



**1<sup>ST</sup> SEM. 2008/2009**

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**UNIVERSITY OF SWAZILAND**

**FINAL EXAMINATION PAPER**

**PROGRAMME : BACHELOR OF SCIENCE IN  
HOME ECONOMICS EDUCATION,  
HOME ECONOMICS AND  
FOOD SCIENCE, NUTRITION AND  
TECHNOLOGY YEAR II**

**COURSE CODE : FSNT 201**

**TITLE OF PAPER : FOOD SCIENCE**

**TIME ALLOWED : TWO (2) HOURS**

**INSTRUCTIONS : ANSWER QUESTION ONE (1)  
AND ANY OTHER (2) QUESTIONS**

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GRANTED BY THE CHIEF INVIGILATOR**

**QUESTION 1 [COMPULSORY]**

- a) Draw the structure of the following monosaccharide sugars and explain their occurrence in food.

- i.  $\alpha$ -D-Glucose
- ii.  $\beta$ -D-Galactose

**[10 marks]**

- b) Maltose and Cellobiose are disaccharides, draw their structure and explain why humans can not digest cellobiose.

**[10 marks]**

- c) Discuss the composition of starch and three applications of starch in the manufacture of food by giving an example in each application.

**[10 marks]**

- d) Explain the process of starch gelatinization.

**[10 marks]**

**[Total = 40 marks]**

**QUESTION 2**

- a) Discuss the function of proteins in the following applications and give an example of a food product in each application.

- i. Emulsification
- ii. Forming
- iii. Increasing viscosity

**[18 marks]**

- b) Mrs Dlamini made apricot jam only to find that the product was runny. Explain what could have gone wrong with the following ingredients

- i. Sugar
- ii. Pectin
- iii. Citric acid

**[12 marks]**

**[Total = 30 marks]**

**QUESTION 3**

- a) Discuss **six** uses of enzymes in the food industry.  
[12 marks]
- b) Discuss **five** changes that take place in the ripening of fruits and vegetables.  
[10 marks]
- c) Explain the process of hydrolytic and oxidative rancidity in foods containing fats and also explain what preventive measures can be taken.  
[8 marks]

[Total = 30 marks]

**QUESTION 4**

- a) Discuss **five** food hygiene practices.  
[10 marks]
- d) Name **two** naturally occurring organic acids in foods and explain their role.  
[4 marks]
- b) Discuss the **five** major ingredients in bread making and their function.  
[10 marks]
- c) Discuss the maillard browning reaction in food.  
[4 marks]

[Total = 30 marks]