

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	: 2021-2022
Date	: 12 th March 2023
Time	: 9.30 a.m. – 11.30 a.m.
Duration	: 2 hr

General Instructions

1. Read all instructions carefully before answering the questions.
2. This question paper consists of 50 multiple-choice questions (MCQs) in (7) pages.
3. Use a pen not a pencil.
4. Use blue or black ink to answer the questions.
5. Clearly state your index number in your MCQ answer sheet.
6. You have to handover the question paper with your MCQ answer sheet itself.
7. Involvement in any activity that is considered as an exam offense will lead to punishment.

01. Which statement is correct?

- (i) The major ingredient added to food during production is food additive.
- (ii) Food additives are usually safe for human consumption but the amounts added can vary.
- (iii) Food additives improve the sensory & functional properties of food.
- (iv) To facilitate the preparation additives are added after processing.

02. The following are some functions of food additives.

- (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
- (ii) (a) and (c) only
- (iii) (a) and (b) only
- (iv) (b) and (c) only

03. At which stage additives are added to food?
 (a) Processing (b) Packaging (c) Storage (d) Transporting
 The correct answer is,
 (i) (b) only (ii) (a) and (b) only
 (iii) (a) and (c) only (iv) (a), (b) and (c)
04. Which INS numbers will indicate a sweetener as an additive?
 (i) 100 – 199 (ii) 200 – 299 (iii) 300 – 399 (iv) 400 – 499
05. Regulation that controls the use of food additives include,
 (i) Food (Sweeteners) (ii) Food (Flavour enhancers)
 (iii) Food (Emulsifiers) (iv) Food (Antioxidants)
06. 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 is,
 (i) (a) only (ii) (b) only
 (iii) (a) and (d) only (iv) (b) and (c) only
07. Foods that become sticky by absorbing moisture from air can be prevented by adding
 (i) Acidulants (ii) Anti-cake agents (iii) Acids (iv) Emulsifiers
08. Select the correct statement.
 (i) Bicarbonate added to flour helps the dough rise due to SO_2 formed.
 (ii) Sodium dihydrogen phosphate gives a smooth texture to food and a bitter taste.
 (iii) Acid regulators control acidity and alkalinity of food by neutralizing the changes in p^{H}
 (iv) Citric acid acts as a buffering agent by increasing the p^{H}
09. Naturally occurring emulsifier is
 (i) Lecithin in egg white (ii) Phospholipids in egg yolk
 (iii) Phospholipids in milk (iv) Lecithin in milk
10. Consider the following statements.
 (a) Nature identical flavour enhancers obtained from natural extracts only.
 (b) Natural flavouring compounds are obtained from plants that produce essential oils.
 (c) Nature identical flavour enhancers can be prepared from chemicals.
 The correct statement/s is/are,
 (i) (a) and (b) only (ii) (a) and (c) only
 (iii) (b) and (c) only (iv) (a), (b) and (c)
11. Properties of humectants are,
 (a) Absorbing water to retain moisture.
 (b) Gives a sweet taste to food.
 (c) Hygroscopic compounds.
 The correct statement/s is/are,
 (i) (a) only (ii) (b) only
 (iii) (a) and (c) only (iv) (a), (b) and (c)
12. Colouring substances are used in food industry because
 (i) They improve the appearance of food. (ii) To restore the colour lost during storage.
 (iii) To give a nutritive value to food. (iv) All of the above.

13. Natural pigments in food are obtained from,

- (a) curcumin from beet root
- (b) β -carotene from carrots
- (c) flavoxanthin from insects

The correct answer/s is/are,

- (i) (a) only
- (ii) (b) only
- (iii) (a) and (c) only
- (iv) (a), (b) and (c)

14. Select the correct statement.

- (i) Carmoisine, Tartrazine and Anthocyanin are permitted food colouring that cause skin rash.
- (ii) Food colouring is added to butter, jam, confectionaries to make it appealing.
- (iii) Flavoured milk, yoghurt and ice cream do not contain any food colouring.
- (iv) Chlorophyllin, Cochineal and Erythrosine are natural pigments in food.

15. Why is Sodium sulphite used as a preservative in fruit juices and not SO_2 ?

- (a) Sodium sulphite forms sulphurous acid due to the low p^{H}
- (b) SO_2 is a gas and it forms sulphuric acid.
- (c) SO_2 cause irritation of alimentary canal.

The correct statement/s is/are,

- (i) (a) and (b) only
- (ii) (a) and (c) only
- (iii) (b) and (c) only
- (iv) (a), (b) and (c)

16. Examples of toxic contaminants produced dairy food processing includes;

- (i) Organochlorines
- (ii) Polychlorinated alcohols
- (iii) Organohalides
- (iv) Polychlorinated biphenyls

For questions (17) and (18), identify the correct answer using following radio nucleotides.

