



FACULTY: Basic and Applied Sciences
DEPARTMENT: Physical and Chemical Sciences
FIRST SEMESTER EXAMINATIONS
2019/2019 ACADEMIC SESSION

COURSE CODE: BCH 409

COURSE TITLE: INTERMEDIARY METABOLISM

DURATION: 2 Hrs

HOD's SIGNATURE

TOTAL MARKS:

Matriculation Number: _____

INSTRUCTIONS:

1. Write your matriculation number in the space provided above and also on the cover page of the exam booklet.
2. This question paper consists of 1 page.
3. Answer all questions in the exam booklet provided.
4. More marks are awarded for problem solving method used to solving problems than for the final numerical answer.
5. Marks will be deducted for untidy work.
6. At the end of this examination, place the question paper inside the exam booklet.
7. **Attempt any three (3) of the five (5) questions**

- (1a) Explain the importance of glycerol in gluconeogenesis. (6 marks)
- (1b) Describe the regulation of the *lac* operon during high glucose and low lactose levels. (7 marks)
- (1c) Using a given example of metabolic process, explain feedback inhibition. (7 marks)
- (2a) Explain the formation of urea from Carbamoyl phosphate. (14 marks)
- (2b) List 2 types of Glycogen storage diseases and the defects associated with each of them. (3marks)
- (2c) Give 2 types of protein and state their functions. (3marks)
- (3a) Identify a correlation between the production of dopamine, biosynthesis of catecholamines and onset of Parkinson's disease (8 marks)
- (3b) State the primary functions of the pentose phosphate pathway (2 marks)
- (3c) Give a short description of how metabolism of glucose through the pentose phosphate pathway influences the development of some pathologies (5 marks)
- (4a) Describe the metabolism of phenylalanine (9 marks)
- (4b) Briefly describe five (5) inborn errors of amino acid metabolism (6 marks)
- (5a) With the aid of a well labeled diagram, describe enzyme-substrate complex formation in the last step of the glycolytic pathway. (3 marks)
- (5b) With the aid of appropriate mechanism of action, extensively describe the role of inhibitors on the metabolic regulation of the action of any three (3) of the following enzymes;
- (i) Acetylcholinesterase (4 marks)
 - (ii) HMG CoA Reductase (4 marks)
 - (iii) Angiotensin-1 Converting Enzyme (4 marks)
 - (iv) α -Glucosidase (4 marks)