BTCESS802C: Remote Sensing Essentials

Question Bank

Module-I

1. Write in detail about historical developments in remote sensing techniques.
2. What are the different types of electromagnetic waves used in remote sensing?
3. What are major differences between Mie and Raileigh scattering?
4. Enumerate effects of atmospheric scattering on satellite imageries.
5. Explain various techniques of image acquisition in remote sensing.
6. Write in detail about electromagnetic spectrum and its applications in Civil Engineering.
7. What are the applications of the visible electromagnetic spectrum in remote sensing?
8. What are spectral response curves and their applications?
9. What are the effects of interaction of electro-magnetic radiations with ground?
10. Give detailed account of disadvantages of remote sensing techniques.
11. What are the effects of interaction of electro-magnetic radiations with clouds?
12. Write a short note on Rayleigh scattering.
13. Elaborate the differences between spatial resolution and spectral resolution.
14. What are characteristic differences between satellite imagery's and Arial photographs.
15. Explain detailed process of remote sensing with neat libelled diagram.

Module II

16. Explain Planks Law for study of radiation and its applications in remote sensing.
17. Explain Stefan-Boltzmann Law of study of radiation and its applications in remote sensing.
18. What are the applications of Wien's Displacement Law and its implementation in remote sensing?
19. Explain different applications of Passive Microwave Remote Sensing.
20. What are the major differences between multispectral and hyperspectral images?
21. Explain the difference between multi-layered and multispectral images.

22. Write detailed note on term “pixel”.
23. What are the major differences between superspectral and hyperspectral images?
24. Write in detail about platforms in remote sensing.
25. Explain in detail about different types of sensors.
26. What is the difference between active remote sensing and passive remote sensing?
27. Explain in detail about Multispectral Scanning Systems.
28. What are the advantages of along track scanners?
29. Write in detail about SENTINEL-1 RADAR Remote Sensing Satellite.
30. What are the advantages of Unmanned Aerial Vehicle (UAV)?
31. Explain in detailed account of applications of Unmanned Aerial Vehicle (UAV) in remote sensing.

Module III

32. What is an image and explain types of images?
33. Write in detail about types of resolutions in remote sensing.
34. Explain spectral resolution captured by various sensors.
35. Explain in detail about imaging sensors used in remote sensing.
36. Write short notes on various image enhancement techniques.
37. Write short notes on georeferencing of images.
38. Explains various types of Image Histograms with their characteristic features.
39. What are the applications of Image Histograms?
40. Write a short note of various digital image processing software’s and their applications.
41. Write a short note on image acquisition using sensor strips.
42. Explain detailed account on Simple Image Formation Model.
43. What is Digital Image Processing?
44. Explain detailed history of Digital Image Processing.
45. What are the key stages in Digital Image Processing in image compression?
46. What are the key stages in Digital Image Processing in colour image processing?
47. Explain in detail about radiometric calibration and correction process.
48. Write a short note on atmospheric correction and correction models.

Module IV

49. What is the difference between Unsupervised classification and Supervised classification of digital images?

50. Enumerate in detail about LiDAR Technique and its applications in Civil Engineering.

51. Explain in detail about workings of LiDAR system.
52. What are the various applications of LiDAR data products?
53. What is the process of mosaicking?
54. Explain LiDAR data characteristics and reflectivity.
55. What are the characteristic features of LiDAR data derived DEM's?
56. What are the major differences between Traditional Photogrammetry vs. LiDAR?
57. What are the major differences between Digital Images and Digital Photographs?
58. What is False Topographic Perception Phenomena (FTPP) and causes?
59. Explain correction techniques in False Topographic Perception Phenomena (FTPP).
60. What are the limitations of high resolution satellite images?
61. What are the major characteristic features of Hyperspectral Remote Sensing technique and its applications?
62. Explain in detail about the term "Normalised Difference Vegetation Index (NDVI)".
63. What are the applications of Multispectral Vegetation Indices?
64. Explain in detail about radar images interpretation and its applications.
65. Write a short note on SAR Interferometry (InSAR) technique.

Module V

66. What are the applications of RS and GIS in groundwater studies?
67. Explain detailed characteristics of high spatial resolution satellite images.
68. What are the limitations of high spatial resolution satellite images?
69. What are the applications of Remote Sensing in Earthquake Studies?
70. Write a short note on use of run length of codes in basic image compression techniques.
71. Write a short note on use of block codes in basic image compression techniques.
72. Write a short note on LZW compression.
73. Explain use of "Pyramids" in compression of images.
74. Write a short note on history of remote sensing on Moon.
75. Explain importance of Google Earth and its applications in remote sensing.
76. What are the limitations of Remote Sensing?
77. State various free sources (websites) of free satellite images.

78. Explain role of remote sensing in exploration of Mars atmosphere.
79. What are the basic elements of image interpretation?
80. State and explain various remote sensing data products.