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**MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY
(MMUST)**

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2019/2020 ACADEMIC YEAR**

FOURTH YEAR SPECIAL/SUPPLEMENTARY EXAMINATION

**FOR THE DEGREE OF B.Sc. IN:
FISHERIES AND AQUACULTURE**

**COURSE CODE: AAF 315
COURSE TITLE: AQUACULTURE SYSTEMS**

DATE: 25/7/2022

TIME: 11-1PM

INSTRUCTIONS TO CANDIDATES

Answer ALL questions in section A and ANY TWO questions in section B

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 2 Printed Pages. Please Turn Over.

SECTION A: ANSWER ALL QUESTIONS (30 MARKS)

1. Explain the role of aeration in aquaculture systems (3marks).
2. Describe three ecological impacts of aquaculture on the environment (3 marks).
3. Describe mollusk (*Crossostrea virginica*) characteristics suitable for cultivation (3marks).
4. Describe methods used for exposing cultch (3 marks).
5. Explain the following terms in aquaculture systems;
 - i. Fouling (1 mark).
 - ii. Filtration (1 mark).
 - iii. Sedimentation (1 mark).
6. Outline the importance of the following physical-chemical parameters;
 - i. Temperature and suspended solids (1 mark).
 - ii. Hydrogen ion concentration and dissolve oxygen (1 mark).
 - iii. Free carbon dioxide and total alkalinity (1 mark).
7. Explain the following terms in aquaculture systems;
 - i. Pre treatment (1 mark).
 - ii. Re conditioning process (1 mark).
 - iii. Post treatment (1 mark).
8. Describe the following concepts in waste water treatment;
 - i. Filtration (1.5 marks).
 - ii. Recycling (1.5 marks).
9. Explain three factors that make *Oreochromis niloticus* (Nile Tilapia) a popular aquaculture species (3 marks).
10. Outline three roles attributed to the use of green houses for the culture of fish in aquaculture systems (3 marks).

SECTION B: ANSWER ANY TWO QUESTIONS (40 MARKS)

11. Describe fish culture in Recirculatory Aquaculture Systems (RAS) (20 marks).
12. Describe aquaculture in running water systems (20 marks).
13. Explain the role of aquaponics in modern aquaculture systems (20 marks).