UNIVERSITY OF SWAZILAND
Faculty of Health Sciences

BSc ENVIRONMENTAL HEALTH FOOD AND SCIENCE

FINAL EXAMINATION PAPER 2015

TITLE OF PAPER	:	FOOD CHEMISTRY
COURSE CODE	:	EHM 322
DURATION	:	2 HOURS
DATE		DECEMBER 2015
MARKS	:	100
INSTRUCTIONS	:	READ THE QUESTIONS & INSTRUCTIONS CAREFULLY
	:	ANSWER **ANY FOUR (4) QUESTIONS**
	:	EACH QUESTION CARRIES 25 MARKS.
	:	WRITE NEATLY & CLEARLY
	:	BEGIN EACH QUESTION ON A SEPARATE SHEET OF PAPER.

DO NOT OPEN THIS QUESTION PAPER UNTIL PERMISSION IS GRANTED BY THE INVIGILATOR.

Question 1

(a) Define the following terms;

(i)	Carbonyl	**[1 mark]**
(ii)	Carboxyl	**[1 Mark]**
(iii)	Enolic	**[1 Mark]**
(iv)	Phenolic hydroxyl	**[1 Mark]**
(v)	Phenolases polyphenol oxidases	**[1 Mark]**

(b) Discuss the general causes of vitamin losses in during food processing and suggest how this trend can be reduced. **[20 marks]**

[25 Marks]

Question 2

(a) Discuss what is enzymatic browning. **[20 marks]**

(b) Briefly, explain why the rate of enzymatic reaction in dried food is limited. **[5 Marks]**

[25 Marks]

Question 3

Write short notes on any five (5) of the following;

(i)	Ascorbic acid degradation	**[5 Marks]**
(ii)	Geographical configuration of fatty acids	**[5 Marks]**
(iii)	Importance of the Maillard reaction in Food Technology	**[5 Marks]**
(iv)	Briefly outline the differences between *cis* 9-Octadecenoic and *trans* 9-Octadecenoic fatty acids and functionality of the different molecules	**[5 Marks]**
(v)	Emulsion	**[5 Marks]**
(vi)	Factors affecting the magnitude of the interaction of free energy (V) between particles in aqueous systems	**[5 Marks]**
(vii)	Peptide bonds.	**[5 Marks]**

[25 Marks]

Questions 4

(a) Discuss the differences among D-xylose, L-arabinose and D-ribose. **[12 Marks]**

(b) Explain how the food industry can benefit by exploiting water thermal conductivity and thermal diffusivity. **[5 Marks]**

(c) Discuss the factors that influence the stability of Thiamine (Vitamin B1) as one of the least stable of all vitamins. **[8 Marks]**

[25 Marks]

Questions 5

(a) Why are some carbohydrates able to reduce Fehling's solution? **[2 Marks]**

(b) What is Protein denaturation? **[2 Marks]**

(c) What are the effects of Protein denaturation? **[6 Marks]**

(d) Using practical food product examples, explain how the food industry has benefited from the process of caramellisation. **[15 Marks]**

[25 Marks]