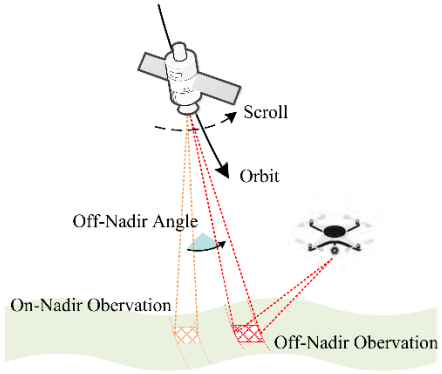
Satellite Image Processing – Test 2

Full Marks: 33

Question 1:

Discuss with the Diagram, how you understand off-Nadir and Nadir angles.



Off-nadir angle is when the sensor attached to the satellite and airplane scans the object at the angle, for example, 20 degrees or more. Nadir or on-Nadir is when a satellite or airplane is not scanning and collecting data at a specified angle but looking straight down at a 0-degree angle.

(Marks: 4)

Question 2:

State down reasons why we need to acquire remote sensing data on anniversary dates. e.g., Feb 1, 2000, and Feb 1, 2006.

Anniversary date imagery minimizes the influence of seasonal Sun-angle and plant phenological differences that can negatively impact a change detection project

(**Marks: 5)**

Question 3:

Calculate Overall accuracy, Users accuracy and Producers accuracy. Make sure to layout your calculations step in order and easy to read.

	Class types determined from reference source					
Class types determined from classified map	**Number of Plots**	Grassland	Water	Dance Forest	Bare land	*Totals*
	Grassland	30	3	1	5	
	Water	5	10	0	1	
	Dance Forest	2	4	20	1	
	Bare land	3	2	1	12	
	Totals					

	Grassland	water	Dance forest	Bareland	**Total**	**User's accuracy**
Grassland	30	3	1	5	39	76.92%
Water	5	10	0	1	16	62.5%
Dance forest	2	4	20	1	27	74.07%
Bare land	3	2	1	12	18	66.66%
Total	40	19	22	19	100	
Produces Accuracy	75%	52.6%	90.91%	63.16%		72%
Overall accuracy =	72%					

(Marks: 8)

Question 4:

State down the two (2) commonly used traditional base classification methods and clearly differentiate between them. Provide diagrams or flow charts to assist your differentiation.

Unsupervised;

In unsupervised classification, user input is not necessary here.
it first groups pixels into “clusters” based on their properties.
Then, you classify each cluster with a land cover class.
Overall, unsupervised classification is the most basic technique.
Because you don’t need samples for unsupervised classification, it’s an easy way to segment and understand an image.
The two basic steps for unsupervised classification are:
1. We Generate clusters
2. We Assign classes

Supervised:

In supervised classification, User input is required when you **select representative samples** for each land cover class.
The software then uses these **“training sites”** and applies them to the entire image.
The three basic steps for supervised classification are:
1. Select training areas
2. Generate signature file
3. Classify

(Marks: 7)

Question 5:

What are this initial stands for?

OBIA – Object Base Image Analysis
OLI – Operational Land Imager
ETM+ - Enhance Thematic Mapper
MSS – Multispectral Scanner

(Marks: 4)

Question 6:

Illustrate with a flow chart the Post – Classification Comparison Change Detection. Make sure to state every detail it has.

(Marks: 5)