



CRAWFORD UNIVERSITY

FAITH CITY, IGBESA, OGUN STATE

2015/2016 HARMATTAN SEMESTER EXAMINATIONS

COLLEGE: NATURAL AND APPLIED SCIENCES

DEPARTMENT: BIOLOGICAL SCIENCES

PROGRAMME: MICROBIOLOGY

COURSE CODE: MCB 301

COURSE TITLE: MICROBIAL PHYSIOLOGY AND METABOLISM

COURSE UNIT: 3

TIME: 2HRS 30MINS

INSTRUCTION: ANSWER QUESTION 1 AND ANY OTHER THREE.

- 1a. Discuss the different mode of nutrition in any two of the following:
 - i. Algae
 - ii. Protozoa
 - iii. Fungi
- b. Give three examples of the activities of Symbiotic Bacteria
- 2a. Discuss the various ways by which the ATP formed by energy-producing reactions in bacterial cells is being expended
- b. Discuss the important differences between the different types of transport of nutrients in bacteria
- 3a. Discuss the regulation of biochemical pathways and the sequence of reactions in the glycolytic pathway
- b. Discuss the different functions of intermediary metabolism in relation to the starting materials and the state of different biological processes
- 4a. Discuss the major steps involved in the culturing of microorganisms
- b. Discuss the optimal conditions for microorganisms based on the following factors:
 - i. Temperature
 - ii. pH
 - iii. Oxygen Requirement
5. Differentiate between the following:
 - i. A pure culture, a mixed culture and a stock culture

ii. Tyndallization and Pasteurization

iii. An Enriched medium and Enrichment medium

b. List the four phases of the growth curve and state two distinguishing features of each of the phases

6a. Define the term 'Enzyme' and give four (4) characteristics of the same.

b. In a tabular form, write out the six classes of enzymes, their mode of action and give two examples each of the classes.

c. Discuss the factors affecting enzyme activity.

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