Seat No: _____   Enrollment No: _____

PARUL UNIVERSITY
COLLEGE OF AGRICULTURE
B.Sc. (Hons.) Agriculture 2019 - 20 Examination

Semester: 5   Date: 21/11/2019
Subject Code: 20101303   Time: 10:30 am to 01:00 pm
Subject Name: Geoinformatics and nanotechnology   Total Marks: 50
         And Precision Farming

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. Fill in the blanks. (Each of 0.50 marks)   (05)
   1. The spectral ranges of Microwave region is _____.
   2. 'Remote' means _____ and sensing means _____.
   3. The emissivity value of a true blackbody is _____.
   4. _____ type of reflections are useful in remote sensing.
   5. Full form of GPS is _____.
   6. ISRO is established on _____ date.
   7. _____ developed the theory of electromagnetic waves.
   8. The first meteorological satellite _____ was launched in April 1960.
   9. _____ is the first satellite dedicated to remote-sensing work.
   10. ISRO's satellite lunching station located at _____.

B. Multiple choice type questions. (Each of 0.50 mark)   (10)
   1. Emissivity value of sandy soil is _____.
      a) 0.90   b) 0.99
      c) 0.89   d) 0.92
   2. The law states that the maximum intensity of emission (λmax).
      a) Stefan-Boltzman's law   b) Kirchoff's law
      c) Wein's law   d) Planck's law
   3. The sun synchronous satellite move from_____.
      a) East to west   b) West to east
      c) North to south   d) South to north
   4. _____ is unit is used to measure frequency.
      a) Hartz   b) Nm
      c) nm   d) Angstrom
   5. _____ is redirection of EME in different directions
      a) Scattering   b) Refraction
      c) Transmission   d) Reflection
   6. _____ 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
   7. Radiation emitted by sun is _____.
      a) Short wave radiation   b) Diffused radiation
      c) Long wave radiation   d) Sky radiation
   8. Which soil texture give highest value of reflection?
      a) Sandy   b) Clay
      c) Silt   d) Loamy

9. 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

10. The chlorophyll of green leaves usually absorbs _____ light.
    a) Red   b) Blue
    c) A and B both   d) Green

11. The longest wave length used in RS.
    a) Microwave   b) IR
    c) Visible   d) UV

12. IRS-1A/1B satellite is relate to _____.
    a) ISRO   b) Roscosmos
    c) NASA   d) ISA

13. The height of each wave peak is known as _____.
    a) Frequency   b) Amplitude
    c) Hertz   d) Wave length

14. The blue colour of the sky is due to_____.
    a) Mie scattering   b) Reyleigh scattering
    c) Non selective scattering   d) Selective scattering

15. 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

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

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

18. The space commission was setup in India in the year.
    a) 1972   b) 1962
    c) 1968   d) 1975

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

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

Q.2 Do as Directed.

A. Define the following. (Any five)   (05)
1. Wavelength
2. Remote sensing sensors
3. Spatial resolution
4. Precision farming
5. Nanotechnology
6. Emissivity
7. Active Remote Sensing

B. Answer the following. (Any Five)   (05)
1. Give the types of reflection.
2. What is SDSS?
3. Give the full form of LISS.
4. What is geo stationary satellites?
5. Give types of remote sensing.
6. Give name of any five satellite.

Q.3 Write short notes. (Any five)   **(10)**
1. Describe the impacts of PA on Economic and environment.
2. Describe the concept of blackbody.
3. Describe stages of remote sensing.
4. What are the scope of remote sensing?
5. Describe scattering of EMR.
6. Explain factors affecting reflectance of leaves.
7. Write short note on remote sensing platform.

Q.4 Attempt any Three/Long Questions/Example   **(15)**
1. Explain tools of precision farming.
2. Describe electromagnetic spectrum.
3. Explain laws of radiation.
4. Enlist applications of GIS.