Final Examination
Introduction to Remote Sensing

Time: 1.5 hrs Max. Marks: 50

Note: Attempt all questions.

Section-I (50 x 1 = 50 Marks)

1. …….. is the technology of acquiring information about the Earth's surface without actually being in contact with it?
   (a) Geographic Information System
   (b) Remote Sensing
   (c) Global Positioning System
   (d) Ground Penetrating Radar

2. The first requirement for remote sensing is to have:
   (a) An energy source
   (b) A target
   (c) A satellite
   (d) A sensor

3. Remote Sensing technology is a:
   (a) Special, Temporal and Digital
   (b) Spatial, Temporal and Generic
   (c) Spatial, Digital and Temporal
   (d) Spatial, Digital and Generic

4. Which one is appropriate definition of scale?
   (a) The lines on a map representing north-south
   (b) A conversion factor used to transform map projections
   (c) The ratio of a distance on a map to the corresponding distance on the ground
   (d) The lines on a map representing east-west directions

5. What does 1mm on a map drawn at a scale of 1:50,000 represent on the ground?
   (a) 500 centimetres
   (b) 50 centimetres
   (c) 50 metres
   (d) 5 metres

6. What is the name of the Indian equivalent of GPS navigation system?
   (a) GALILEO
   (b) NAVIC
   (c) IKONOS
   (d) GLONASS

7. First aerial photograph was taken from a hot air balloon in the year:
   (a) 1858
   (b) 1958
   (c) 1758
   (d) 1948

8. The first space-based photograph by Viking Sounding Rocket was taken on:
   (a) 1847
   (b) 1946
   (c) 1846
   (d) 1947

9. Landsat-1 was launched on:
   (a) July 23, 1962
   (b) July 23, 1972
   (c) July 23, 1982
   (d) July 23, 1992

10. Which is the latest Landsat satellite currently in operation:
   (a) Landsat-6
   (b) Landsat-7
   (c) Landsat-8
   (d) Landsat-9

11. In the year 1986 - SPOT French Earth Observation Satellite provided first time spatial resolution at:
   (a) 10m PAN and 20 m multispectral
   (b) 20m PAN and 30 m multispectral
   (c) 30m PAN and 40 m multispectral
   (d) 40m PAN and 50 m multispectral

12. Which of the following might be considered as the fourth dimension in Remote Sensing?

   (a) Space
   (b) Scale
   (c) Time
   (d) Location

13. Which one was the first Indian Satellite?
   (a) Bhaskara
   (b) Cartosat
   (c) Resourcesat
   (d) Aryabhata

14. Which is the first Indian Remote Sensing Satellite?
   (a) Bhaskara
   (b) IRS-1A
   (c) Cartosat-1
   (d) Resourcesat-1

15. The distinct advantages of remote sensing are?
   (a) Synoptic view
   (b) Global coverage
   (c) Repeatability
   (d) All of the above

16. Resolution may best be defined as:
   (a) The accuracy and precision of the data
   (b) The overall quality of a dataset
   (c) The smallest feature that can be mapped or measured
   (d) The smallest unit or measurement into which data can be disaggregated

17. Remote sensing technology provides unbiased recordings.

(a) False
(b) True

18. In general, Remote Sensing satellites orbit in:
(a) Sun-synchronous
(b) Geostationary
(c) Geo-synchronous
(d) None of the above

19. Generally, purpose of geostationary satellite is:
(a) Remote Sensing
(b) Global positioning
(c) Telecommunication and weather monitoring
(d) None of the above

20. Normally, the distance of remote sensing satellites from the Earth is about:
(a) 550 km
(b) 650 km
(c) 850 km
(d) 1050 km

21. In which orbit the Global Positioning Satellites are?
(a) Sun-synchronous
(b) Geostationary
(c) Geo-synchronous
(d) None of the above

22. Polar or near polar orbits are also known as?
(a) Sun-synchronous
(b) Geostationary
(c) Geo-synchronous
(d) None of the above

23. MSS, TM and LISS-I sensors are:
(a) Only passive sensors
(b) Both active and passive sensors
(c) Only active sensors
(d) Noe of the above

24. ERS, Envisat, Sentinel, RISAT and ALOS are:
(a) Optical satellites
(b) Microwave satellites
(c) Weather satellites
(d) Navigation satellites

25. The first microwave remote sensing satellite was:
(a) IRS-1A
(b) ERS-1
(c) Envisat
(d) RISAT

26. Satellite sensors LISS-I, LISS-II, LISS-III and LISS-IV were on-board:
(a) Landsat series of satellites

(b) NOAA series of satellites
(c) IRS series of satellites
(d) ERS series of satellites

