

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
SCHOOL OF PHYSICAL SCIENCES
DEPARTMENT OF GEOGRAPHY

SECOND SEMESTER 2015/2016 SESSION UNDERGRADUATE EXAMINATION

COURSE CODE: REM 320 (3 Units)

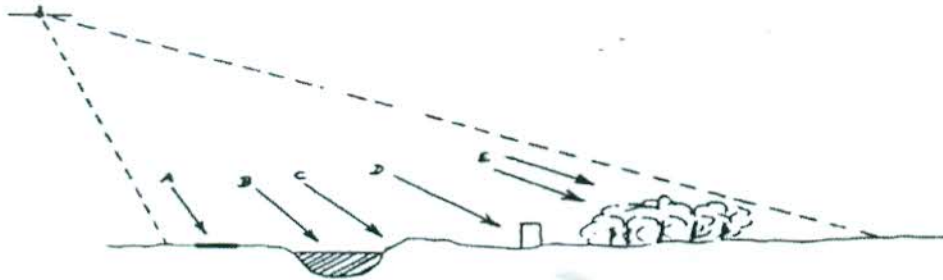
COURSE TITLE: Radar

Time: 2hrs 30m

INSTRUCTIONS: Answer question one and any other three. Credit will be given for the use of specific examples and relevant illustrations

Prediction of Tones on SAR Imagery

Use figure 1 for the Prediction of Tones on SAR Imagery and explain the justification for each predictions



Object	2. Reflectance from object is:		3. Appearance on radar image is:	
	Specular	Diffuse	Lt. Grey/White	Dk. Grey/Black
A. Paved Road	_____	_____	_____	_____
B. River	_____	_____	_____	_____
C. River Bank	_____	_____	_____	_____
D. Side of Building	_____	_____	_____	_____
E. Forest Canopy	_____	_____	_____	_____

1a Based on your knowledge of specular and diffuse reflection re-sketch the objects above and indicate with an arrow on the sketch the direction that the radar signal will bounce from the objects indicated.

1b. Indicate (with a tick mark) the radar reflectance from each object and explain the characteristic of the object to justify your answer.

1c. Finally, indicate whether the appearance of these objects on the radar imagery should be relatively light or relatively dark. And justify your answer.

2. Using a case study of your choice, discuss Radar Remote sensing as a form of reconnaissance from distance whose electromagnetic wave property interactions with target is needed for accurate detection of objects

3. Elucidate on the link between the return trip signal and slant range measurement in radar

4. Discuss the interrelationships between surface roughness, dielectric constant of an object, radar backscatter, and how these factors influence the appearance of objects on SLAR imagery.

5a. Describe the uniqueness of RADAR remote sensing from other types of remote sensing

b Explain why radar sensor is more sensitive to surface roughness than some optical sensor

6. Chronologically highlight the accumulated milestones (1864- 1940) that facilitated the development of Radar Technology.