- (i) ^{137}Cs
- (ii) ^{90}Sr
- (iii) ^{131}I
- (iv) Cr

17. Genetic damage is due to which radio nucleotide?

18. Which radio nucleotide is causing bone cancer in children?

19. If the level of poisonous substances that entered into our body is greater than the toxic level toxic effect is high. It depends on,

- (a) the dose
- (b) source
- (c) duration
- (d) manner of exposure

The correct answer is,

- (i) (a) and (b) only
- (ii) (a) and (c) only
- (iii) (b) and (c) only
- (iv) (a), (b) and (c)

20. Non-nutrient, undesirable toxic elements/ compounds found in food are

- (a) As
- (b) Co
- (c) Pb
- (d) Mg
- (e) Al

The correct answer is,

- (i) (a) and (b) only
- (ii) (a) and (c) only
- (iii) (b) and (d) only
- (iv) (d) and (e) only

21. Environmental contamination of food directly affects through

- (a) fish such a tuna, shark can accumulate high levels of Sn and Mg.
- (b) plants with accumulated Cd and Pb.
- (c) food obtained from plants which have absorbed pesticides residues containing Pb and As.

The correct statement/s is/are,

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

22. Consider the following statements.

- (a) Pesticides are chemicals used in agriculture to control pests.
- (b) Pesticides can accumulate in plant and animal food consumed by humans.
- (c) Pesticides are generally water soluble and can be eliminated by washing.
- (d) Organochlorine pesticide is soluble in water.

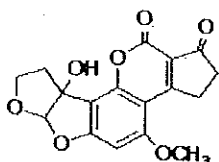
The **correct** statement/s is/are,

- (i) (a) and (b) only
- (ii) (a) and (d) only
- (iii) (b) and (c) only
- (iv) (c) and (d) only

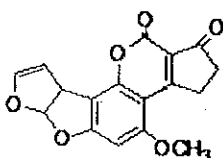
23. Glass and metal cans were the main packaging materials used until recently. However, food can get contaminated

- (i) by leaching of metals such as Fe, Sn and Pb.
- (ii) when properly packed food is used, due to migration of compounds.
- (iii) when bottled water is packed using food grade material.
- (iv) when insects and microbes can penetrate if proper packaging used.

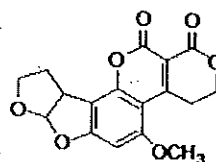
24. Aflatoxin B₁ is the most toxic contaminant. The structure of **Aflatoxin B₁** is



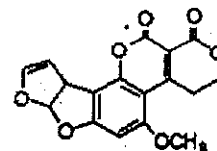
A



B



C



D

(i) A

(ii) B

(iii) C

(iv) D

25. What causes for protein deficiency in humans?

- (i) The enzymes are activated when pressure cooking of soaked legumes.
- (ii) α - amylase inhibitors found in legumes and cereals increase amino acids.
- (iii) Protease inhibitors in yams, rice, etc. are destroyed during processing.
- (iv) Protease inhibitors decrease the concentration of amino acids.

26. Linamarin is hydrolysed to acetone and HCN by which of the following reaction sequence?

- (i) Linamarin \rightarrow Acetone cyanohydrin \rightarrow Acetone + HCN
- (ii) Linamarin \rightarrow Acetone + HCN
- (iii) Linamarin \rightarrow Glucose \rightarrow Acetone + HCN
- (iv) Linamarin \rightarrow RSC \equiv N \rightarrow Acetone + HCN

27. Which of the following are considered as main feature of the current Food Act No. 26 of 1980?

- (a) To regulate manufacture, storage, import, distribution and sale of any food in Sri Lanka.
- (b) To establish the Codex Alimentarius Commission.
- (c) Repeal the Food and Drug Act of 1929.

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)

28. Which of the following authority/officer is/are responsible for the preparation of new regulations and revisions of current regulations in Sri Lanka?

- (i) Colombo Municipal Council
- (ii) Sri Lanka Standards Institution (SLSI)
- (iii) Medical Officer of Health (MOH)
- (iv) Food Advisory Committee

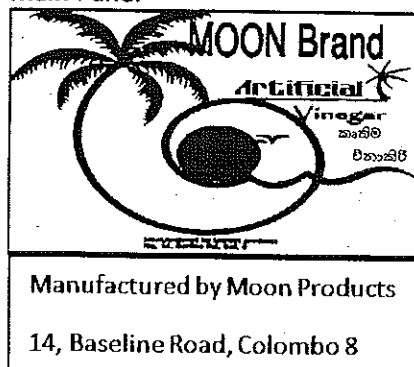
29. Select the **incorrect** statement with respect to Food Act No.26 of 1980.
- (i) Part III deals with how to take legal action against violators of regulation.
 - (ii) Part IV deals with the food regulations framed under the Food Act.
 - (iii) Part II deals with the food regulations framed under the Food Act.
 - (iv) Part II deals with the administration of Food Act and regulations in Sri Lanka.
30. Which of the following is **not** necessary to include in a HACCP plan?
- (i) List of HACCP team members
 - (ii) Documentation of methods and procedures
 - (iii) Records of employee training programmes
 - (iv) Food regulations
31. When HACCP plan validation is ongoing, periodic procedure 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 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)
32. Which of the following statement is **incorrect** regarding the Codex Alimentarius Commission?
- (i) It is an international body established by Food and Agriculture Organisation (FAO) and World Health Organisation (WHO).
 - (ii) It is a local body to develop food standards and guidelines.
 - (iii) It develops international food standards, guidelines and codes of practices to protect the health and safety of the consumers.
 - (iv) It has published basic principles of food hygiene.
33. The prohibition/s imposed in Part I of the Food Act are
- (a) be unsuitable for human consumption.
 - (b) be manufactured and imported under sanitary conditions.
 - (c) contain only the permitted additives.
- The **correct** statement/s is/are,
- (i) (a) only
 - (ii) (c) only
 - (iii) (b) and (c) only
 - (iv) None of the above
34. What is being sterilized in aseptic packaging?
- (a) The packing
 - (b) The food
 - (c) The food worker's hands
 - (d) Environment used for the preparation of food
- The **correct** answer is,
- (i) (a) and (b) only
 - (ii) (a) and (d) only
 - (iii) (b) and (c) only
 - (iv) (b) and (d) only
35. Why is it important to label food?
- (a) Only to make the consumer aware of the contents.
 - (b) To decide which product to consume.
 - (c) Before purchasing to compare the different brands of the same food.
- 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)

