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Universiti Tun Hussein Onn Malaysia

**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION**

**SEMESTER II**

**SESSION 2017/2018**

COURSE NAME : MEAT, POULTRY & AQUATIC  
PRODUCTS TECHNOLOGY

COURSE CODE : BWD 31403

PROGRAMME CODE : BWD

EXAMINATION DATE : JUNE/JULY 2017

DURATION : 3 HOURS

INSTRUCTION : ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PAGES

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- Q1** Rigor mortis of the meat usually will takes between up to 24 hours to hardened but it is depending on the size of the carcass and also amount of fat that contain in the animal body.
- (a) State the length of time required for rigor mortis in lamb, chicken and fish meat. (3 marks)
- (b) Explain each stage of rigor mortis phases as shown in **Figure Q1**. (9 marks)
- (c) Describe the effect of hanging method of meat during rigor mortis phases on meat tenderness. (8 marks)
- Q2** (a) In order to achieve favorable product characteristics in reducing fat and salt content, several hydrocolloids capable of improving water binding and texture are of interest to meat processors.
- (i) List **FOUR (4)** critical factors that should be considered when choosing hydrocolloids in red meat processing. (4 marks)
- (ii) Elaborate on how hydrocolloid may improve the mechanical and functional properties of restructured meat products? (6 marks)
- (b) Propose and discuss **TWO (2)** alternatives to sodium chloride in meat processing for lowering sodium content. (10 marks)
- Q3** Packaging of products plays an important role in order to protect the product from any deterioration that affects their appearance.
- (a) Active packaging is a system in which the product, package and package environment interact to provide a positive characteristic of the food. Identify **THREE (3)** special characteristics of active packaging. (3 marks)
- (b) Explain **TWO (2)** characteristics of active packaging answered in **Q3 (a)**. (10 marks)
- (c) By using intelligent packaging concepts, propose **ONE (1)** meat packaging idea suitable for future application. (7 marks)

**Q4** Most of chicken's flavor develops when it is cooked. The cooked chicken flavour, is affected by several pre- and post-slaughter factors, including breed, diet, postmortem ageing, and method of cooking.

(a) Explain the main chemical reactions involves in contributing to the cooked chicken flavour?  
(3 marks)

(b) List **THREE (3)** volatile compounds generated from reaction stated in **Q4(a)**?  
(3 marks)

(c) Describe the flavor of cooked chicken if it less contains of inosine-5'-monophosphate (IMP).  
(4 marks)

(d) Justify how plant additives and irradiation could affect the flavour and aroma of cooked chicken?  
(10 marks)

**Q5** Proper handling, pretreatment and preservation techniques can improve the quality of fish and fish products and increase their shelf life.

(a) Explain **THREE (3)** basic mechanisms in fish spoilage.  
(6 marks)

(b) Determine how addition of acids and gutting procedure can influence on the fish shelf life.  
(6 marks)

(c) Propose **TWO (2)** non-thermal technologies in processing of fishery product. Elaborate how the application of each process could improve the product shelf life.  
(8 marks)

**-END OF QUESTION-**

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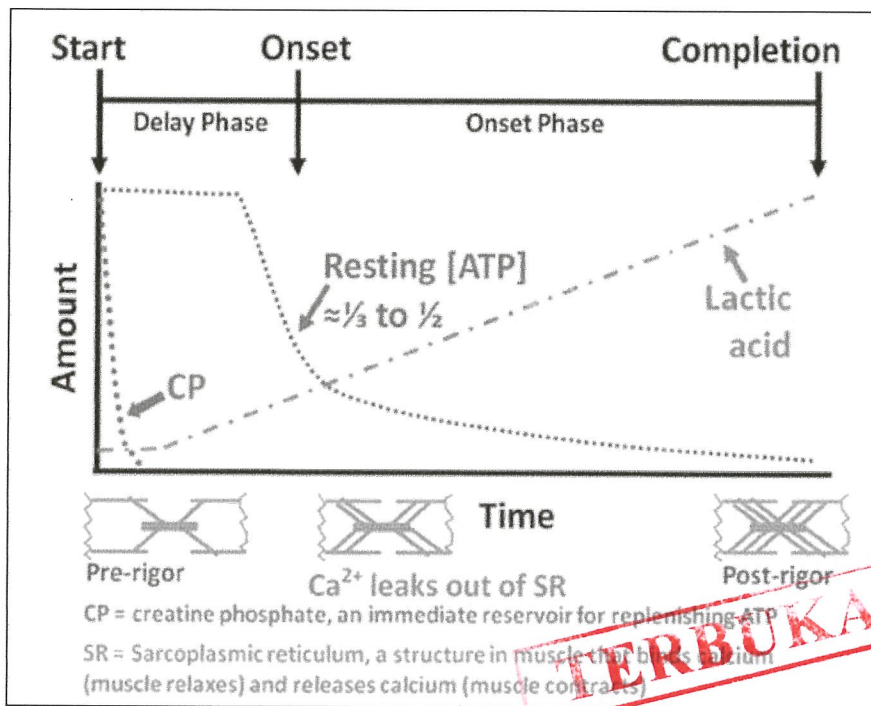


FIGURE Q1: The rigor mortis phases