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The Open University of Sri Lanka  
Faculty of Natural Sciences

## Diploma in Food Science

Department	: Chemistry
Level	: 3
Name of the Examination	: Final Examination
Course Title and Code	: Quality Assurance in Food Industry (CYD3215)
Academic Year	: 2024-2025
Date	: 13 <sup>th</sup> July 2025
Time	: 9.30 a.m. – 11.30 a.m.
Duration	: 2 hours

### General Instructions

1. Read all the instructions carefully before answering the questions.
2. This question paper consists of 50 multiple-choice questions (MCQs) in (7) pages.
3. **Mark** over a cross (X) over the **most suitable answer** in the MCQ boxes.
4. **Use a blue or black pen**, not a pencil.
5. Clearly state your **index number in your paper**.
6. Involvement in any activity that is considered an exam offence **will lead to punishment**.

1. What is the primary purpose of food additives in the food industry?
  - i. Increase caloric content
  - ii. Enhance nutrient content
  - iii. Improve preservation, functionality, and sensory properties
  - iv. Increase shelf life
2. Which of the following is NOT classified as a food additive in Sri Lanka?
 

i. Sodium benzoate	iii. Lecithin
ii. Vitamin A	iv. Monosodium Glutamate
3. Consider the following functions.
  - (a) Extending shelf life.
  - (b) Prevent reactions that deteriorate food.
  - (c) Improve sensory properties by adding antioxidants, salts, etc.
 The **correct** statement/s is/are,
 

i. (b) only	iii. (a) and (b) only
ii. (a) and (c) only	iv. (b) and (c) only

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i	ii	iii	iv
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i	ii	iii	iv
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4. What is the primary function of monosodium glutamate (MSG)?
- To intensify the existing flavour of food
  - To add a new flavour to food
  - To act as a preservative
  - To improve texture

5. At which stage are additives added to food?
- Processing
  - Packaging
  - Storage
  - Transporting

The **correct** answer/s is/are,

- (b) only
  - (a) and (b) only
  - (a) and (c) only
  - (a), (b) and (c)
6. What does the INS number 200-299 represent?
- Food colors
  - Preservatives
  - Antioxidants
  - Sweeteners
7. Which INS series is assigned to antioxidants?
- 100 – 199
  - 200-299
  - 300-399
  - 400-499
8. The Acceptable Daily Intake (ADI) used to define the safe consumption levels of,
- Additives
  - Vitamin B<sub>12</sub>
  - Antioxidants
  - Food colourings
9. What is the adverse effect of excessive nitrites in processed meat?
- Improved flavor
  - Formation of nitrosamines
  - Increased shelf life
  - Enhanced color
10. Which preservative is commonly used in bread to prevent mold growth?
- Calcium propionate
  - Sulphur dioxide
  - Sodium nitrite
  - BHA
11. Why is sodium benzoate preferred over benzoic acid as a preservative?
- It is cheaper.
  - It has a stronger flavor
  - It adds color to food
  - It is more soluble in water

4.	i	ii	iii	iv
7.	i	ii	iii	iv
10.	i	ii	iii	iv

5.	i	ii	iii	iv
8.	i	ii	iii	iv
11.	i	ii	iii	iv

6.	i	ii	iii	iv
9.	i	ii	iii	iv

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12. Lecithin is an emulsifier with a

- (a) polar hydrophilic head  
(b) polar hydrophobic head

- (c) non-polar hydrophilic head  
(d) non-polar hydrophobic head

The **correct** answer/s is/are,

- i. (a) only  
ii. (b) only

- iii. (a) and (d) only  
iv. (b) and (c) only

13. Naturally occurring emulsifier is,

- i. Lecithin in milk  
ii. Lecithin in egg white

- iii. Phospholipids in egg yolk  
iv. Phospholipids in milk

14. What is the primary role of stabilizers in food?

- v. To act as a hardener  
vi. To improve texture

- vii. To act as preservatives  
viii. To enhance color

15. Properties of humectants are,

- (a) Absorb water  
(b) Give a sweet taste  
(c) Stick food particles together

The **correct** statement/s is/are,

- i. (a) only  
ii. (b) only

- iii. (a) and (b) only  
iv. All (a), (b) and (c)

