



TECHNICAL UNIVERSITY OF MOMBASA
FACULTY OF APPLIED AND HEALTH SCIENCES
DEPARTMENT OF ENVIRONMENT & HEALTH SCIENCES

UNIVERSITY EXAMINATION FOR:
BACHELOR OF SCIENCE IN MARINE RESOURCE MANAGEMENT
BSMR 16S/YEAR 2/ SEMESTER 1

EBC 4230: INTRODUCTION TO GIS AND REMOTE SENSING

SPECIAL/ SUPPLEMENTARY EXAMINATIONS

SERIES: SEPTEMBER 2018

TIME: 2 HOURS

Instructions to Candidates

This paper consists of FIVE questions

Answer question ONE (COMPULSORY) and any other TWO questions.

This paper consists of two printed pages.

Mobile phones are NOT allowed in the examination room

QUESTION ONE (30 MARKS)

1. (a) State the wavelength range for visible light? (2mks)
(b) Distinguish between GIS and remote sensing? (2mks)
2. Define the following terms (4mks)
 - i) Spatial resolution (1mk)
 - ii) Temporal resolution (1mk)
 - iii) Radiometric resolution (1mk)
 - iv) Spectral resolution (1mk)
3. Differentiate between vertical and oblique aerial photographs (4mks)
4. Why is weather consideration important when creating a flight plan in aerial photography (3mks)
5. (a) Distinguish between raster and vector GIS data models (2mks)
(b) Differentiate between photogrammetry and photomapping (2mks)
6. Explain the limitations of satellite remote sensing (4mks)
7. List the three types of early remote sensing platforms used in aerial photography (3mks)
8. State the four basic functions of a GIS (4mks)

QUESTION TWO (20 MARKS)

- i) Explain and illustrate the differences between orthogonal and perspective projections in photogrammetry (5mks)
- ii) Assuming you have just concluded an aerial mapping exercise. Discuss in detail how you can interpret the aerial photographs taken (15mks)

QUESTION THREE (20 MARKS)

You have been invited to an international conference; discuss how remote sensing and GIS can be applied in the field of marine and coastal sciences? Describe (20mks)

QUESTION FOUR (20 MARKS)

- i) Differentiate between passive and active sensors and give an example for each (5mks)
- ii) Outline the main questions that can be answered using a GIS (5mks)
- iii) Describe the components of a GIS (Geo-Information System) (10mks)

QUESTION FIVE (20 MARKS)

It is no doubt remote sensing is very useful in marine resources management. Describe the science behind remote sensing (20 marks)