



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND
TECHNOLOGY**

SCHOOL OF AGRICULTURAL AND FOOD SCIENCES

**FOURTH YEAR SECOND SEMESTER UNIVERSITY
EXAMINATION FOR**

**THE DEGREE OF BACHELOR OF SCIENCE IN FOOD
SECURITY**

2017/2018 ACADEMIC YEAR

REGULAR

COURSE CODE: AAS 3427

COURSE TITLE: AQUACULTURE AND APICULTURE

EXAM VENUE:

STREAM: BSc. (Food Security)

DATE:

EXAM SESSION:

TIME: 2 HOURS

Instructions:

- 1. Answer ALL questions in section A and ANY other 2 Questions in section B.**
- 2. Candidates are advised not to write on question paper.**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room.**

SECTION A [30 MARKS]

Answer ALL questions from this Section.

1. Differentiate between the following terms as applied in fish culture
 - a. Fry and juvenile (2 Marks)
 - b. Ovoviviparous and viviparous (2 Marks)
- 2 a. State any four characteristics of *Apis mellifera adonsonii* (4 Marks)
 - b. State four reasons why bees swarm (4 Marks)
3. Explain the characteristics of the following fish production systems
 - a. Extensive aquaculture (3 Marks)
 - b. Intensive aquaculture (3 Marks)
 - c. Semi intensive aquaculture (3 Marks)
4. State any five traits one would seek in choosing a parent fish (5 marks)
5. List any four species of tilapia reared in Kenyan ponds (4 marks)

SECTION B [40 MARKS]

Answer ANY TWO questions from this Section.

6. Discuss the following castes in a bee colony explaining the events in the lifecycle of each (20 Marks)
 - a. Queen bee,
 - b. Worker bee,
 - c. Drones
7. Discuss the following types of egg layers in fish (20 marks)
 - a. Egg scatterers
 - b. substrate spawners
 - c. Egg buriers
 - d. Mouth brooders
 - e. Nest builders
8. (a) Discuss the following pests of bees and how they can be controlled (8 marks)
 - i. Ants
 - ii. Bee louse
 - iii. Honey Barger
 - b). Explain the methods used in stocking bee hives (10 marks)
9. Discuss the procedure for constructing a fish pond (20 marks)