



**THE UNIVERSITY OF ZAMBIA
SCHOOL OF AGRICULTURAL SCIENCES**

**AGA 4531 ASSIGNMENT 2
INTRODUCTION TO AQUACULTURE**

Date 16 May 2024

Due date: 30 May 2024

Each question carries 50 marks.

Question 1 (50 marks)

Fish feed costs have escalated in the recent past and fish farmers are looking for alternative farm made diets. The AGA 4531 class has been asked to formulate feeds for different stages of feed for tilapia and catfish. The class has been divided and given task as follows

Group 1: Tilapia starter (39 % CP) 3000 fingerlings

Group 2: Tilapia Grower (37% CP) 3000 fingerlings

Group 3: Tilapia starter (39 % CP) 5500 fingerlings

Group 4: Tilapia finisher (37% CP) 5500 fingerlings

Group 5: Tilapia starter (39% CP) 7000 fingerlings

Group 6: Tilapia finisher (37% CP) 7000 fingerlings

Group 7: Catfish starter (39 % CP) 4000 fingerlings

Group 8: Catfish grower (37% CP) 4000 fingerlings

Group 9: Catfish starter (39 % CP) 6000 fingerlings

Group 10: Catfish starter (37% CP) 6000 fingerlings

Group 11: Catfish starter (39% CP) 7000 fingerlings

- a. Formulate the diets using the feed calculator software, select locally available ingredients from those provided in the app
- b. Show the costing of your formulated feed? How does it compare to Novatek feed (5 marks)
- c. Describe the process of making extruded floating pellets that are made at the industrial level (20 marks).
- d. What are the advantages of floating pellets over sinking pellets? (5 marks)

Question 2 (50 marks)

A farmer based in Lusaka has observed that he needs to start breeding his own fingerlings to reduce the operational costs on the farm. Your group is required to explain to him technical aspects related to fish breeding.

1. Describe and illustrate the breeding cycle of Oreochromis species (5 marks).
2. Using a diagram, describe the basic equipment and operation of a fish hatchery (10 marks).
3. What are the advantages and disadvantages of breeding fish in ponds and in hapas (5 marks)?
4. Describe the breeding process of Oreochromis species in hapas, from broodstock selection to sex reversal of fingerlings (20 marks).

(Your groups are in the table below. Group leaders should report anyone who will not participate)

SNO	NAME	COMPUTER NUMBER	Group
1	SEKELANI DAKA	2020075736	1
2	VERNON CHEWE KANDA	2020015528	
3	CHARLES JERE	2020781875	
4	JOSEPH KUCHAYA	2020015536	
5	SENSITANO SIWALE	2020017393	
6	JIMMY ZOZI	2020004046	2
7	GRACE SIANGA	2020029065	
8	PRECIOUS KAWIMBE	2020207519	
9	NGULUBE SHELENGANS	2020024934	
10	THERESA NKONDE	2020034417	
11	CHRISTOPHER MUTINTA	2020011549	3
12	MWANAWAMBWA KWALEYELA	2020022885	
13	CHARLES MULEMASAKA	2020029171	
14	MALAMA ADDY	2020015731	
15	NG'ANDU BORN	2020007622	
16	MUZUNDU JANET	2020056852	4
17	PHILADEPHIA KAMBEU	2020000407	
18	ZULU YAMIKANI	2020050706	
19	MUKUKA JIMIMAH	2020056682	
20	ISSAC LUKONDE	2020050919	
21	MAZUBA MADYANGA	2021448398	6
22	EMLYNE ZULU	2020012138	
23	NACHIZYA DEBORA	2020005492	
24	KHATAI JUSTON SIMUKONDA	2021447791	
25	ADRIS LENGE	2020776162	
26	MWILA PURITY	2020964996	7
27	ALICE NTOSHYA	2020067676	
28	FERICHELCHIPOLYONGA	2020081321	
29	MUKANSHI DERRICK	2020023903	
30	ANNA MAKWAKWA	2020012006	
31	ALEX ZULU	2020020734	8
32	CHAMA SHEPHARD	2020959828	
33	ELIZABETH CHANDA	2020046369	
34	MWENYA MARY	2020024152	
35	LUKUNDO NANKUNDO	2020991888	
36	MUTAFELA MUYUNDA	2020018357	10
37	SHARON NYIMBILI	2019067641	
38	DAKA ERICK	2020012081	
39	GIVEN SOKO	2020018471	
40	NYONI NANCY	2020020815	
41	ASEDY MWALE	2020003759	11
42	MAMBWE EDOMIE	2020005875	

43	Gombwa Cholwe	2020019230
44	Thaddeus Mukuma	2019056569
45	Rabecca Liuwa	2020205473
46	Matthews Lukuweyi	2020057620