

UNIVERSITY OF RUHUNA– FACULTY OF AGRICULTURE
Second Examination in B.Sc in Agriculture Resource Management
&Technology (ARMT)/ B.Sc in Agri-Business Management (ABM)
(Part II) March 2019

Food and Nutrition (FS2201)
(Theory)

Answer **five (05)** questions including question no. 1 & 2

Time: 3 hours

1. a) Briefly explain the importance of having a variety of food in everyday diet. (25marks)
b) Briefly explain the Anterior Pituitary Hormones and their functions. (25 marks)
c) Briefly explain the role of nitrogen containing molecules in the body. (25 Marks)
d) Calculate the net ATP yield from complete oxidation of a C18 saturated fatty acid. (25 marks)

2. Critically analyze the following statements. **State whether you agree or disagree with the statement**, and justify your answer with facts. (25 marks each)
a) Catabolic fate of pyruvate is completely depending on the aeration condition of the cells.
b) Metabolic pathways of carbohydrate and lipid metabolism are closely interrelated.
c) Large intestine does not play an important role in digestion of food in human.
d) “Nitrogen Balance” indicates the physiological condition of a person.

3. a) Using a diagram, briefly explain the digestion and absorption mechanism of carbohydrates in human body. (25 marks)
b) Briefly explain the principal reason that organisms such as yeast produce alcohol. (25 marks)
c) Briefly explain the **HMP shunt pathway** and its significance in metabolism. (25 marks)
d) Illustrate the **Cori cycle**, and briefly explain its significance in carbohydrate metabolism. (25 marks)

4. a) i. List down three major physiological roles of fatty acids in human body. (15 marks)
ii. List two importance of ketone bodies in human metabolism. (10 marks)
b) Briefly explain the importance of citrate and pyruvate in fatty acid synthesis using suitable diagrams. (25 marks)
c) Fatty acid synthesis is mainly consists of two major steps namely activation step and the elongation cycle. Illustrate the activation step and the first elongation cycle of a fatty acid synthesis. Clearly mention the responsible enzymes in each step. (25 marks)
d) Briefly explain the importance of carnitine in β -oxidation process. (25 marks)

5. a) Show, by means of a diagram, the relationship between urea cycle and the citric acid cycle (25 marks)
- b) What is the significance of urea cycle apart from urea formation? (25 marks)
- c) What is meant by;
- (i) Glucogenic amino acids and
 - (ii) ketogenic amino acids?
- Illustrate your answer with examples. (25 marks)
- d) Briefly discuss the two major pathways of intracellular protein turnover. (25 marks)
6. a)i. List down the major components of digestive track and its accessory structures which are involve in digestive process (10 Marks)
- ii. Separately state the importance of accessory structure /s in the oral cavity for **chemical** and **mechanical** digestion (15 Marks)
- b) Briefly discuss the importance of Gallbladder for the chemical digestion of food (25 marks)
- c) Write a short account on “Adrenal Hormones” (25 marks)
- d) Briefly explain, with special reference to the pancreatic hormones, how the blood glucose level is maintained in the human body (25 marks)
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