

MSc Sem.-1 Examination

401

Geoinformatics

February-2025

Time : 2-30 Hours]

[Max. Marks : 70

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| QUESTION – 1 Write the following | |
| (i) Explain remote sensing with a neat diagram illustrating various component of remote sensing. | 7 |
| (ii) Explain active and passive form of remote sensing technique. | 7 |
| OR | |
| (i) How you will classify remote sensing techniques based upon spectral region of electromagnetic waves. | 7 |
| (ii) Define Planck's law. What is peak emitted wavelength from earth surface | 7 |
| QUESTION – 2 Write the following | |
| (I) Explain image histogram and its uses | 7 |
| (ii) Explain linear stretching method of image enhancement. | 7 |
| OR | |
| (I) Explain spectral signature of vegetation and water. | 7 |
| (ii) What are advantages of remote sensing? | 7 |
| QUESTION – 3 Write the following | |
| (i) Explain push broom and whiskbroom electro-optical sensors | 7 |
| (ii) Explain Spatial, spectral, radiometric resolutions | 7 |
| OR | |
| (i) What is spectral index? Explain NDWI. | 7 |
| (ii) What do you mean by orbit of a satellite. Explain polar orbiting satellite | 7 |
| QUESTION – 4 Write the following | |
| (I) What are low frequency and high frequency spatial filters. | 7 |
| (ii) What are primary, secondary, tertiary and higher order of elements in image interpretation | 7 |
| OR | |
| (I) Explain application of remote sensing for agriculture and forestry | 7 |
| (ii) Explain application of remote sensing for Land use/landcover mapping. | 7 |

(P.T.O)

QUESTION – 5* Attempt any seven out of twelve.

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*** MCQ /Short questions (One- or Two-lineanswer)/Fill in the blanks/ True or False etc.**

1 Which of the following distance is approximately correct. A satellite in geosynchronous orbit can be approximately:

- (A) 200 km away from earth
- (B) 20000 km away from earth
- (C) 36000 km away from earth
- (D) 50000 km away from earth

2) Identify correct statement. Spectral signature of an object in a satellite image depends on the

- (A) season of the year
- (B) Sensor resolution
- (C) Swath of sensor
- (D) none of the above

(3) Remote sensing atmospheric window means:

- (A) wavelength region where Radiation transparent to electromagnetic wave
- (B) Wavelength region where radiation absorbs the electromagnetic wave
- (C) None of above
- (D) A and B are right

4. Identify correct statement:

- (A) Remote sensing can be done using drone platform.
- (B) Remote sensing of earth can be done using gamma rays
- (C) Remote sensing of earth cannot be done using satellite platform.
- (D) Remote sensing cannot be done using reflectance measurement.

5. Which of the following Sentinel-2 product provides reflectance at the bottom of atmosphere:

- (A) Level 1C
- (B) Level 1 B
- (C) Level 2 A
- (D) None of above

6. Choose the CORRECT statement(s)

A standard color composite is produced by

- (A) superimposing red band in red, green band in green, and blue band in blue color.
- (B) superimposing blue band in red, green band in green, and red band in blue color.
- (C) superimposing Near Infrared band in red, red band in green, and green band in blue color.
- (D) None of the above

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| 7. Which of the following is correct statement: (A) Density slicing does not require knowledge of histogram (B) Low contrast images will have narrow range of digital number values |
| 8. Which of the following image size is more. Put a tick mark. (A) Radiometric resolution of 4 bit (B) Radiometric resolution of 8 bit |
| 9 Identify correct statement. Normalized difference water index helps in (A) detecting plant water content (B) Knowing crop health (C) Land use mapping |
| 10. Which of the following statement is correct: (A) Radiometric correction involves brightness correction (B) Geometrical correction and radiometric resolution are same (C) Geometrical correction involves image brightness correction (D) None of above |
| 11. For mapping agricultural field boundary, which of the following is a correct spatial filter: (A) High pass spatial filter (B) Low pass spatial filter |
| 12) identify correct statement: (A) spectral signature of water depends upon its turbidity (B) spectral signature of water depends upon surrounding vegetation. (C) spectral signature of water does not change with time. (D) spectral signature of water depends upon sensor resolution |
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