



**FIJI NATIONAL UNIVERSITY**  
 COLLEGE OF AGRICULTURE, FISHERIES AND FORESTRY  
 SCHOOL OF AGRICULTURAL SCIENCES & FORESTRY  
 Department of Soil Science & Agril. Engineering  
 B.Sc Agriculture III<sup>rd</sup> year: Trimester I<sup>st</sup>

**Remote Sensing and Its Application in AGRICULTURE: AGR 703**

**Writing Time: 3:00 hours**

Reading Time: extra 10 minutes allowed at the beginning of the exam

**Total Marks: 100**

**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.
- Calculators are permitted.

**“MOBILE PHONES ARE STRICTLY NOT ALLOWED”**

SECTION NO.	TYPE	TOTAL MARKS
I	<b>SHORT ANSWER</b>  a. Multiple choice : 10  b. Abbreviation : 16  c. Define/explain : 14	<b>40</b>
II	<b>ESSAY</b>	<b>60</b>
<b>TOTAL MARKS</b>		<b>100</b>

**SECTION I: SHORT ANSWER****Part A: Multiple choice****10 x 1.0 = 10 marks**

1. Which one of the following resolution describes, the capability of identifying nearly kept two objects?
  - a. Spatial
  - b. Temporal
  - c. Radiometric
  - d. Spectral
2. Which of the following resolution best describe “the acquisition of data has been recorded on 5 different dates”?
  - a. Spatial
  - b. Temporal
  - c. Radiometric
  - d. Spectral
3. Microwave radiation is more useful in case of
  - a. Clouds
  - b. Dust
  - c. Haze
  - d. All
4. In which of the following condition reflectance % will be minimum?
  - a. Dry soil
  - b. Wet soil
  - c. Saline soil
  - d. All
5. Satellite images showing red colour indicates?
  - a. Soil
  - b. Ice cap
  - c. Ocean
  - d. None



**Part B: Explain the give abbreviation**

**8 x 2.0 = 16 marks**

1. ETM+
2. DEM
3. MSS
4. RADAR
5. FLIR
6. NASA
7. EMS
8. AVIRIS

**Part C: Define or explain**

**7 x 2.0 = 14 marks**

1. Write the definition of remote sensing
2. Write the two examples of passive remote sensors.
3. How a GPS is useful while we conduct a field survey?
4. Write the name of any two remote sensing platforms
5. What do you understand with Geo-referencing?
6. What do you underatand with Geostationary orbit?
7. What do you understand by map scale? explain

**SECTION II: ESSAY****15x 4.0 = 60 marks**

1. Demonstrate the active and passive remote sensing with appropriate diagramme and provide the application of remote sensing in various fields of agriculture science (any five). Analyse the advantages and disadvantages of the remote sensing system.

[5x3 = 15 marks]

2. Briefly describe the components of a GIS with a suitable diagramme. Analyse the difference between the raster & vector data used in GIS and elaborate the functions of GIS.

[5x3 = 15 marks]

3. Demonstrate the principals and components of remote sensing with appropriate diagramme. Analyse the visual, microwawe and airborne remote sensing in your own views.

[2+4+(3x3) = 15 marks]

4. What do you mean by a LIDAR? Provide the major components of a LIDAR system and discuss the application of LIDAR in areas given below.

- A. Agriculture.  
B. Biology and conservation  
C. Meteorology and atmospheric environment

[1+5+(3x3) = 15 marks]

The end