

ଆହାର କାନ୍ତର୍କଣାଲିଦୟ
ଉଣ୍ଣବୁଝ ତୋମିନୁଁ ପବିଯଳୁ
Food Technology

17 E I

படிய எடுக்குத்
இரண்டு மணித்தியாலும்
Two hours

Instructions:

- * Answer **all** questions.
- * Write your **Index Number** in the space provided in the answer sheet.
- * Instructions are given on the back of the answer sheet. Follow those carefully.
- * In each of the questions 1 to 50, pick one of the alternatives from (1), (2), (3), (4), (5) which is **correct** or **most appropriate** and mark your response on the answer sheet with a cross (x) on the number of the correct option in accordance with the instructions given on the back of the answer sheet.

1. An example for application of soft technology in food production is

- selecting a suitable site for growing paddy.
- interior design of an office.
- selecting proper materials for a part of a machine.
- calculating the total power consumption of a factory.
- developing technologies for waste management.

2. A student recorded the average paddy yield (MT/ha) of 6 farmers from a village in Kurunegala district, as given below.

4.6, 5.3, 6.6, 4.5, 4.3, 5.3

The mean and the range of the above data are (MT/ha)

- 6.3 and 6.6 – 4.3, respectively.
- 3.6 and 4.3 – 5.3, respectively.
- 6.6 and 4.3 – 6.6, respectively.
- 5.1 and 4.3 – 6.6, respectively.
- 5.1 and 6.6 – 4.3, respectively.

3. Blood sugar level of a person can be rapidly increased by consuming a food containing,

- high amount of resistant starch.
- high amount of dietary fibre.
- low amount of vitamins.
- moderate amount of minerals.
- high amount of non-resistant starch.

4. The major disease that could occur due to vitamin A deficiency is

- Xerophthalmia.
- Goitre.
- Scurvy.
- Beri-beri.
- Anaemia.

5. Which of the following can be considered as a quantitative loss of food due to spoilage?

- Formation of off-colour
- Formation of off-flavour
- Change in texture
- Change in nutrients
- Formation of undesirable taste

6. A sample of coconut oil was prepared through a hygienic process and securely packed and sealed in a clear glass container. The sample got rancid within a short period of time. The most probable causal factor for this change would be,

- light.
- temperature.
- enzymes.
- humidity.
- heavy metals.

7. Food security of a country could be achieved directly through,

- (1) encouraging food export. (2) encouraging food import.
- (3) improving the purchasing power of the consumer. (4) maintaining an open-economy.
- (5) maintaining a close-economy.

8. The number of climate zones, agro-climate zones and agro-ecological regions in Sri Lanka are

- (1) 3, 5 and 7, respectively. (2) 3, 7 and 24, respectively.
- (3) 1, 5 and 46, respectively. (4) 3, 5 and 24, respectively.
- (5) 3, 7 and 46, respectively.

9. The Yala season in Sri Lanka is best described as the period with rainfall from
 (1) first inter-monsoon only. (2) southwest monsoon only.
 (3) northeast monsoon only. (4) first inter-monsoon and southwest monsoon.
 (5) first inter-monsoon and northeast monsoon.

10. Parthenogenesis is best explained as
 (1) the growth of embryo without fertilisation.
 (2) an asexual reproduction technique found in bacteria.
 (3) the formation of fruits without seeds.
 (4) the formation of flowers without ovule.
 (5) formation of genetically different offspring.

11. The growth hormone/s responsible for apical dominance is
 (1) Auxin. (2) Gibberellin.
 (3) Cytokinin. (4) Auxin and Gibberellin.
 (5) Gibberellin and Cytokinin.

12. Rooting in stem cuttings is stimulated by the use of
 (1) Abscisic acid. (2) Indole Acetic Acid. (3) Jasmonic Acid.
 (4) Ethylene. (5) Ribonucleic acid.

13. The edible part of barley (*Hordeum vulgare*) is
 (1) flowers. (2) seeds. (3) leaves. (4) roots. (5) bark.

14. Several selected plant parts of Adathoda (*Justicia adhatoda*) are listed below.
 A - Roots B - Flowers
 C - Stem D - Fruits
 Of the above, the parts used for medicinal purposes are
 (1) A, B and C only. (2) A, B and D only.
 (3) A, C and D only. (4) B, C and D only.
 (5) All A, B, C and D.

15. Consider the following diseases/disease symptoms.
 A - Swelling B - Cough
 C - Skin diseases D - Heart diseases
 E - Urinary infections
 Of the above, Polpala (*Aerva lanata*) could be used to treat
 (1) A, B and C only. (2) A, B and D only.
 (3) A, B and E only. (4) C, D and E only.
 (5) B, C and D only.

