Answer any **one** question of the following : 8 × 1

9. Briefly discuss the characteristics of spatial data and its collection process in geospatial science. 4 + 4
10. Discuss the role of flowcharts in the management and design of GIS project. 8

PAPER — RSG-302.2

(*Geostatistics*)

[*Marks : 20*]

(4)

GROUP—A

Answer any **two** questions of the following : 2×2

11. What is the process of analyzing the temporal shift in the mean centre of population ?
12. Evaluate the significance of the correlation coefficient. Given ($r = 0.78$), ($n = 7$) and the critical values of (r) are 0.754 (0.05) and 0.874(0.01).
13. How does the global interpolation method differ from the local interpolation method ?
14. How can the size of the Thiessen polygon determine the quality of public service ?

GROUP—B

Answer any **two** questions from the following :

15. Explain briefly about Density estimation. 4×2

16. Given a dataset with actual values : [23, 12, 34, 18] and predicted values : [25, 11, 29, 20], calculate the RMSE. What does this result tell you about the model's predictions ?
17. What are the common techniques used in neighborhood analysis ? Explain with suitable diagrams.
18. Write a short note on IDW.

GROUP – C

Answer any **one** question from the following :

8 × 1

19. Comparatively discuss different types of spatial interpolation methods with suitable examples.
20. Estimate the Z-score values using given dataset. What does this score tell you about the paddy yield of different districts ? What

(6)

threshold of Z-score is typically considered
for defining outliers in a dataset ? 5 + 2 + 1

Area	Alipurduar	Bankura	Howrah	Birbhum	Nadia	Maldah	Kalimpong
Paddy Yield in ton/ hec (X)	2.46	2.8	2.74	3.04	3.12	2.94	1.67

[Internal Assessment – 10 Marks]