36. The label on a bottle of tomato sauce states that it is "natural". According to the food regulations this product should be,
- (i) no added additives. (ii) not processed.
(iii) produced from biological material only. (iv) all of the above
37. If a canned salmon fish tin purchased is found to be spoilt, which action would you take?
- (i) read the label twice (ii) throw the tin of canned fish
(iii) inform the relevant authority to take legal action (iv) complain to police
38. HACCP
- (i) is a system which provides confidence on effectively managed food safety.
(ii) is not applicable to everyone in food industry.
(iii) is considered as an important element in overall management of food quality only.
(iv) it is a worldwide recognized systematic approach that do not take preventive measures.
39. The features that should **not** be on a 'Nutritional Fact Label' is,
- (i) Total calorie value (ii) SLS certification (iii) Serving size (iv) Ingredient list
40. Consider the following nutritional fact label. Based on it, if you eat **9 potato chips**, how many grams of **protein** would you be getting? (hint – serving size is 1oz = 3 chips)
- (i) 2g (ii) 6g (iii) 1g (iv) 18g

Nutrition Facts	
Serving Size 1 oz (28g/about 3 chips)	
Servings Per Container 7	
Amount Per Serving	
Calories 140	Calories from Fat 90
% Daily Values*	
Total Fat 10g	16%
Saturated Fat 1g	5%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 100mg	4%
Total Carbohydrate 13g	4%
Dietary Fiber less than 1g	4%
Sugars 1g	
Protein 2g	

41. Identify the defects in the following label. Label contains two panels.

Main Panel



Other Panel

A high quality processed artificial vinegar for tenderizing meat preserving pickles and chutneys, pickles and flavoring curries and sambals.

Ingredients: Water, Food grade acetic acid (260)

Maximum retail prize: Rs 370 /=-

Exp: 31.10.2023

B/N: 45623

- (a) Net content and manufactured date are not given.
(b) Cannot use a picture of a coconut tree in the label of a bottle with artificial vinegar.
(c) Approved food standard numbers are not mentioned.

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)

42. Food Labelling and Advertising Regulation was gazetted in Sri Lanka in
 (i) 2004 (ii) 2005 (iii) 2009 (iv) 2010

43. The areas examined under Codex GHP are,
 (i) Primary production, examination of design and facilities, storage.
 (ii) Examination of design and facilities, process control, transportation.
 (iii) Product information and customer awareness, training.
 (iv) All of the above.

44. International standards are offered by agencies such as,
 (a) WHO (b) FAO (c) SLSI (d) ISO

The correct answer is,

(i) (a), (b) and (c) only (ii) (a), (b) and (d) only
 (iii) (a), (c) and (d) only (iv) (b), (c) and (d) only

45. GMP covers all aspects of food production such as,
 (a) Raw materials, premises and equipment, training of personal.
 (b) Personal hygiene of food handlers, end product quality control, cleaning and sanitation.
 (c) Formulation controls, temperature controls, pressure controls.

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)

46. The benefits of HACCP are,
 (i) Effective use of resources.
 (ii) Inspection by food control authorities is not a condition.
 (iii) Difficult system to approach.
 (iv) Untrained personnel that follow correct principles and apply are accepted.

47. Which of the following would be a critical limit?
 (i) Cleaning the food preparation area.
 (ii) Cooking to a temperature of 70°C for 2 minutes.
 (iii) Washing fruits before using.
 (iv) Checking eggs for the best date to be used.

Questions 48 – 50, Consider the following system certifications given by SLSI.

(i) ASA 8000 (ii) ISO 9001-2000 (iii) ISO 14001 (iv) OHSAS 18001

48. The certification relevant to Occupational Health and Safety Management System is,

49. The certification relevant to Environmental Protection System is,

50. The certification scheme for Social Accountability is,

00009

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MCQ ANSWER SHEET: Mark a cross (x) over the most suitable answer.

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Marks

Unanswered	
Correct Answers	
Wrong Answers	
Total	

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