



FIJI NATIONAL UNIVERSITY
College of Agriculture, Fisheries & Forestry
School of Agriculture
Department of Soil Science & Agril. Engineering
FINAL EXAMINATION: 2017

B.Sc Forestry IIIrd year: Trimester IInd

REMOTE SENSING AND ITS APPLICATION IN AGRICULTURE: AGR 701

TOTAL MARKS: 100

TIME ALLOWED: 3:10 HOURS

INSTRUCTIONS:

This paper consists of five (5) pages. Please check to see that your paper is complete.

Answer all questions in the answer booklet.

- Number your answers correctly in the provided answer booklet.
- Write your student ID number on all pages that you use including any additional sheet paper.
- Printed or written study materials are not allowed into the examination hall.
- Mark values appear at the end of each question or part thereof.

• **"MOBILE PHONES ARE STRICTLY NOT ALLOWED"**

SECTION NO.	TYPE	TOTAL MARKS
I	MULTIPLE CHOICE	15.0
II	TRUE OR FALSE	10.5
III	FILL IN BLANK	10.5
IV	ABBREVIATIONS	20.0
V	DRAW SKETCH	4.0
VI	LONG ANSWER	40.0
TOTAL MARKS		100

Part I: State True or False10 x 1.5 = Total 15 marks

1. If spatial resolution is larger, what will be the resolving power of the sensor?
 - a. Greater
 - b. Smaller
 - c. Same
 - d. None
2. Which of the following resolution best describes (sensitivity of the sensor to incoming radiance)?
 - a. Spectral
 - b. Temporal
 - c. Radiometric
 - d. None of the above
3. The minimum distance between two objects that can be distinguished by continuous different wavelength range is referred as?
 - a. Spectral
 - b. Temporal
 - c. Radiometric
 - d. Spatial
4. Which one of the following resolution describes, the capability of identifying nearly kept two objects?
 - a. Spectral
 - b. Temporal
 - c. Radiometric
 - d. None of the above
5. Which of the following spectral rays is used for vegetation properties?
 - a. Gamma rays
 - b. Ultraviolet
 - c. Near Infrared
 - d. None of the above
6. What could be the reflectance % if a person is applying black colour on his roof top?
 - a. Increased
 - b. Decreased
 - c. No effect
 - d. First Increases than decreases
7. Which of the following band is used in visible radiation?
 - a. 0.4-0.7nm
 - b. 0.7-1.3nm
 - c. 1.3-3.0 nm
 - d. None of the above
8. A raster module in the Arc GIS package is known as?
 - a. Pixel
 - b. Legend
 - c. Grid
 - d. None of the above
9. Remote sensing is acquiring knowledge from a distant place by what actual touch with object?
 - a. With
 - b. Without
 - c. Both
 - d. None of the above
10. The part of the drawn map explaining the meaning of symbols used to code the depicted geographical elements is known as?
 - a. Layer
 - b. Label
 - c. Legend
 - d. None

Part II : Fill the blank space with proper word7 x 1.5 = Total 10.5 marks

1. Smallest change in intensity level can be detected by the sensing system in resolution.
2. The first satellite of SPOT mission, SPOT-1 was launched by country?
3. NASA's Landsat satellite programme was started in ?
4. Telescope was invented byin 1609 year?
5. First photos from an airplane was taken in?
6. At what wavelengthnear Infrared rays fall?
7. Which software do you use in computer lab during practical ?

Part III : State True or False7 x 1.5 = Total 10.5 marks

1. Intensity is sum of intensity of all visible wavelengths in case of black and white images.
2. Local problems can be visualized using GIS technology like discovering the best site to dispose the urban waste.
3. Landsat satellite remote sensing satellite programme was started by USA?
4. Passive remote sensing uses an artificial source for energy.
5. Scanners are passive sensors that capture the reflected or emitted energy intensity from observed objects.
6. Remote sensors cannot be operated in in bad weather.
7. The principal advantages of remote sensing are the speed at which data can be acquired and inaccessible areas may be investigated.

Part IV : Write the full form of given abbreviations10 x 2 = Total 20 marks

1. AVIRIS
2. EMS
3. ETM+
4. FLIR
5. GIS
6. LIDAR
7. NOAA
8. SWIR
9. VNIR
10. NAD

Part V: Draw the neatly labeled sketch of given remote sensing systems1 x 4 = Total 4 marks

1. Demonstrate the components of an airborne LIDAR system.

Part VI: Write the short answer for given questions4 x 10 = Total 40 marks

1. Judge a Geographic Information System? Draw a neat sketch of Geographic Information System Components and discuss any two of them. List down the GIS tasks that can be completed using GIS technologies.
2. What do you understand with remote sensing? Discuss the scope of remote sensing? List down the key areas of forestry science in which remote sensing and GIS can be applied.

3. Demonstrate the remote sensing resolutions? List down the types of remote sensing resolutions and explain any two with appropriate diagram if any?

4. Provide the application of Remote Sensing in given areas.
 1. Geology
 2. Forest
 3. Botany- forecasting crop yields.
 4. Hydrology
 5. Climate

END OF EXAMINATION PAPER