

Subject: Fish Nutrition

Stage: Third

Time: 2 hour

Salahaddin University - Erbil

College of Agriculture

Fish Resources and Aquatic Animals Dept.

Final Examination / Second Semester 2022-2023

**Q1. Complete the following sentences.**

1. Lipids include --------------, -------------- and ---------------.
2. Lipids are commonly classified into two major classes: ------------- and ------------ lipids.
3. Fat digestibility varies depending on the ----------, ----------, ---------, -------- and ----------.
4. Simple Proteins consist of only --------------- and example on simple proteins are ----------, -------------------- and -------------------.
5. Write three kind of Macro minerals -----------------, ------------------ and ----------------. and three kind of Micro minerals -----------------, ----------------- and ----------------.
6. Proteins vary greatly with each other depends on ----------------, ----------------, -------------, ----------------- and -------------------.

**Q2. Give short answers to the following:**

1. What are the factors that affecting protein digestibility?
2. What are the factors that affecting protein requirements?
3. Why are carbohydrates constantly included in fish feeds but not essential dietary components in aqua feeds?
4. What is the differences between Saturated and Unsaturated Fatty acid?
5. Write the major classes of fatty acids according to their degree of unsaturation?
6. What is the function of lipids in the nutrition of fish?
7. What are the general functions of minerals?
8. How do you find protein content in feed ingredients?
9. What happens with a deficiency of essential fatty acids in fish?
10. What are Conjugated Proteins? Write is the type of Conjugated Proteins?

**Q3\** 1. Draw a diagram of energy fraction in fish?

2. What are two types of vitamins, with examples?

***All the best***

***Lecturer: Assist. Prof. Dr Rebin Aswad Mirza***