

B.E. FOOD TECHNOLOGY AND BIO-CHEMICAL ENGINEERING THIRD YEAR SECOND SEMESTER - 2018

FOOD PROCESS TECHNOLOGY III

Time: Three Hours

Full Marks: 100

Use Separate Answer scripts for each part

Different parts of the same question should be answered together

Part-I

Full Marks-50

1. Answer any one from (a) and (b)
 - a)) Describe respiration, transpiration, respiration quotient of fruits. 6+4
Give one example in each case of fruit of very high, high, low and very low ethylene production rate .
 - b) Describe non-climacteric and climacteric fruit.
What is meant by CA and MA storage of fruits and vegetables? 5+5
2. Differentiate between:
Jam and Jelly, Jelly and marmalade, Sucrose and invert sugar,
Discuss the functions of pectin, acid and sugar for gel formation.
Classify different tomato products with specification . 6+8+6
3. Answer any two from (a), (b) and (c)
 - a) Explain sources of chemical hazards
 - b). Discuss the process of manufacture of black tea.
 - c) Clarify the purposes of deaeration during extraction of fruit juice. 5+5
4. Answer any one from (a) and (b)
 - a) Explain the factors affecting the rate of moisture removal for osmotic dehydration process
 - b) Discuss the process of fruit juice clarification. 10

[Turn over

B.E (FTBE) 3RD YEAR, 2ND SEMESTER EXAM 2018

FOOD PROCESS TECHNOLOGY - III

TIME: 3 H

FULL MARKS = 100

PART- II (50 MARKS)

USE SEPARATE ANSWER SCRIPT FOR EACH PART

Q1. Answer either (a) or (b) in this block.**(a) Describe the following (any 1):****1 × 5 = 5**

- I. Alcohol co-distillation of banana volatiles
- II. Microencapsulation of flavor volatiles

(b) Define the following:**5 × 1 = 5**

- I. Flavor harmony
- II. 10-fold vanilla
- III. Active principles of spices
- IV. Hedonic scale
- V. Fantasy flavorings

Q2. Differentiate between (any 2):**2 × 5 = 10**

- a. 'Natural' cinnamon leaf oil vs. 'Made to order' cinnamon leaf oil
- b. 'Caramel' vs. 'Fudge' manufacture
- c. 'Solvent extract' vs. 'Supercritical CO₂ extract' of capsaicin from red chili

Q3. Answer any two from (a), (b) and (c) in this block.

5 + 5 = 10

- (a) Enumerate the sequential analysis of flavor profile of '*clove bud essential oil*' by sensory evaluation. How would you detect adulteration of clove bud oil with clove stem oil?
- (b) Explain reaction flavors and their significance in confectionary manufacture.
- (c) Explain the process of manufacture of *10-fold vanilla* from vanilla pods.

Q4. Answer any one from (a) and (b) in this block.

5

- (a) Illustrate a detailed process of manufacture of *milk chocolate* having the following characteristics:
Brittleness, Gloss and Mouth-melting
- (b) Illustrate manufacture of *coca powder* identifying the CCPs in the process.

Q5. Answer any two from (a), (b) and (c) in this block.

10 + 10 = 20

- (a) Design an extended triangle test for assessment of *orange flavored candy* manufactured in your company (consider competitor sample having synthetic essence). Out of 20 tests, how many correct results are expected in a paired comparison test at 1% level of error?
- (b) Critically analyze the differences in quality characteristics of *almond nut confectioneries* manufactured by 'panning' and by the 'classical procedure of manufacture of English nut brittles'.
- (c) Critically analyze the processes for production of *rose absolute* for use as natural flavoring for beverages.