16. The function of antioxidants in food is to,

- i. Prevent microbial growth  
ii. Add flavour

- iii. Enhance sweetness  
iv. Delay oxidative spoilage

17. An additive that can be used to prevent browning of cut fruits is,

- i. Citric acid  
ii. Tartrazine

- iii. Sodium benzoate  
iv. Linamarin

18. What is the primary hazard of consuming raw kidney beans?

- i. Cyanide poisoning  
ii. Lectin toxicity

- iii. Aflatoxin contamination  
iv. Heavy metal poisoning

19. What is the primary target organ of aflatoxin toxicity?

- i. Kidneys  
ii. Liver

- iii. Intestines  
iv. Lungs

20. The adverse effect of excessive sulfur dioxide in food is the destruction of,

- i. vitamin B1  
ii. iron

- iii. amino acids  
iv. carbohydrates

12.	i	ii	iii	iv
15.	i	ii	iii	iv
18.	i	ii	iii	iv

13.	i	ii	iii	iv
16.	i	ii	iii	iv
19.	i	ii	iii	iv

14.	i	ii	iii	iv
17.	i	ii	iii	iv
20.	i	ii	iii	iv

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21. Which food colour is derived from turmeric?
- Carmoisine
  - Tartrazine
  - Erythrosine
  - Curcumin
22. What is the adverse effect of excessive nitrites in processed meat?
- Too much flavour
  - Too much red colour
  - Formation of carcinogenic compounds
  - Bad taste
23. What is the primary source of mercury contamination in fish?
- Food packaging
  - Agricultural pesticides
  - Natural soil minerals
  - Industrial effluents
24. Which metal contaminant is associated with Minamata disease?
- Lead
  - Mercury
  - Arsenic
  - Cadmium
25. What is the toxic effect of cadmium exposure?
- Increasing bone density
  - Lowering immunity
  - Kidney damage
  - Reduced blood pressure
26. Which pesticide is banned globally due to its persistence in the environment?
- DDT
  - Glyphosate
  - Malathion
  - Carbaryl
27. What is the main concern with veterinary drug residues in food?
- Poor meat texture
  - Reduced flavour
  - Short shelf life
  - Antibiotic resistance in humans
28. The toxic effect of cassava is due to,
- Cyanogenic glycosides
  - Avidin
  - Biotin
  - Amylopectin
29. Which plant toxin inhibits iodine uptake by the thyroid gland?
- Goitrogens
  - Lectins
  - Saponins
  - Oxalates

21.	i	ii	iii	iv
24.	i	ii	iii	iv
27.	i	ii	iii	iv

22.	i	ii	iii	iv
25.	i	ii	iii	iv
28.	i	ii	iii	iv

23.	i	ii	iii	iv
26.	i	ii	iii	iv
29.	i	ii	iii	iv

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30. What is the primary source of aflatoxin contamination?
- Soil bacteria
  - Aspergillus molds
  - Fermented rice
  - Spoilt milk
31. What is the primary source of dioxin contamination in food?
- Fertilizers
  - Pesticides
  - Industrial incineration
  - Antibiotics
32. Which toxin is produced by Clostridium botulinum?
- Aflatoxin
  - Botulinum toxin
  - Patulin
  - Ochratoxin
33. What is the primary effect of histamine in fish?
- Reduced flavour
  - Reduced shelf life
  - Bad taste
  - Allergic reactions
34. Examples of toxic contaminants produced by dairy food processing include,
- Organochlorines
  - Organohalides
  - Polychlorinated biphenyls
  - Polychlorinated alcohols
35. Environmental contamination of food is directly affected through
- fish such as tuna, shark that can accumulate high levels of Sn and Mg
  - plants with accumulated Cd and Pb
  - food obtained from plants that have absorbed pesticide residues containing Pb and As.
- The **correct** statement/s is/are,
- (c) only
  - (a) and (b) only
  - (b) and (c) only
  - (a) and (c) only
36. Which compound group is restricted in infant foods due to potential health risks?
- Flavourings
  - Stabilizers
  - Sweeteners
  - Antioxidants
37. How does fluoride become toxic in humans?
- It causes vitamin C depletion
  - It interferes with calcium metabolism
  - It increases protein utilization
  - It causes skin lightning
38. What is the primary source of mercury contamination in fish?
- Industrial effluents
  - Food packaging materials
  - Agricultural pesticides
  - Natural soil minerals

