FACULTY	AGRICULTURE, ENGINEERING AND NATURAL SCIENCES		
SCHOOL	AGRICULTURE AND FISHERIES SCIENCES		
DEPARTMENT	FOOD SCIENCE AND SYSTEMS		
SUBJECT	POST-HARVEST TECHNOLOGY		
SUBJECT CODE	F3601SP		
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DURATION	3 HOURS	**MARKS**	100

First Opportunity Examination

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External Moderator: **Prof. V. A. Jideani**

This question paper consists of **three (3)** pages excluding this front page.

Instructions

- **Answer all six (6) questions**

QUESTION 1

Choose the most appropriate answer from the list given **[10]**

I. The purpose of edible coating in minimally processed fruits and vegetables is
   a) Lower respiration
   b) Retard ethylene production
   c) Sealing volatile flavour
   d) All of the above

II. Tomatoes are harvested based on
   a) Colour
   b) % Sugar
   c) % Acid
   d) All of the above

III. The postharvest loss(es) is/are due to
   a) Physiological deterioration
   b) Mechanical damage
   c) Diseases, insect and pest
   d) All of the above

IV. Postharvest losses occur in the stage(s) of
   a) Harvesting
   b) Packaging
   c) Transportation / storage
   d) All of the above

V. In drying of fruits, which chemical is used to minimize browning
   a) Carbon dioxide
   b) Sulphur dioxide
   c) Benzene
   d) Chlorophyll

VI. Which of the following is the ideal storage temperature range for grains and legumes?
   a) 0°C to 5°C
   b) 10°C to 15°C
   c) 20°C to 25°C
   d) 30°C to 35°C

VII. What moisture content is generally considered safe for the long-term storage of most grains and legumes?
   a) 10-12%
   b) 13-14%
   c) 15-20%
   d) 25-30%

VIII. Which of the following methods is effective for controlling pests in stored grains?
   a) Storing grains in direct sunlight
   b) Applying excessive water
   c) Using airtight packaging and fumigants
   d) Increasing storage temperature

IX. Which of the following is an important factor for preserving the nutritional quality of stored legumes?
   a) Low temperature and humidity
   b) High temperature and humidity
   c) Constant exposure to light
   d) Excessive ventilation

X. Which packaging material is best for maintaining the quality of grains during long-term storage?
   a) Paper bags
   b) Plastic bags
   c) Airtight, moisture-resistant packaging like polyethylene bags
   d) Cardboard boxes

QUESTION 2

a) Explain how proper aeration during storage can help maintain the quality of grains and legumes. **[5]**

b) Discuss how the use of pesticides and fumigants in storage affect the quality of grains and legumes? **[5]**

QUESTION 3

a) Explain the physico-chemical changes that most of the consumers associate with ripening of fruits. Include changes that are initiated by ethylene and those that are not. **[12]**

b) Discuss chilling injury in fruits and vegetables. List three (3) examples and for each indicate at which temperature chilling injury can occur. **[8]**

QUESTION 4

a) Describe the function of CAS in preserving harvested products. **[5]**

b) Explain the importance of drying in postharvest processing of cereal grains and legumes. **[9]**

c) Explain internal and external factors (2 of each) that influence the rate of respiration of fruits and vegetables. **[6]**

QUESTION 5

a) Outline the role of refrigerated warehouses in maintaining the quality of stored fruits and vegetables. **[6]**

b) Discuss three (3) suitable packaging methods for transporting perishable goods over long distances. **[9]**

c) How do product characteristics influence the selection of packaging materials? **[5]**

QUESTION 6

a) Once there is heavy build-up of pest infestation, fumigation can be done using lethal gases from tablets or pellets. Explain how phostoxin (Aluminium Phosphide) is used in grains fumigation. **[8]**

b) Discuss how degreening and waxing are done to maintain quality as well as to improve the appearance of fruits and vegetables. **[12]**

END OF THE EXAMINATION