



**NATIONAL OPEN UNIVERSITY OF NIGERIA
14/16 AHMADU BELLO WAY, VICTORIA ISLAND, LAGOS
SCHOOL OF MANAGEMENT SCIENCES
OCTOBER 2013 EXAMINATION**

**COURSE CODE: HCM431
CREDIT UNIT: 2
COURSE TITLE: ADVANCED FOOD AND BEVERAGE
PRODUCTION
TIME ALLOWED: 2 HOURS**

**Instructions: 1. Attempt question Number one (1) and any other two (2).
2. Question number 1 is compulsory and carries 30 marks, while the other questions carry equal marks each
3. Present all your points in coherent and orderly manner**

1. (a) Discuss in detail, the morphological structure of a bacteria organism

(5 marks).

- (b) Write short notes on the following

- i) Staining techniques
- ii) Food additives
- iii) Types of Culture Media

(5 marks each).

- (c) Identify the food borne pathogens common in our environment and briefly

describe two (2) of the identified pathogens.

(10 marks).

2. (a) Various parameters that affect growth of microorganisms, what are these parameters and explain how they influence microbial growth and control?

(8 marks).

(b) Food can become contaminated in a multitude of ways and contaminants enter food accidentally or incidentally from the source or farm and end on the table when food is consumed. Identify and describe these sources

(12marks)

3. (a) i. outline the groupings of food for the purpose of microbiological testing

(2 marks)

ii. With the aid of an illustration, describe the phases of microbial growth

(10 marks).

(b) The method used for thawing food is also an integral part of safe food handling. Describe these methods

(8 marks).

4. (a) Discuss in detail, the causes of spoilage in foods
(15 marks).

(b) Describe the effect of spoilage on the following:

i. Protein

ii. Carbohydrates

iii. Fats and oil

iv Fruits and vegetable

(5 marks).

5. (a) Define the term 'food preservation'
(2 marks).

(b) List 12 and describe at least 5 methods of food preservation

(13 marks).

(c) Describe briefly, the application of fermentation in the food industry

(5 marks).