TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

UNIVERSITY EXAMINATION FOR DECREE IN:

BACHELOR OF SCIENCE IN MARINE RESOURCES Y2

EBT 4202: INTRODUCTION TO GIS & SATELLITE REMOTE SCIENCE

END OF SEMESTER EXAMINATION
SERIES: APRIL 2015
TIME ALLOWED: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*
- *Pocket Calculator*

This paper consists of **FIVE** questions. Answer question **ONE (COMPULSORY)** and any other **TWO** questions
Maximum marks for each part of a question are as shown
Use neat, large and well labeled diagrams where required
This paper consists of **TWO** printed pages

Question One (Compulsory)

a) Define satellite remote sensing **(2 marks)**

b) With and aid of a flow diagram, explain data collection procedures **(10 marks)**

c) What are the general reasons of implementing a GIS system? **(5 marks)**

d) List down FIVE parameters of evaluating a scanner **(5 marks)**

Question Two

a) Discuss the SEVEN elements of image interpretation **(14 marks)**

b) What are the main components of a GIS System? **(6 marks)**

Question Three

a) What are the main reasons behind scanning of a hardcopy media for use in GIS? **(3 marks)**

b) Make short notes under the following sub-topics:
- **(i)** Point mode
- **(ii)** Stream mode
- **(iii)** Switch mode **(3 marks)**

c) Discuss briefly the advantages and disadvantages of manual digitizing. How can a problem of operator's stress and fatigue be overcome in digitizing? **(10 marks)**

d) List down any FOUR types of flat form essential for the data collection in satellite remote sensing and state what determines the platform to be used. **(5 marks)**

Question Four

a) Explain the following terms as used in remote sensing:
- (i) Mie scattering
- (ii) Rayleigh scattering
- (iii) Non selective scattering **(6 marks)**

b) What are the advantages of database management system in GIS **(14 marks)**

Question Five

a) Discuss stages involved in digital image processing of remotely sensed data **(6 marks)**

b) Classify benefits accrued from using GIS in terms of tangible and intangible **(8 marks)**

c) State reasons important for a successful GIS system **(6 marks)**