30.	i	ii	iii	iv
33.	i	ii	iii	iv
36.	i	ii	iii	iv

31.	i	ii	iii	iv
34.	i	ii	iii	iv
37.	i	ii	iii	iv

32.	i	ii	iii	iv
35.	i	ii	iii	iv
38.	i	ii	iii	iv

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39. Which of the following are relevant to the current Food Act No. 26 of 1980 of Sri Lanka?  
 (d) It regulates the manufacture, storage, import, distribution and sale of any food in Sri Lanka.

(e) It sets standards for food hygiene and safety in the food industry.

(f) It repeals the Food and Drug Act of 1929.

The **correct** statements are,

i. (a) and (b) only

iii. (b) and (c) only

ii. (a) and (c) only

iv. All (a), (b) and (c)

40. Which of the following authorities/officers is/are responsible for the preparation of new regulations and revisions of current regulations in Sri Lanka?

i. Colombo Municipal Council

iii. Food Advisory Committee

ii. Sri Lanka Standards Institution

iv. Medical Officer of Health

41. Select the **incorrect** statement with respect to Food Act No.26 of 1980

i. Part III deals with how to take legal action against violators of the regulation.

ii. Part II deals with the food regulations framed under the Food Act.

iii. Part IV deals with the food regulations framed under the Food Act.

iv. Part II deals with the administration of the Food Act and regulations in Sri Lanka.

42. Which of the following is **not** necessary to include in a HACCP plan?

i. List of HACCP team members

ii. Food regulations

iii. Documentation of methods and procedures

iv. Records of employee training programmes

43. When HACCP plan validation is ongoing, periodic procedures may be scheduled to occur at a pre-set frequency. Which of the following factor/s is/are identified as deviation/s from this periodic procedure?

(a) When the raw materials are changed.

(b) When the product of the process is changed.

(c) When consumer complaints are received

The **correct** statement/s is/are.

i. (a) and (b) only

ii. (a) and (c) only

iii. (b) and (c) only

iv. All (a), (b) and (c)

44. What does GMP stand for in the context of food manufacturing?

i. General Maintenance Procedure

ii. Government Mandated Production

iii. Good Manufacturing Practices

iv. Gross Material Preparation

39. 

i	ii	iii	iv
i	ii	iii	iv

40. 

i	ii	iii	iv
i	ii	iii	iv

41. 

i	ii	iii	iv
i	ii	iii	iv

43. 

i	ii	iii	iv
i	ii	iii	iv

44. 

i	ii	iii	iv
i	ii	iii	iv

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45. What is the correct label for a blended vegetable oil with more than 85% palm oil?
- Palm oil
  - Vegetable oil
  - Blended vegetable oil
  - Blended palm oil
46. What is required if a label of pure vegetable oil states, free from cholesterol?
- Should indicate that vegetable oils naturally do not contain cholesterol.
  - Must provide FDA approval
  - Must give the saturated fat content only
  - Must provide doctor's certificate
47. What international body formulates the Codex Alimentarius?
- WHO and WTO
  - FAO and WHO
  - UNDP and FAO
  - WHO and UNDP
48. According to the regulations, how should fruit juice with less than 5% fruit content be labelled?
- Fruit nectar
  - Fruit concentrate
  - Artificial fruit drink
  - Fruit cordial
49. What label is not permitted without approval by the Chief Food Authority?
- Recommended for osteoarthritis
  - Fortified with calcium
  - Rich in fiber
  - Source of Vitamin C
50. What is being sterilized in aseptic packaging?
- The packaging
  - The food
  - The food worker's hands
  - The utensils used for food preparation
- The **correct** answer is,
- (a) and (b) only
  - (b) and (c) only
  - (a) and (d) only
  - (b) and (d) only

45.	i	ii	iii	iv
48.	i	ii	iii	iv

46.	i	ii	iii	iv
49.	i	ii	iii	iv

47.	i	ii	iii	iv
50.	i	ii	iii	iv

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