



1ST SEM. 2006/2007

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UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

**PROGRAMME : BACHELOR OF SCIENCE IN HOME
ECONOMICS [FOOD SCIENCE AND
TECHNOLOGY OPTION] YEAR V**

COURSE CODE : FST 506

TITLE OF PAPER : FOOD RHEOLOGY

TIME ALLOWED : TWO (2) HOURS

**INSTRUCTIONS : ANSWER QUESTION ONE (1)
AND ANY OTHER (3) QUESTIONS**

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QUESTION 1 [COMPULSORY]

- a) Define rheology and explain the stages in the assessment of food texture in the mouth

[10 marks]

- b) What methods are used to assess the texture of food and discuss the textural characteristic of food commonly used in its assessment?

[15 marks]

[Total = 25 marks]

QUESTION 2

- a) Explain the following terms. Illustrate with a clear diagram.

- i. Elastic stress limit
- ii. Yield point
- iii. Break point
- iv. Reversible deformation
- v. Permanent deformation

[15 marks]

- b) Explain how you would sample and evaluate the tenderness of meat. What instrument would you use?

[5 marks]

- c) Explain what instruments are used to evaluate the quality of dough for baking and what information can be derived from the results.

[5 marks]

[Total = 25 marks]

QUESTION 3

- a) With the help of a shear stress vs. shear rate curve and shear stress vs. viscosity curve, explain the behavior of the following fluids when shear stress is applied.

- (i) Newtonian fluid
- (ii) Dilatant fluid
- (iii) Pseudo-plastic
- (iv) Plastic (Bingham and Casson)

[20 marks]

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b) With the help of a diagram explain the following terms

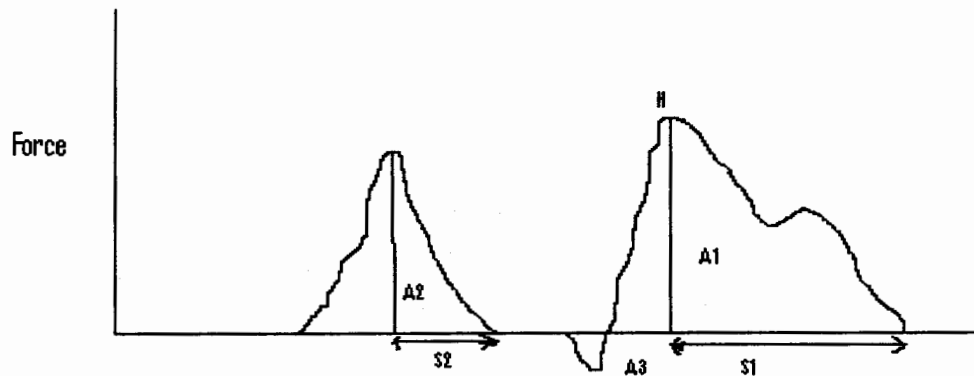
- (i) Thixotropic
- (ii) Rheopectic

[5 marks]

[Total = 25 marks]

QUESTION 4

- a) Explain how the following information can be derived from the following texture profile curve from the Universal testing machine. Hardness, fracturability, adhesiveness, springiness, cohesiveness, gumminess and chewiness.



[Total =25 marks]

QUESTION 5

- a) Discuss factors that influence the viscosity of food products and gel formation.

[Total = 25 marks]