



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF ENVIRONMENT & HEALTH SCIENCES

UNIVERSITY EXAMINATION FOR:

DEGREE IN MARINE RESOURCE

BSMR 15S/YEAR2/SEMESTER 1

EBC 4230: INTRODUCTION TO GIS AND REMOTE SENSING

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2016

TIME: 2 HOURS

DATE: Pick Date Select Month Pick Year

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **TWO** Section(s). Attempt question ONE (Compulsory) and any other TWO questions.

Circle the correct answer in section A.

QUESTION ONE (30 MARKS)

- a) What is a Map (2mks)?
- b) Define the following features of a map (4mks)
 - i) Legend (1mk)
 - ii) Geographic coordinates (2mks)
 - iii) Attributes (1mk)
- c) Define data acquisition as a GIS function (2mks)
- d) What is data processing in GIS? (2mks)
- e) Briefly explain data analysis as a GIS function (2mks)
- f) Define data storage in GIS? (2mks)
- g) What is data output in GIS? (2mks)

- h) Differentiate between spatial and attribute data as used in GIS (4 mks)
- i) Explain the Difference between vector and raster data (4 mks)
- j) Briefly explain panchromatic images in remote sensing. (3mks)
- k) Briefly explain multispectral images in remote sensing. (3mks)

QUESTION TWO (20 MARKS)

Compare between photogrammetry and remote sensing.

QUESTION THREE (20 MARKS)

Discuss the following terms in Remote sensing.

- a) Spatial resolution (5 mks)
- b) Spectral resolution (5mks)
- c) Radiometric resolution (5mks)
- d) Temporal resolution (5mks)

QUESTION FOUR (20 MARKS)

GIS and remote sensing can be a very important tool for Marine managers. Discuss using examples how a marine manager can use GIS and remote sensing.

QUESTION FIVE (20 MARKS)

The following are coordinates of fish landing sites in Kenya.

- i) Convert the coordinates to decimal degrees. (15mks)
- ii) Arrange the landing sites from West to East (5mks)

| Landing site | Longitude | Latitude |
|----------------|---------------|--------------|
| Nyari | 39°36'33.57"E | 4°13'16.76"S |
| Kipangani | 39°54'28.48"E | 3°33'12.13"S |
| Mkunguni | 39°48'41.33"E | 3°51'44.03"S |
| Vitanga Viwili | 39°52'10.88"E | 3°41'37.54"S |

| | | |
|----------|---------------|-------------|
| Kibuyuni | 39°40'27.98"E | 4° 5'4.39"S |
|----------|---------------|-------------|

a)