UNIVERSITY OF RUHUNA

BACHELOR OF SCIENCE IN FISHERIES AND MARINE SCIENCES DEGREE

Level II Semester I - July/August 2015

OCG 2122 – Biological Oceanography

Time: 02 hours

Answer Four (04)questions

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01. (a) Briefly explain how coastal upwelling zones form and why do they typically have high biological productivity.

(13 marks)

(b) In an upwelling area, the production of herring which feeds on zooplankton, has been determined from fish catch data to be 0.75 tons wet weight per hectare per year. Assuming that carbon makes up 60% of the dry weight of fish and that the dry weight is 25% of the wet weight, calculate the primary productivity of the area. The average ecological efficiency of this system is 15% (Note: 1 hectare = 10,000 m^2).

(12 marks)

02. (a) Discuss the seasonal cycles of phytoplankton and zooplankton biomass in temperate and tropical regions of the ocean.

(5 marks)

(b) Describe an experiment to study the impact of light intensity on primary productivity.

(10 marks)

(c) Give an account on gravimetric methods of determining zooplankton biomass.

(10 marks)

03. (a) Write a note on biological pump in the ocean. (9 marks)

(b) What is diel vertical migration? What are the adaptive values of this behavior? (8 marks)

(c) Distinguish the mutualism and commensalism using examples from marine environment. (8 marks)

04. (a) Giving examples, discuss the characteristics of marine diatoms. (12 marks)

(b) Describe the fauna succession in deep sea hydrothermal vent ecosystem. (13 marks)

05. Write notes on the followings.

(a) Solid Phase Adsorption Toxin Tracking (SPATT) (9 marks)

(b) Amnesic shellfish poisoning (8 marks)

(c) Adaptive value of bioluminescence (8 marks)

06. "Rocky shore organisms are well adapted to the harsh environmental conditions." Discuss this statement. (25 marks)

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