UNIVERSITY OF SWAZILAND

2nd SEM. 2015/2016

FINAL EXAMINATION PAPER

PROGRAMME: B.Sc. AGRICULTURAL EDUCATION YEAR 4
B.Sc. ANIMAL SCIENCE YEAR 4
B.Sc. AGRICULTURAL & BIOSYSTEMS ENGINEERING YEAR 4

COURSE CODE: AS 404

TITLE OF PAPER: FISH FARMING

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER QUESTION 1, WHICH IS A COMPULSORY QUESTION AND ANY OTHER TWO QUESTIONS

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QUESTION 1 (COMPULSORY QUESTION)

A. Your client is located in Malkerns and has large quantities of well water year round, and adequate land for development. He has access to commercial feeds and electricity. The water has an alkalinity and hardness of 30ppm. He wants to use a native species for culture. Select a species that would grow well under these water quality conditions:

a) Which species do you recommend? **(2 Marks)**

b) What type of culture system and management practises do you recommend for grow out from fingerling to market size? Include all the information on feeds and feeding practises, water quality management issues and general culture practises. **(18 Marks)**

B. Sketch a fertilized fish pond that shows the sources of nitrogen and its fate. Include enough detail to show that you know all the components involved. Then discuss how they are interconnected. **(20 Marks)**

QUESTION 2

a) On the 24th of April 2016, you wake up to find that fish are dying in 2 of your ponds. Upon conducting a preliminary lab examination, the lab assistant tells you that *Flexibacter* and *Trichodina sp.* were found in your samples. What is affecting your fish and how can you treat these? In your answer, include the type of disease they cause and the symptoms of each (that you supposedly missed to identify early on). **(25 Marks)**

b) What is the importance of fish diseases? **(5 Marks)**

QUESTION 3

A) Write short notes on the following;

i. Osmoregulation **(5 Marks)**

ii. Thermal stratification **(5 Marks)**

iii. Hybridization **(5 Marks)**

iv. Fish salting **(5 Marks)**

B) A farmer has contacted you to solve a problem with his levee pond, which is filled with well water. The water has a hardness and alkalinity of 90ppm and temperature ranges

from 25 – 30C. No matter how much fertilizer (triple super phosphate) he uses, he cannot get a good phytoplankton bloom. The pond is stocked with catfish and common carp for the food market and fish are fed daily. He wants to keep out any potential weed problem by stimulating a phytoplankton bloom. What's the problem and how can he solve it.

(10 Marks)

QUESTION 4

Discuss, with relevant illustrations, the use of hormones in the sex reversal of the following fry breeders:

a) *Oreochromis aureus* **(15 Marks)**

b) *Oreochromis niloticus* **(15 Marks)**