



# UNIVERSITY OF EMBU

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2016/2017 ACADEMIC YEAR

SECOND SEMESTER EXAMINATION

FIRST YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE  
IN WATER RESOURCE MANAGEMENT

AWM 105: AQUATIC ECOLOGY

DATE: APRIL 13, 2017

TIME: 8:30-10:30AM

INSTRUCTIONS:

Answer Question ONE and ANY other TWO Questions

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QUESTION ONE

- a) Distinguish between lotic and lentic ecosystems. (2 marks)
- b) Describe trophic levels and biomass pyramid marine ecosystems. (6 marks)
- c) With an aid of diagram, define and describe a water column profile in an ocean. (6 marks)
- d) Sketch a typical temperature, salinity and density profiles with depth in the ocean, naming the principal features. (6 marks)
- e) Citing a specific example, describe a coastal upwelling system. (4 marks)
- f) Describe briefly the thermohaline circulation of the oceans. (4 marks)
- g) Highlight the main problems faced by mangroves in the marine environment. (6 Marks)
- h) Explain two adaptations of mangroves in marine environments. (2 marks)

QUESTION TWO

- a) Discuss habitat segregation as applied in resource partition in aquatic environments. (8 marks)

- b) Explain why estuaries are regarded as the most product ecosystems on earth. (12 marks)

**QUESTION THREE**

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- a) Explain how light and inorganic nutrient supply control phytoplankton growth. (10 marks)
- b) Describe the vertical extinction of irradiance in the water column. (10 marks)

**QUESTION FOUR**

- a) Describe the environmental conditions experienced by an organism living on the abyssal plain and conclude which of these has the most limiting effect on deep-sea assemblages. (10 marks)
- b) Discuss the various impacts that human interventions in natural systems can have on the marine environment. (10 marks)

**QUESTION FIVE**

- a) Discuss what food supplies are available to deep-sea organisms and the mechanisms they use to make the most of the food available. (10 marks)
- b) Describe any two types of freshwater ecosystems of your choice. (10 marks)

**END**