M.Sc. ENVIRONMENTAL SCIENCE FOURTH SEMESTER REMOTE SENSING & GEOGRAPHIC INFORMATION SYSTEM

1VIE V -403	
(Use separate answer scripts for	
Duration: 3 hrs. Full Marks: 70	
Time: 20 min. (PART-A: Objective) Marks: 20	
Choose the correct answer from the following:	
	of USA belong? . Geostationary . None of the above
2. What is the approximate images overlap along a. 61% b. 63% c. 60%	flight lines? d. 62%
	. Height . Stereoscopic vision
4. In which spectral region the reflectance of healta. Redb. SWIRc. MIR	thy vegetation is more? d. NIR
 5. To which category of image enhancement does Histogram Equalization belong? a. Non-linear contrast enhancement technique b. Linear contrast enhancement technique c. Polynomial d. Exponential 	
	hyper-spectral remote sensing fall? Broad-bandwidth None of the above
7. Which term is appropriate for spatial arrangem a. Site b. Association c	nent of surface features on earth? Texture d. Pattern
V	. 3D measurement . All the above
그 하는 사람들은 사람이 있다. 그렇게 살아가면 하는 것이 되었다면 하는 것이 되었다면 하는 것이 없는 것이 없는 것이 없다면 하는 것이 없다면 하는데 되었다면 하는데 없다면 하는데 없다면 없다면 사람들이 되었다면 하는데 없다면 하는데 없다	ed for thermal remote sensing? . 3 – 7 μm . 3 – 14 μm
10. Which of the following statement is true?a. There is no relation between reflectance of snow and age.b. Reflectance of snow remains same with age.	

c. Reflectance of snow increases with age. d. Reflectance of snow decreases with age. 11. What is the approximate flattening of the earth? a. 1:300 b. 1:198 c. 1:288 d. 1:498 12. To which category does the UTM Projection system belong? a. Geographic b. 3-D d. Non-geographic c. Projected Planar 13. Which one the following data source is appropriate for flood mapping? b. LISS-IV a. LISS-III c. RADAR d. LiDAR 14. To which category does TIN data structure belong? a. Vector b. Raster d. Grids c. Polygon Area Node 15. Which of the following extension modules of ArcGIS helps in watershed analysis? a. 3-D Analyst b. Geostatistical Analyst d. 3-D, Spatial Analyst and ArcHydro c. Network Analyst 16. What is the science that deals with shape and size of the earth? a. Geography b. Earth Science d. Geodesy c. Cartography 17. What is RMS error in georeferencing? a. Error of displacement of map coordinates. b. Error of displacement of GCP. c. Error of displacement of map coordinates and GCP. d. Error in digitization. 18. What is the advantage of topological spatial data? a. Geometry is maintained nicely. b. Area is maintained. c. Direction is maintained by the objects. d. Linkage is maintained even after deformation. 19. There 1000 pixels of 10 m spatial resolution in an image. What is the area covered by the image? a. 100 hectares b. 10 hectares c. 1 hectares d. 10,000 sq m 20. In which aspect Network Analysis in GIS will help us? a. To find out direction of movement. b. To find the shortest path of movement. c. To estimate least cost of transportation.

PART-B: Descriptive

Marks: 50 Time: 2 hrs. 40 min. [Answer question no.1 & any four (4) from the rest] 10 1. Discuss the advantages of a DEM/DTM. 2. a. Define photogrammetry. What are the generations of 5+5=10 photogrammetry? b. What are the sources of distortions and displacement? Write a brief about relief displacement. 3. a. What is digital image classification? Differentiate between different 7+3=10 types of classification. b. Why accuracy assessment is done on classified images. 4. a. What is digital image processing? Why it is done? 4+6=10 b. What is radiometric and geometric correction? Write a short note on types of image enhancement technique. 2+3+5=10 5. a. What is geoid? How does it differ from an ellipsoid? b. Define flattening of the earth. Derive an expression for it. 6. a. What are the various kinds of errors in GIS? 3+3+4=10 b. Can you create a perfect map in GIS? Justify your answer. 7. a. What are the application areas of GIS? 4+6=10 b. Discuss an application area of GIS with reference to data base requirements and societal benefits.

8. Write a short note on: (any two)

5+5=10

a. LIDAR technology and its components.

b. Spatial data.

c. Cartographic capability of GIS.

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d. All of the above.