MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2013/2014

FIRST YEAR SECOND SEMESTER EXAMINATIONS FOR THE DEGREE OF BACHELOR OF SCIENCE IN EARTH SCIENCES WITH INFORMATION TECHNOLOGY

(MAIN CAMPUS)

NGA 106: IMAGE INTERPRETATION TECHNIQUES

Date: *17th July 2014* *Time:* *2.30– 4.30. p.m*

INSTRUCTIONS:

- Answer Question ONE (1) and any other TWO (2) questions
- Illustrations should be used where appropriate

NGA 106 IMAGE INTERPRETATION TECHNIQUES

1. (a) Define the following terms
   (i) Spatial resolution 3 marks
   (ii) Dynamic range 3 marks
   (b) Examine various aids used in image analysis. 14 marks
   (c) Compare and contrast digital image processing and manual interpretation techniques. 10 marks
2. (a) Examine five categories of information extraction from remotely sensed data. 10 marks
   (b) Discuss the factors that determine the quality of an image interpretation exercise. 10 marks
3. (a) Explain the principle of stereoscopic viewing. 12 marks
   (b) Examine the use of radar imagery in monitoring of the environment. 8 marks
4. (a) Discuss image restoration and rectification processes needed before analysis. 14 marks
   (b) Explain the difference between spectral classes and information classes. 6 marks
5. (a) Explain procedures used in image transformation during an image interpretation exercise. 15 marks
   (b) Draw a one-dimensional histogram for the following image represented by the digital numbers in pixels.

5	3	4	5	4	5	5
2	2	3	4	4	4	6
2	2	3	3	6	6	8
2	2	6	6	9	8	7
3	6	8	8	8	7	4
3	6	8	7	2	3	2
4	6	7	3	3	2	1

5 marks

6. Discuss the integration of different data types in digital image analysis. 20 marks