

B.FTBE ( 4<sup>th</sup> Year- 2<sup>nd</sup> Semester) EXAMINATION, 2019

( 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.

1. ( a ) Describe the issues related to WHO Five keys to safer food as basis of educational program to train food handlers.

OR

- ( b ) How is food quality evaluated? ( 5 )

2. ( a ) Differentiate between the terms--- use by date and expiry date.

OR

- ( b ) Differentiate between GMP and GAP . ( 10 )

3. Answer any Two from ( a ), ( b ), and ( c ) in this block ( 5 x 2 =10 )

( a ) Explain the importance of food labeling depending under the national food control system.

( b ) Explain how many times cooking oil can be reused for frying and what is the health hazard of reuse of cooked oil.

( c ) Explain the process to be done in the kitchen to reduce dietary intake of pesticides.

4. ( a ) Illustrate the precautions to be taken while using microwave oven .

OR

( b ) Illustrate the precautions to be taken to ensure food safety while using refrigerator. ( 5 )

5. Answer any Two from ( a ), ( b ), and ( c ) in this block ( 10 x 2 = 20 )

( a ) Analyze with a diagram the evaluation of health risks related to food for presence of natural toxins found in plants or animal origin.

( b ) Analyze with a process diagram how does HACCP work in food production.

( c ) Analyze the control limits of health hazards while using common methods of food preservation.

[ Turn over

**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**

1. Quantitative determination of MPL of a synthetic flavoring in a RTS beverage, considering TMRL
2. Action of anthocyanins as depolarizers in canned fruits

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

1. Fractal
2. Laking
3. Limit of addition of  $\beta$ -apo-8-carotenal to food products
4. Technical enzyme preparation
5. Food intolerance

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

- a. 'PEF-treated juice' and 'Pectinase-treated juice'
- b. 'Phlobalen' and 'Phlobaphene'
- c. 'Long pile' method and 'Spoon' method

**Q3. Answer any two from (a), (b) and (c) in this block.****5 + 5 = 10**

- (a) Explain how fractal analysis aids in manufacture of cheese and instant coffee.

- (b) Explain the roles of fungal amylases in bread manufacture.
- (c) Enumerate structure-function relationship of protein allergens in foods with examples.

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

5

- (a) Diagrammatically explain the allergic reaction associated with Type I food allergy.
- (b) Schematically explain operation of a continuous PEF processing unit.

**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 label 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 × 5 = 10**
  - i. Hemicellulase
  - ii. Papain
  - iii. Lactase
  - iv. Phytase
- (c) Critically analyze the thermal and non-thermal processing methods in combating allergen protein superfamilies' in almonds. **10**