



SOUTH EASTERN KENYA UNIVERSITY

UNIVERSITY EXAMINATIONS 2014/2015

**THIRD YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF
BACHELOR OF SCIENCE (FISHERIES MANAGEMENT AND AQUACULTURE
TECHNOLOGY)**

WFA 304: FISH STOCK ASSESSMENT

DATE: 17TH APRIL 2015 TIME: 2 HOURS

INSTRUCTION TO CANDIDATES

Attempt **ALL** questions in **section A** and any **TWO** in **section B**. Support your answers with appropriate examples and diagrams.

SECTION A (Each question carries 5 marks).

1. Explain three major challenges to Lake Victoria fisheries stock assessment **(5 marks).**
2. Explain the meaning of the following terminologies as applied in fish stock assessment: **(5 marks).**
 - a) CPUE
 - b) MSY
 - c) Recruitment
 - d) Cohort
 - e) ESY
3. Compare and contrast gill and trawl net selectivity and explain implications of these in fish stock assessment modeling. **(5 marks).**
4. Illustrate and explain the Von Bertalanffy growth model **(5 marks).**

USE THE FOLLOWING INFORMATION TO ANSWER QUESTIONS 5 AND 6

You are the manager of a hitherto an unexploited fishery and you would like to undertake stock assessment of the fishery.

5. Briefly explain to your director why fish stock assessment is critical in management of the fishery **(5 marks).**
6. Explain which method would be most suitable for undertaking fish stock assessment in this lake and how you would carry out stock assessment using this method. **(5 marks).**

SECTION B (20 MARKS EACH) ATTEMPT ANY TWO QUESTIONS

7. Modelling is widely used in fish stock assessment.
 - i. Explain the meaning and process of modeling in fish stock assessment **(10 marks)**
 - ii. Compare and contrast the two main surplus yield models and explain the main biological assumptions of this model **(10 marks).**
8. Discuss three methods of aging fish and their shortcomings **(20 marks).**
9.
 - i. Illustrate and describe the dynamics of a cohort as predicted by the Beverton and Holt models **(10 marks).**
 - ii. Explain 5 main assumptions of the Beverton and Holt model **(10 marks).**