27. The sensor on-board of NOAA series of satellites is known as:
(a) AVHRR
(b) BVHRR
(c) CVHRR
(d) DVHRR

28. The characteristics of electromagnetic radiation are particularly important for understanding remote sensing:
(a) Wavelength
(b) Frequency
(c) Wavelength and frequency
(d) None of the above

29. In electromagnetic radiation, electrical and magnetic fields travel at:
(a) Right angles to each other
(b) Parallel to each other
(c) Ahead of other
(d) Behind of other

30. What is meant by the term 'accuracy'?

(a) The overall quality of the data
(b) The lack of bias in the data
(c) The extent to which a value approaches its true value
(d) The level of detail at which data is stored

31. What is meant by the term 'precision'?

(a) The extent to which a value approaches its true value
(b) The lack of bias in the data
(c) The level of detail at which data is stored
(d) The overall quality of the data

32. In electromagnetic radiation, electrical and magnetic fields travel at?
(a) 3.00×10^{5} m/s
(b) 3.00×10^{6} m/s
(c) 3.00×10^{7} m/s
(d) 3.00×10^{8} m/s

33. The wavelength is the length of:
(a) Half-wave cycle
(b) One wave cycle
(c) Two wave cycles
(d) Three wave cycles

34. Wavelength and frequency are related by the following formula:
(a) $c = \lambda \nu$
(b) $c = \lambda / \nu$
(c) $c = \lambda + \nu$
(d) $c = \lambda - \nu$

35. The …….. the wavelength, the higher the frequency. The ……. the wavelength, the lower the frequency?
    (a) Shorter, lower
    (b) Shorter, higher
    (c) Higher, shorter
    (d) Shorter, longer

36. The ultraviolet part of the spectrum has the ……. wavelengths?
    (a) Longest wavelength
    (b) Both longest and shortest wavelengths
    (c) Shortest wavelength
    (d) None of the above

37. The light which our eyes - our "remote sensors" - can detect is part of the:
    (a) Ultraviolet
    (b) Visible spectrum
    (c) Infrared
    (d) Microwave

38. The visible wavelengths cover a range from approximately:
    (a) 0.4 to 0.7 µm
    (b) 0.7 µm to 1mm
    (c) 0.4 to 1mm
    (d) 3.5 and 20 µm

39. Which phenomena occurs when particles or large gas molecules present in the atmosphere interact with and cause the electromagnetic radiation to be redirected from its original path:
    (a) Absorption
    (b) Scattering
    (c) Both absorption and scattering
    (d) None of the above

40. Scattering depends on several factors including:
    (a) The wavelength of the radiation,
    (b) The abundance of particles or gases, and
    (c) The distance the radiation travels through the atmosphere
    (d) All of the above

41. Which scattering occurs when particles are very small compared to the wavelength of the radiation?
    (a) Mie
    (b) Nonselective
    (c) Rayleigh
    (d) All of the above

42. Parts of the spectrum which are not severely influenced by atmospheric absorption are useful to remote sensors, are called:
    (a) Open windows
    (b) MS windows
    (c) Atmospheric absorption band
    (d) Atmospheric windows

43. The difference in the reflectance/emittance characteristics with respect to wavelengths is called:
    (a) Spectral signature

(b) Special signature
(c) Spatial signature
(d) Scattering signature

44. Vegetation has a remarkably …… reflection in the near infrared channel and a …… reflection in the visible red channel:
(a) Low, low
(b) Low, high
(c) High, low
(d) High, high

45. Water surfaces in images record ……. areas in the near infrared channel:
(a) Light
(b) Dark
(c) Similar
(d) Bright

46. What is georeferencing?
(a) Converting data to a feature class
(b) Projecting your data so that it has no distortion
(c) Aligning images with ground control points on the Earth's surface
(d) Converting data into geometric coordinate system

47. Blue shift in red-edge of vegetation spectra is indicator of
(a) Healthy vegetation
(b) Stressed vegetation
(c) Green vegetation
(d) All of the above

48. Which form of representation does an image print use?
(a) Digital
(b) Binary
(c) Analog
(d) Decimal

49. Which is NOT a commonly used format for images?
(a) JPEG
(b) GIF
(c) MP3
(d) TIFF

50. Remote sensing image is:
(a) Irregularly spaced sample points
(b) A raster of rectangular cells
(c) A raster of regularly spaced sample points
(d) Irregularly shaped polygons
