Ref. No. EX/PG/FTBE/T/128A/17/2017

M.TECH (FTBE) SECOND SEMESTER EXAMINATION 2017

ADVANCED FRUIT AND VEGETABLE TECHNOLOGY

TIME: 3 H FULL MARKS = 100

PART- I (50 MARKS)

USE SEPARATE ANSWER SCRIPT FOR EACH PART

Answer Q1 and any Two from the rest

Q1. a. What packaging strategies for fruits and vegetables would you adopt for the following? **4 × 2 = 8**

1. Natural color maintenance
2. Delayed senescence
3. Microbial control
4. Reduced moisture loss

b. What are the key elements of waste management and waste minimization? **4**

c. What are the chief phytochemical properties of fruits of *Opuntia ficus indica*? Outline a process for the development of a 'concentrated beverage' preserving the chief health beneficial phytochemicals. **3 + 5**

Q2. a. How are wastes from a vegetable processing industry classified? Illustrate the same for a mango pulp canning plant. **2 + 5**

b. Enumerate on holistic utilization of 'azolla' as livestock feed considering safety, security and sustainability of this fern and the environment. How are aquatic plants classified in view of future vegetable crops? **3 + 2**

c. Which browning inhibitors are used in minimal processing of fruits? **3**

Q3. a. What are the bottlenecks of utilization of 'colocasia' as a future vegetable crop? Why is cactus pear suggested as a promising vegetable crop by FAO in recent times? **2 + 2**

b. What parameters are monitored in effluents from fruits and vegetable processing industries? **3**

c. Provide processing guidelines for minimally processed 'pre-peeled sliced' potatoes. How are post-harvest fresh potatoes packaged in bulk? **5 + 3**

Q4. Write short notes on utilization of fruit and vegetable wastes for the following (any three): **3 × 5 = 15**

a. Scale-up parameters for recovery of pigments by ultrasonication
b. Production of SCP
c. Compositing
d. Production of animal feed

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MASTER OF TECHNOLOGY IN FOOD TECHNOLOGY & BIOCHEMICAL ENGINEERING EXAMINATION,2015

(1st Semester)

ADVANCED FRUIT & VEGETABLE TECHNOLOGY

Time: Three hours Full Marks: 100

(Use separate Answer Script for each part)

Part-II(50 Marks)

Answer any Four questions. All questions carry equal marks

1. Discuss the principle of sterilization , and application of High Pressure equipment in fruit and vegetable juice making process. ($16^2/_3$)

2.Discuss the Spray Drying process in order to manufacture dry powdered fruit product. ($16^2/_3$)

3. Discuss the shelf life stability for cauliflower during storage with reference to time-temperature effect. ($16^2/_3$)

4.Discuss the chemical and nonconventional processes to control the enzymatic browning in cut fruits and salads. (16 2/3)

5. Discuss the experimental method to inhibit browning with reference to formation of 5-hydroxymethyl-2 furfural aldehyde.

6. Write short notes on : (Any Two)

a.) Kinetics of enzymatic browning

b.) Phenolic compounds of leafy vegetables.

c.) Mailard reaction during storage of food products.

d.) Acid extraction and ultra-filtration processes. ($16^{2}/_{3}$)