MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2016/2017

FIRST YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN FISHERIES AND AQUACULTURE AND BACHELOR OF SCIENCE IN AQUATIC RESOURCE CONSERVATION & DEVELOPMENT WITH INFORMATION TECHNOLOGY

MAIN CAMPUS

AFN 104:FISHERIES ENVIRONMENT II: OCEANOGRAPHY AND THE MARINE ECOSYSTEM

Date: 16th June, 2017 Time: 3.30 - 6.30pm

INSTRUCTIONS:

- Answer ALL Questions in section A and any other THREE in section B.
- Illustrate your answers with labeled diagram where appropriate

SECTION A (40 marks)

Answer **ALL** the questions in this section.

Q1. Define the following basic concepts in the study of biological oceanography. (1 mark each).

(a). Population (b). Community (c). Habitat.

(d). Species diversity

Q2. Explain following terms with reference to marine life:

(a). Poikilothermic (1 Mark)

(b). Banthos (1 Mark)

(c). Stenohaline (1 Mark)

(d). Zooxanthalae (1 mark)

Q3. Give the blood and body-fluid characteristics of the following marine organisms in relation to ambient environmental conditions.

(a). Typical marine invertebrate (1 mark)

(b). Named primitive fishes (2 marks) and

(c). Bony fishes (1 mark).

Q4. Using the appropriate technical terms for their groups, give a comparative descriptions of feeding apparatus in the blue whale and sperm whale. (4 marks).

Q5. Explain viviparity in mangrove. (4 marks).

Q6. Explain the fact that life of reef building corals is dependent on some symbiotic type of relationship. (4 marks).

Q7. Using any two examples for each case; and on the basis of habitat preference and feeding strategies; distinguish the Orders Pinnipedia and Sirenia. (4 marks).

Q8. Use two phyla and relevant examples for each case to explain representation of invertebrates in the marine nekton. (4 marks).

Q9. **Give the basis, and two examples in each case; for the two sub-orders of the Order Citacea. (4 marks).**

Q10. **Stating common name, scientific name and taxonomic family name, provide a checklist of any five marine Osteichthyans of economic importance in Kenya. (5 Marks)**

SECTION B (30 marks)

Answer **ANY OTHER THREE** questions from this section

Q11. **Describe the various realms and habitats of the ocean ecosystem (10 marks).**

Q12. **Four of the major salt constituent of sea water of the open sea of salinity $35^{o}/_{oo}$, are tabled below.**

Constituent	Concentration (gKg^{-1})	% by weight of ALL salts in the sea
Sodium (Cl^{-})	18.98	55.04
Chloride (Na^{+})	10.56	30.61
Sulphate (SO_4^{2-})	2.65	7.68
Magnesium (Mg^{2+})	1.27	3.69

(a). Determine the concentration and percentage by weight of each of these salts if you measured them in a shallow estuary area of $20^{o}/_{oo}$ salinity. (7 marks).

(b). State the principle upon which the process of this determination *(see a above)* is based. (3 marks).

Q13. Describe the structural characteristics of the various types of coral reefs in the oceans and explain the theory about their origin (10 marks).

Q14. Discuss the process in the pioneer attempts by humans to ameliorate the adverse changes in global environment by the manipulation of a named marine ecosystem at the Kenya coast. (10 marks).

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