



Technical University of Mombasa

Faculty of Applied and Health Sciences

DEPARTMENT OF ENVIRONMENT AND HEALTH SCIENCES

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN
MARINE RESOURCE MANAGEMENT

BMRM 13S

AES 4104: COASTAL GEOMORPHOLOGY

SEMESTER EXAMINATION

DECEMBER 2013 SERIES

2 HOURS

Instructions to candidates:

This paper consist of **FIVE** questions

Answer question **ONE** (compulsory) and any other **TWO** questions

QUESTION ONE

- a) Define geomorphology and highlight the areas of application. **(5marks)**
- b) What are the **THREE** stages into which geomorphic processes fall? **(3marks)**
- c) Briefly discuss **THREE** geomorphic processes **(6marks)**
- d) Define the pelagic zone, highlight 3-subzones **(6marks)**
- e) Explain the isostatic effects of deposition and erosion. **(3marks)**
- f) Define 'Accretion' **(2marks)**
- g) Highlight some of the environmental impacts of deep-sea mining **(5marks)**

QUESTION TWO

- a) Briefly describe an 'Ecosystem'. Using a trophic pyramid, explain a marine ecosystem. **(10marks)**
- b) Outline the coastal processes that can cause changes in a coastline. **(10marks)**

QUESTION THREE

- a) Briefly describe the 'Littoral zone', highlighting the subzones in it **(10marks)**
- b) Explain Eustatic (sea level change). Highlight FOUR processes that can cause worldwide sea level changes. **(6marks)**
- c) (i) Define 'density' **(2marks)**
- (ii) Continental crust has a density of 2.75g/cm^3 . What volume would 100kg occupy? **(2marks)**

QUESTION FOUR

- a) Define "Isostasy". Highlight the three isostatic models **(7marks)**
- b) For a mountain belt, calculate the depth of the continental crust. Height above sea level is 5km, density of mantle is $3,300\text{ Kg/M}^3$, density of crust is 2750 kg/m^3 and density of water is 1000Kg/m^3 . Also calculate the negative topography for the basin. **(8marks)**
- c) Briefly describe a seamount. Highlight the ecological role seamounts play. **(5marks)**

QUESTION FIVE

- a) Briefly discuss the Geomorphological setting of the Kenya coast, highlighting the position of the shoreline terraces. **(10marks)**
- b) Outline THREE techniques that can be used to study landforms **(10marks)**