



NATIONAL OPEN UNIVERSITY OF NIGERIA
FACULTY OF AGRICULTURAL SCIENCES
DEPARTMENT OF ANIMAL SCIENCE AND FISHERIES
2025_2 EXAMINATIONS

COURSE CODE: ANP 308

COURSE TITLE: Metabolism of Carbohydrates, Lipids, Proteins and Nucleic Acids

CREDIT UNIT: 2 CU

TOTAL SCORE: 70 MARKS

TIME ALLOWED: 2 Hours

INSTRUCTIONS: ATTEMPT QUESTION 1 (30 MARKS) AND ANSWER ANY OTHER TWO (20 MARKS EACH)

Q1.

- (a) Provide the three broad classifications of carbohydrates. *(3 marks)*
- (b) Identify the four major protein structures, according to their hierarchical organization. *(4 marks)*
- (c) Highlight the three different metabolic circumstances under which amino acids undergo degradation. *(6 marks)*
- (d) Discuss the various functions of lipids, emphasizing their roles in cellular and metabolic processes. *(7 marks)*
- (e) Outline the classification of lipids according to Bloor. *(3 marks)*
- (f) With the aid of a chart, illustrate the major pathways of carbohydrate metabolism, emphasizing the fate of glucose and indicating the specific sites of entry for each pathway. *(7 marks)*

Q2.

Provide a concise explanation of the following:

- (a) Maltose: its structure, sources, and role in metabolism. *(4 marks)*
- (b) Cellobiose: its structure, significance, and role in carbohydrate metabolism. *(4 marks)*
- (c) Starch: its composition, breakdown, and biological importance. *(7 marks)*
- (d) Mechanism of intestinal absorption of lipids, detailing the processes involved. *(5 marks)*

Q3.

Give an in-depth discussion on conjugated and derived proteins, including their structure, formation, and functions. *(20 marks)*

Q4.

- (a) Provide a detailed description of ammonia transport in the blood, including the biochemical pathways and physiological significance of this process. *(15 marks)*
- (b) Explain the action of pancreatic lipase in the digestion process, highlighting its role in lipid breakdown. *(5 marks)*