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Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2019/2020**

COURSE NAME : POSTHARVEST TECHNOLOGY
COURSE CODE : BWD 21403
PROGRAMME CODE : BWD
EXAMINATION DATE : DECEMBER 2019/JANUARY 2020
DURATION : 3 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

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THIS QUESTION PAPER CONSISTS OF **THREE (3)** PAGES

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- Q1** Postharvest technologies aimed at extending the shelf life of fresh produce that may support consumer-perceived freshness and influence the likelihood of their purchase and enhance consumption opportunities.
- (a) Discuss how intrinsic quality cues, experiential quality attributes and credence quality attributes influence the consumer perceptions. (10 marks)
- (b) Setting and maintaining eating quality standards on fresh produce is important to control the fruit quality. Explain how the fruit total acidity (TA), total soluble solid (TSS) and firmness of flesh are used to evaluate the eating quality of apple. (10 marks)
- Q2** Ethylene is the key ripening hormone in fruits. There are two approaches to reduce the effects of ethylene on fruit quality which are remove ethylene from the atmosphere and inhibit ethylene synthesis/action.
- (a) Discuss **THREE (3)** factors which have influenced the adoption of modified atmospheres to control ethylene production. (6 marks)
- (b) Ethylene in the atmosphere can be oxidized to carbon dioxide and water using a range of chemical agents. Propose and justify **ONE (1)** chemical agent that is effective in reducing ethylene levels. (7 marks)
- (c) Elaborate a synthetic plant growth regulator appropriate to inhibit ethylene synthesis/action in fruit. (7 marks)
- Q3** Cereal grains contribute the bulk of food calories and proteins worldwide and are consumed in various forms.
- (a) Explain the effect of processing temperature on the composition of protein, starch and fat in grain. (6 marks)
- (b) Food grains are living organisms. Hence, the grain should be stored as a living seed. Identify **FOUR (4)** major variables that cause various changes and deteriorations in food grains during storage. (6 marks)
- (c) Parboiling is a hydrothermal treatment given to the grain for gelatinization of starch within the grain. Discuss the advantages and disadvantages of parboiling of paddy. (8 marks)

- Q4** The popularity of coffee products is related to their unique and pleasant flavour.
- (a) List **THREE (3)** different maturation stage of coffee. (3 marks)
- b) Discuss why maturation stage is important in coffee bean harvesting. (3 marks)
- (b) After harvesting, coffee processing should begin as quickly as possible to prevent fruit spoilage. Compare and contrast between wet-processed and dry-processed of coffee beans. (6 marks)
- (c) Green coffee beans are characterized by an unpleasant taste and development of the characteristics beverage flavor is achieved through thermal reaction during roasting and brewing. Justify how roasting and brewing influence the aroma formation of coffee bean. (8 marks)
- Q5** Spices not only help imparting taste, flavor, aroma and colour but also act as a preservative by preventing the spoilage of various food and beverage products.
- (a) Explain **FOUR (4)** major hindrance in the line of postharvest management of spices. (4 marks)
- (b) The harvesting requirement are differ for each spices. Discuss optimum harvesting stages for following spices:
- (i) Cinnamon (4 marks)
- (ii) Nutmeg (4 marks)
- (c) Recommends and discuss **TWO (2)** chemical treatments suitable to restore colour in cardamom. (8 marks)

-END OF QUESTIONS-

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