

EX/ FTBE / T / 421 / 2018

BACHELOR OF ENGINEERING IN FOOD TECHNOLOGY &

BIOCHEMICAL ENGINEERING EXAMINATION, 2018

( Final Year – Second Semester )

## QUALITY CONTROL & FOOD SAFETY

Time: Three hours

Full Marks: 100

Use separate Answer Script for each Part

PART-I ( 50 Marks )

Different parts of the same question should be answered together.

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Answer any One from ( a ) and ( b ), and also any One from ( c ) and ( d ) in this block.

1. ( a ) Describe the issues related to food safety and quality requirements in milk processing industry.

( b ) Describe mycotoxin contamination in food from environmental effect. ( 5 )

( c ) Describe the effects of food additives and contaminants.

( d ) Describe the objectives of PFA act and FSSAI 2006. ( 10 )

2. Answer any Two from ( a ), ( b ), and ( c ), and also any One from ( d ) and ( e ) in this block :

( a ) Differentiate between the methods for detection of adulterants in milk and water.

( b ) Differentiate between the screening process for detection of adulterants in ginger and cloves.

( c ) Differentiate between the effect of enzymes and preservatives in food processing.

( 5\*2 =10 )

[ Turn over

( d ) Differentiate the limits of application of colour and flavor in food processing.

( e ) Differentiate between the terms misbranding and adulteration . (5\*1=5)

Answer any Two from ( a ), (b), and ( c ) in this block ( 10 \*2 = 20 )

( a ) Explain the methods for sensory evaluation of foods.

( b ) Explain the methods of application of emulsifiers and milk to be required to increase the sensory appeal of ice cream.

( c ) Explain the toxic effects of pesticide residues in foods.

B.E (FTBE) 4<sup>TH</sup> YEAR, 2<sup>ND</sup> SEMESTER EXAM 2018

QUALITY CONTROL AND FOOD SAFETY

TIME: 3 H

FULL MARKS = 100

## PART- II (50 MARKS)

USE SEPARATE ANSWER SCRIPT FOR EACH PART

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Q1. Answer either (a) or (b) in this block.

(a) Describe the following (any 1):

1 × 5 = 5

- I. Technical enzyme preparation
- II. Food allergic reaction mechanism

(b) Define the following:

5 × 1 = 5

- I. Fractal
- II. Long pile sampling method
- III. Sweetness probe
- IV. Decision unit in sampling
- V. Fuzzy triplet

Q2. Differentiate between (any 2):

2 × 5 = 10

- a. Enzymatic clarification of 'beer' and 'fruit juices'
- b. Role of proteases in 'bakery' and in 'brewery'
- c. Browning inhibition in 'apple rings' and 'potato slices' by minimal processing

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

5 + 5 = 10

- (a) Explain the use of fractal analysis in two areas of food processing.
- (b) Explain the roles of  $\alpha$  and  $\beta$  amylases in bread manufacture.

[ Turn over

- (c) Explain the processing techniques for preservation of GLS antioxidant compounds in vegetables.

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

5

- (a) Illustrate use of fuzzy logic in unambiguous ranking of 5 formulations of mango beverages based on their sensory attributes of appearance, color, flavor and mouthfeel.
- (b) Illustrate production and preservation of 'slaw' for sauerkraut manufacture using minimal processing techniques.

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

- (a) The content of pelargonidin (red anthocyanin in native form) has to be analyzed by HPLC in a spray dried sample of red geranium flower extract. One kg of the sample has arrived in the laboratory in a multi-composite (Met BOPP/Al/Ionomer) pack.
- i. Outline the complete measurement process and indicate uncertainties involved in each analysis step. 4
  - ii. Identify the DU and the analytical sample. 4
  - iii. What tests would you perform to certify the sample as FDC? 2
- (b) Analyze the roles of the following enzymes in food processing [choosing appropriate food product(s) for each enzyme] (any 2):  $2 \times 5 = 10$
- i. Glucose oxidase
  - ii. Lipooxygenase
  - iii. Catalase
  - iv. Phytase
- (c) Critically analyze the thermal and non-thermal processing methods in combating allergen protein superfamilies' in peanuts. 10