



**NATIONAL OPEN UNIVERSITY OF NIGERIA  
14/16 AHMADU BELLO WAY, VICTORIA ISLAND, LAGOS  
SCHOOL OF MANAGEMENT SCIENCES  
MARCH/APRIL 2014 EXAMINATION**

**COURSE CODE: HCM 431**

**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) What is food spoilage? Identify the causes of food spoilage (15 marks).

(b) Explain the effects of food spoilage on:

i). Protein

ii). Fruits and vegetables

iii). Fats and oils

(5 marks).

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

(b) Outline 12 and describe at least 5 methods of food preservation (13 marks).

(c) Discuss briefly, the uses of fermentation in the food industry (5 marks).

3. (a) State and explain the extrinsic and intrinsic parameters that affect bacterial growth. (8 marks).

(b) Identify the sources of food contamination (12 marks).

4. (a) Define food additives (2 marks).

(b) Classify the additives into:

i) Additives that promote freshness and prevent deterioration

ii) Additives that amplify or promote sensory qualities

(15 marks).

(c) How is the safety of food additives evaluated? (3 marks).

5. (a) Explain five characteristics of bacteria (10 marks).

(b) Explain the following terms:

i) Staining techniques

- ii) Food additives
- iii) Types of Media (10 marks)