

Dr. Chand. Dasgupta

Roll No.

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211

Department of Civil Engineering, NIT Hamirpur (H.P.)

End Semester Examination -2022

Remote sensing and GIS, CE 431

Time : 3 Hours

Max Marks: 50

Part A (10 Marks)

Attempt any 10 questions

1. A garden has a thick green circular patch of vegetation in the middle of water. Choose a single band of remotely sensed image to measure the circumference of the vegetation patch.
2. Why is the sky blue?
3. True or False:
 - i) Vector is a representation strategy involving sampling attributes at fixed intervals.
 - ii) A maximum likelihood classifier is an example of unsupervised image classification.
4. Fill in the blanks
 - i) _____ generally refers to the spatial arrangement among geographic objects and may be managed within a geographic information system through the application of rules such as "Adjacent to" or "May not have gaps".
 - ii) _____ is a measure of the accuracy of an entire geospatial dataset.
5. What Is The Difference Between Automated Cartography, Cad, And Gis
6. Which are the main sources of disturbance/misinterpretation in computer based RS data evaluation which should be accounted during pre-processing?
7. Juan and Esperanza are working with an image with the data confined between the values 97 and 167. Juan says that he can increase the contrast in the image by applying a linear contrast stretch. Esperanza says that he can increase the contrast in the image through the histogram equalization method. Who is correct?
8. Define the terms: spectral resolution, temporal resolution in satellite remote sensing.
9. What is the role of atmospheric windows in the choice of bands in remote sensing?
10. The temperature of an object is 1100 K, find out the wavelength at which maximum radiations will be emitted from that object.
11. Distinguish between spatial and non-spatial data.
12. List The Main Components of GIS and functions of GIS.

Part B (24 Marks)

Attempt any 6 questions

13. A data set of the experimental German system MOMS-2P which was first flown in 1993 on board of the space shuttle Columbia, crashed on February the 1th 2003, was registered from 300 km above ground with a nominal spatial resolution of 13m. Each CCD sensor line consists of 6000 detector elements. Calculate a) Swath or the stripe width of the ground track and b) how many pixel of this data set cover an area of 5 km²?
14. What are the advantages of using histogram-equalized contrast stretches over simple linear contrast stretches?
15. What is a spectral reflectance curve and what are its utilities in remote sensing? Explain with suitable examples.

P.T.O.

16. With the help of a neat sketch explain the remote sensing system.
17. What is a map projection? What basic properties of spherical earth are affected by the use of map projection? What are the broad classification of projections based on the surface of projection
18. How geographical features are described in GIS? How are these represented digitally in GIS and incorporated into a computer application system? Name the three types of simple features used in GIS and their geometric properties?
19. Explain the two models of EMR. Derive the relationship between wavelength, frequency, and the energy content of a photon.
20. Explain linear contrast enhancement with the help of a suitable numerical example. How piecewise linear contrast stretch is different from linear contrast enhancement?

Part C (16 Marks)

21. Explain any **Eight** of the following

- a) Image enhancement
- b) Unsupervised classification
- c) Parallelepiped classifier
- d) Training data set
- e) Sun Synchronous orbits
- f) Radiometric corrections
- g) Geo-referencing
- h) IFOV and Swath
- i) Wein's Displacement law
- j) Raster and vector data model