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**FINAL EXAMINATION
(ONLINE)
SEMESTER I
SESSION 2020/2021**

COURSE NAME : POSTHARVEST TECHNOLOGY
COURSE CODE : BWD 21402
PROGRAMME CODE : BWD
EXAMINATION DATE : JANUARY/FEBRUARY 2021
DURATION : 3 HOURS
INSTRUCTION : ANSWERS ALL QUESTIONS
OPEN BOOK EXAMINATION

THIS QUESTION PAPER CONSISTS OF FOUR (4) PAGES

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- Q1** (a) Nowadays, the demand for healthy convenience food has increased tremendously. Fresh-cut fruits are an attractive product to consumers looking for healthy and convenient meals, as they are neither heat-treated nor any chemical-treated product.
- (i) List the process involved for preparing the fresh-cut honeydew melon from receiving of the fruit until packaging. (5 marks)
- (ii) Harvesting operation is one of the factors affecting the quality of fresh cut fruit. Describe the appropriate harvesting operation of honeydew. (5 marks)
- (b) Demand for mango and rock melon has grown over time. To reduce postharvest losses, mango is always harvested at the physiologically mature green stage. In contrast, the rock melon will be harvested when it reached the maturity of 1/2 to 3/4 slip for the commercial market. Alternatively, the shelf life of the fruits can be extended by precooling after harvest.
- (i) Based on the given situation and **Figure Q1(a)**, identify an appropriate method for precooling of each fruit. Briefly describe **ONE (1)** advantage on the fruits by using the precooling methods. (4 marks)
- (ii) Based on your answer in **Q1(b)(i)**, compare the methods in terms of their operation. (11 marks)
- Q2** (a) Arabica is the most popular type of coffee bean in the world compared to Robusta. Arabica tends to have a smoother, sweeter taste, with flavour notes of chocolate and sugar.
- (i) The ripening stages of the coffee cherry should be taken into account in order to retain the taste. Describe the ripening stages of the coffee cherry. (5 marks)
- (ii) If the coffee trees are planted on a small land area, identify the suitable harvesting method for the coffee cherries. (5 marks)
- (iii) The harvested cherries is processed on the next to the plantation area, which has poor access to safe water and low number of skilled labour. Apply a suitable processing method of the coffee cherries in this situation. (5marks)
- (b) There are three standards of plucking tea leaves (*Camellia sinensis*) influence the quality of the end product and cost of manufacture. Compare each standard and show with an illustration of the leaves. (10 marks)

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- Q3** (a) Harvested paddy must undergo drying process before storage. If the freshly harvested paddy are stored without drying, they may get spoilt or attacked by organisms, thus losing their germination capacity. Identify **TWO (2)** drying methods that commonly used in small enterprise industry. (5 marks)
- (b) Herbs and spices serve many purposes in the culinary industry. Apart from adding colour, aroma and taste in the food, cardamom also prevent spoilage of food and beverage products. Choose **FIVE (5)** chemical treatments suitable to restore colour in cardamom. (10 marks)
- (c) Packaging provides ease of handling and maintains the characteristic quality of the product during postharvest distribution. Differentiate between unit packaging and bulk packaging of herbs and spices. (10 marks)
- Q4** (a) Nuts are nutrient-dense foods with complex matrices rich in unsaturated fatty and other bioactive compounds. The excellence and thoroughness of post-harvest handling affect the quality of the nuts.
- (i) The observation of the optimum peanut maturation stage is essential for good management of nut growth. Describe the importance of maturity state observation during the harvesting stage. (5 marks)
- (ii) “The nuts have been kept away from the direct sun in an open environment at 7 to 10° C for ventilation during drying to limit microbial contamination. Ethylene dibromide has been applied in order to obtain a desirable post-harvest effect. The nuts are also packed in plastic bags in order to preserve the quality and protect from physical and mechanical injuries during handling”. Based on this situation, identify the parameters involved in the postharvest process. (6 marks)
- (b) Cashew nuts provide an excellent source of protein and Vietnam is currently the largest exporter of cashew nuts in the world. Illustrate a simple diagram of the main processes involved during postharvest processing of cashew nuts (14 marks)

-END OF QUESTIONS-

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(a)



(b)

Figure Q1(a). Plantation of rock melon (a) and mango (b).

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