# PARUL UNIVERSITY
## COLLEGE OF AGRICULTURE
### B.Sc. Summer 2021 - 22 Examination

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| **Semester: 7** | **Date: 06/04/2022** |
| **Subject Code: 20101303** | **Time: 10:30 AM to 1:00 PM** |
| **Subject Name: Geoinformatics and nanotechnology and Precision farming** | **Total Marks: 50** |

**Instructions**
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

**Q.1  Do as Directed.**

**A.**  
1. The first meteorological satellite _____ was launched in April 1960. **(05)**
2. 'Remote' means _____ and sensing means _____.
3. ISRO's satellite lunching station located at _____.
4. The spectral ranges of UV region is _____ μm.
5. _____ developed the theory of electromagnetic waves.
6. The emissivity value of a true blackbody is _____.
7. _____ type of reflections are useful in remote sensing.
8. Full form of GPS is _____.
9. ISRO is established on _____ date.
10. _____ is the first satellite dedicated to remote-sensing work.

**B. Multiple choice type questions. (Each of 0.50 mark)** **(10)**

1. The term remote sensing was coined by _____.
   a) Fischer
   b) Kirchoff
   c) Sir James Cleck Maxwell
   d) Planck
2. Emissivity value of sandy soil is _____.
   a) 0.90
   b) 0.99
   c) 0.89
   d) 0.92
3. _____ is unit is used to measure frequency.
   a) Hartz
   b) Nm
   c) nm
   d) Angstrom
4. _____ is redirection of EME in different directions
   a) Scattering
   b) Refraction
   c) Transmission
   d) Reflection
5. _____ type of scattering causes fog and clouds to appear white and whitish appearance of sky
   a) Rayleigh scattering
   b) Mie scattering
   c) Non selective scattering
   d) All of the above
6. In Munsell colour system Hue means
   a) dominant spectral colour
   b) relative brightness of the colour
   c) relative purity
   d) strength of colour
7. Which soil texture give highest value of reflection?
   a) Sandy
   b) Clay
   c) Silt
   d) Loamy
8. The variation in the reflectance of a body of water is usually affected by
   a) Depth of the water
   b) Roughness of the water
   c) Materials present in the water
   d) All of the above
9. The chlorophyll of green leaves usually absorbs _____ light.
   a) Red
   b) Blue
   c) A and B both
   d) Green
10. _____ satellites are established at an altitude of 36,000 km, which make one revolution in 24 hours, synchronous with the earth's rotation.
    a) Geo stationary
    b) polar orbiting
    c) Sun synchronous
    d) low altitude
11. IRS-1A/1B satellite is relate to _____.
    a) ISRO
    b) Roscommon
    c) NASA
    d) ISA

**12.** Spatial resolution of LANDSAT MSS satellite is
   a) 80                      b) 120
   c) 36                      d) 60

**13.** An increase in soil moisture will result in rapid _____.
   a) Increase in reflectance                b) Decrease in reflectance
   c) No effect on reflectance               d) None of the above

**14.** An increase in salinity will result in rapid _____.
   a) Increase in reflectance                b) No effect on reflectance
   c) No effect on reflectance               d) None of the above

**15.** GIS Function In remote sensing is to
   a) Data acquisition                    b) Display
   c) Mapping                        d) All of the above

**16.** Ratio vegetation Index can be calculated by
   a) Red/Near infrared                   b) Near infrared/Red
   c) Red - Near infrared                 d) Near infrared - Red

**17.** LISS stands for
   a) Linear Imaging Scanning System      b) Lime Imaging Scanning System
   c) Light Imaging Scanning System      d) Length Imaging Scanning System

**18.** In which of following condition reflection % will be maximum.
   a) Light soil                        b) Wet soil
   c) Heavy soil                      d) Ploughed soil

**19.** Which of the following was the first Indian satellite?
   a) Aryabhata                    b) IRS – 1A/1B
   c) Apple                        d) TIROS

**20.** Which of the following spectral rays is used for vegetation properties?
   a) Gamma                      b) UV
   c) Visible                      d) All of the above

## Q.2 Do as Directed.

### A. Define the following. (Any five) (05)
1. Electromagnetic spectrum
2. Wavelength
3. Soil texture
4. Remote sensing sensors
5. Spatial resolution
6. Nanotechnology
7. Grid sampling

### B. Answer the following. (Any Five) (05)
1. Enlist components of remote sensing.
2. Give name of any five remote sensing satellite.
3. Give the types of reflection.
4. What is SDSS?
5. What is geo stationary satellites?
6. Remote Sensing is art and science, justify it.
7. Applications of nanotechnology in agriculture.

## Q.3 Write short notes. (Any five) (10)
1. Describe the impacts of PA on Economic and environment.
2. Describe stages of remote sensing.
3. Describe scattering of EMR.
4. Explain factors affecting reflectance of leaves.
5. Write short note on remote sensing platform.
6. Explain spectral indices.
7. Enlist applications of GIS in agriculture and ground water study.

## Q.4 Attempt any Three/Long Questions/Example (15)
1. Explain tools of precision farming.
2. Give the advantages of remote sensing.
3. Describe electromagnetic spectrum.
4. Enlist general applications of remote sensing.