

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

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BTech GEOLOGY
2017/2018 SESSION

COURSE CODE: GEL 323

UNIT: 2

COURSE TITLE: PHOTOGEOLOGY AND REMOTE SENSING

INSTRUCTIONS: ANSWER 2 QUESTIONS FROM EACH SECTION

TIME ALLOWED: 2 HOURS

DATE: 15TH APRIL, 2018

SECTION A

1. Define the following terms:
 - (i) Radiometric resolution
 - (ii) Pointing capability of a satellite
 - (iii) Spatial coverage
 - (iv) Spatial resolution
 - (v) Spectra radiant
2. With the aid of a diagram, give a detailed explanation of Thermal Imaging System.
3. Describe the basic principles and processes of data acquisition in remote sensing.

SECTION B

- 4) a. Write brief notes on Landsat 8 OLI & TIRS, ASTER and SRTM DEM datasets.
b. Remote sensing techniques are routinely used in the field of geosciences. Explain the application of these techniques in any three fields outlined below:
 - i. Mineral exploration
 - ii. Groundwater exploration
 - iii. Lithologic mapping
 - iv. Petroleum Exploration
- 5) a. Image enhancement is an important aspect of analysing satellite imageries. List the types known to you and explain their significance.
b. What is a false colour composite? Explain the principle of using colours as a tool to visualize spectral information of multi-spectral images.
c. With the aid of a diagram, explain why Radiometric Correction is an important aspect of image analysis.
- 6) a. Distinguish between Hyperspectral and Multispectral scanners. Explain some of the advantages and disadvantages of these types of sensors?
b. Explain why data from the Landsat 8 OLI sensor might be considered more useful than data from the original MSS sensor using their respective spatial, spectral, and radiometric resolutions.