



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:

BACHELOR OF SCIENCE IN FOOD TECHNOLOGY AND QUALITY

ASSURANCE (BSFQ14S &BSFQ15S2)

YEAR 2 SEMESTER 2

AFS 4205: FOOD CHEMISTRY I

END OF SEMESTER EXAMINATION

SERIES: APRIL 2016

TIME: 2 HOURS

DATE: Pick Date Select Month Pick Year

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of Choose No questions. Attempt Choose instruction.

Do not write on the question paper.

Question ONE

- a) Discuss the role of a Food Chemist in society (4 marks)**
- b) Discuss the physical properties of water that make it suitable for its purpose in foods (6 marks)**
- c) i. Distinguish between a reducing sugar and non-reducing sugar (2 marks)**
ii. Explain why sucrose is a non-reducing sugar with the aid of a structure (3 marks)
- d) Discuss denaturation of proteins (5 marks)**

- e) i. Explain the terminology an ester and give an example of the same (2 marks)
- ii. With aid of a structure, illustrate the formation of a diglyceride and outline its function in the food industry (3 marks)
- f) Explain the following terminologies as applied to vitamin enhancement of foods;
- i. Fortification (1 mark)
- ii. Restoration (1 mark)
- iii. Discuss the main factors contributing to vitamin losses (3 marks)

Question TWO

- a) Explain the following;
- i. Moisture (2 marks)
- ii. Water activity (2 marks)
- iii. Equilibrium Relative Humidity (2 marks)
- b) Discuss the role of water activity in food stability (9 marks)
- c) Explain the importance of moisture sorption isotherms (2 marks)
- d) Explain the term Hysteresis as applied to moisture sorption isotherms (3 marks)

Question THREE

- a) Discuss the functional groups of monosaccharides (4 marks)
- b) The hydrolysis reaction of sucrose has several practical applications. Discuss (8 marks)
- c) Discuss FOUR applications of carbohydrates in the food industry (8 marks)

Question FOUR

- a) Using the basic structure of a protein, explain why they are *ampholytes* (3 marks)
- b) i. Distinguish between the Primary and Secondary structures of proteins (3 marks)
- ii. Explain how a peptide bond is formed (4 marks)

iii. Discuss the applications of enzymes in food processing **(10 marks)**

Question FIVE

a) Discuss the following effects of food processing on vitamin retention;

i. Dehydration **(3 marks)**

ii. Blanching **(3 marks)**

iii. Pasteurization and Ultra-High-Temperature processing **(3 marks)**

iv. Canning **(3 marks)**

b) Discuss the following properties of fats;

i. Solubility **(4 marks)**

ii. Hydrolysis **(4 marks)**

