



**NAMIBIA UNIVERSITY  
OF SCIENCE AND TECHNOLOGY**

**FACULTY OF NATURAL RESOURCES AND SPATIAL SCIENCES**

**DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES SCIENCES**

<b>QUALIFICATION: BACHELOR OF AGRICULTURE</b>	
<b>QUALIFICATION CODE: 07BAGR</b>	<b>LEVEL: 7</b>
<b>COURSE CODE: NRH621s</b>	<b>COURSE NAME: NON RUMINANT HUSBANDRY</b>
<b>SESSION: JANUARY 2019</b>	<b>PAPER: THEORY</b>
<b>DURATION: 3 HOURS</b>	<b>MARKS: 100</b>

<b>SECOND OPPORTUNITY EXAMINATION QUESTION PAPER</b>	
<b>EXAMINER(S)</b>	DR H. R. AMWELE
<b>MODERATOR:</b>	MR. FRANK KANGUATJIVI

<b>INSTRUCTIONS</b>
<ol style="list-style-type: none"><li>1. Answer ALL the questions.</li><li>2. Write clearly and neatly.</li><li>3. Number the answers clearly.</li></ol>

**PERMISSIBLE MATERIALS**

1. All written work MUST be done in blue or black ink
2. No books, notes and other additional aids are allowed

**THIS QUESTION PAPER CONSISTS OF 2 PAGES** (Including this front page)

**Question 1**

State whether the following statements are true or false:

- a) Caudal fin are used for braking. (2)
- b) The unpaired dorsal and anal fins are used for steering and turning especially at high speed. (2)
- c) The unpaired Pectoral fin is used for propulsion (acceleration). (2)
- d) In viviparous development, the female releases eggs and the developing embryo is nourished by a yolk sac. (2)
- e) Some fishes that have internal fertilization are ovoviviparous and the female retains fertilized eggs in her body. (2)
- f) Oviparous development occurs in some fishes with internal fertilization and the fertilized eggs are retained and develop within the female's ovary or uterus. (2)

[12]

**Question 2**

2.1 How to disinfect the fish ponds at the bottom? (6)

2.2 Give two examples of common symptoms of bacterial, fungal and parasitic infections of fish diseases? (6)

[12]

**Question 3**

Give and explain 5 stimulants that positively affect the spawning cues in fish. (10)

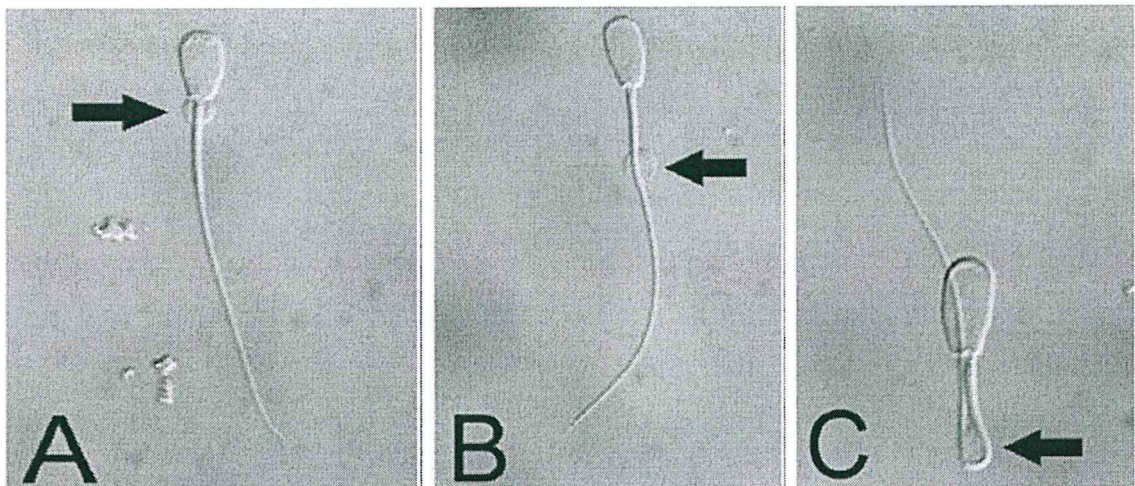
**Question 4**

Explain the following water quality parameters to be considered in aquaculture production?

- a) Carbon dioxide (5)
- b) Ammonia (5)

**Question 5**

What are the three conditions of sperms as indicated by A, B and C? (3)



**Question 6**

- a) At what age does the gilts reaches the puberty? (2)
- b) What is the recommended body weight for the gilt at puberty? (2)
- c) What is the length of a sow estrus cycle? (2)
- d) What is the duration of estrus (heat)? (2)
- e) At what time does ovulation begin? (2)

[10]

**Question 7**

- 7.1 What are the three signals indicating that the sow is about to give birth? (3)
- 7.2 What are the 2 management techniques which can assist the piglets to survival well?(10)

**Question 8**

What are the 4 most important aspects considered when determining pig meat quality? (8)

**Question 9**

Restructure all poultry diseases to correspond with their pathogen and organisms that causes them. (10)

Pathogen	Diseases	Organisms
Bacterial	Fowl Typhoid	Herpes
Bacterial	Marek's	Pasteurella multocida
Viral	Blackhead	Histomonas meleagridis
Protozoan	Fowl Typhoid	Salmonella gallinarum

**Question 10**

Define the following terms

- Body weight increase/ gain (2)
- Specific growth rate (2)
- Feed conversion ratio (2)
- Protein Efficiency Ratio (PER) (2)
- Condition Factor (CF) (2)
- Survival rate (2)

[12]

**Total:.....[100]**