



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2010/2011

FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE AND BACHELOR OF EDUCATION

SBT 411: AQUATIC BOTANY

DATE: Tuesday 30th November, 2010

TIME: 2.00 p.m. – 4.00 p.m.

INSTRUCTIONS

Answer ALL questions in Section A and ANY ONE question in Section B. Answers in Section A should be written in the spaces provided on the question paper.

SECTION A – Short Answer Questions (5 marks each)

1. Explain each of the following observations in ONE sentence only.
 - i) Liquid water is a liquid crystal rather than a true liquid.
 - ii) Cold monomictic lakes only mix in summer but not in winter.
 - iii) Lakes with low amounts of calcium are usually subject to wide changes in pH.
 - iv) The destruction of thermal stratification in productive lakes can lead to a reduction in the dissolved oxygen concentration of surface water.
 - v) Thermal stratification rarely occurs in rivers.
2. Describe the environmental problems associated with fish farming.
3. Compare the Cyanophyta and Chlorophyta based on the following attributes. [1 mark each]

- a) Food storage
 - b) Cell motility
 - c) Reproduction
 - d) Distribution
 - e) Dominant accessory pigments
4. a) Illustrate the vertical profile of temperature and light in a thermally stratified lake and identify the following parts: epilimnion, hypolimnion, metalimnion and thermocline. [3 marks]
- b) Comment on temperature variation in warm monomictic lakes. [2 marks]
5. State the meaning of each of the following terms: [1 mark each]
- a) Fucoxanthin
 - b) Holomixis
 - c) Allochthonous food supply
 - d) Langmuir circulation
 - e) Chemotrophs

6. a) Distinguish between saline and freshwater lakes on the basis of the following: [1 mark each]
- i) Freezing point temperature
 - ii) Biological diversity
 - iii) Energy needed to breakdown thermal stratification
- b) Identify two economic values of the saline lakes of East Africa.
7. a) Describe the extent and major characteristics of the littoral zone. [3 marks]
- b) State the meaning and importance of albedo. [2 marks]
8. Explain the contribution of physical and chemical energy subsidies to the high productivity of estuaries. [5 marks]

SECTION B – (MAXIMUM MARKS 30)

Write an essay on ANY ONE of the following topics:

1. Dissolved oxygen in lakes.
2. Characteristics and types of running water.
3. Phytoplankton movement in standing waters.

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