16. Following are statements related to sea grass.
 A - Found abundantly in deep and dark sea areas with less wave action.
 B - Dugongs and turtles depend on sea grass.
 C - Abundant in northwestern sea belt of Sri Lanka.
 Of the above, the correct statement/s is/are
 (1) A only. (2) B only. (3) C only.
 (4) A and C only. (5) B and C only.

17. The most possible reason for high post-harvest losses of vegetables in Sri Lanka is,
 (1) having many types of vegetables.
 (2) long distance transport.
 (3) temperature variations during day and night.
 (4) improper handling.
 (5) high temperature.

18. The most suitable method to control weeds in a paddy field is,
 (1) primary land preparation.
 (2) the use of light traps.
 (3) use of less amount of chemical fertilizer.
 (4) use of organic fertilizer.
 (5) cultivation at correct time in the season.

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19. An activity with an involvement of biotechnology is
 (1) dried fish production. (2) production of ice cream.
 (3) production of yoghurt. (4) production of salted lime.
 (5) canning of fruits.

20. A statement with reference to a business is given below.
 "An entrepreneur who produces bio-fertilizer is involved in marketing it and educating farmers on how to use it. He also supplies credit facilities to farmers."
 The above is a
 (1) production-oriented business. (2) service-oriented business.
 (3) marketing-oriented business. (4) agro technology-oriented business.
 (5) production and service-oriented business.

21. Factors that should be considered in selecting a good business opportunity are
 (1) capital investment and social issues.
 (2) the technology that is going to be used and the availability of electricity.
 (3) availability of infrastructure facilities and labour.
 (4) market potential and capital investment.
 (5) environmental impact and expected profit.

22. The most relevant financial information needed to make decisions on a business is
 (1) the demand and supply.
 (2) the capital investment and recurrent expenditure.
 (3) the balance sheet and the cash flow.
 (4) changes in the profit during the recent past.
 (5) cost of production and annual income.

23. Characteristics of a person that could be a good entrepreneur,
 (1) is flexible and depend on the others.
 (2) is flexible but independent.
 (3) has self-confidence but not devoted to work.
 (4) make rigid decisions and works independently.
 (5) should have sufficient cash in hand and be ready to take risks.

24. Application of pesticides at recommended dosages assures
 (1) killing of all insects.
 (2) killing of all weeds.
 (3) eradication of pests throughout the growing season.
 (4) no pests during the growing season.
 (5) managing pest populations for a specific period.

25. The main difference of the Sri Lankan type biogas digester compared to the Indian type biogas digester is
 (1) the Sri Lankan type is designed to produce biogas from straw.
 (2) the inlet and the outlet of the Sri Lankan type digester is located at the same height.
 (3) the digestate of the Sri Lankan type digester should be removed periodically.
 (4) the methane concentration of the Sri Lankan type digester is higher.
 (5) in the Sri Lankan type, digestion and the gas storage are done in the same chamber.

26. Select the correct statement regarding food technology.
 (1) Certain food technologies are based on the traditional food processing concepts.
 (2) Modern food technologies protect all the nutrients in food.
 (3) Food technologies always reduce the production cost of food.
 (4) All food technologies should align with the traditional food processing principles.
 (5) Traditional food technologies lead to loss of considerable amount of nutrients in food.

27. Consider the following statements on major bio-organic molecules in food.
 A - Starch is mostly made out of amylose and amylopectin.
 B - Lactose and sucrose are sugars found in fruits and milk, respectively.
 C - Tertiary structure of egg proteins does not change even at cooking temperatures.
 D - Coconut oil is rich in saturated, medium-chain fatty acids.
 Of the above, correct statements would be
 (1) A and B only. (2) A and C only. (3) A and D only.
 (4) B and D only. (5) C and D only.

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28. Select the correct statement on microbial actions in making bread and yoghurt

- in both the processes carbon dioxide and ethanol are produced.
- in bread dough, sugar is fermented in to carbon dioxide and ethanol.
- in bread dough, sugar is fermented in to carbon dioxide by lactic acid bacteria.
- in yoghurt, lactose is fermented in to lactic acid by yeast.
- in yoghurt, lactose is fermented in to carbon dioxide and lactic acid.

29. Consider the following statements.

A - Slow digestible foods, may lead to non-communicable diseases.
 B - Rapid digestible foods always fulfil the balanced diet requirements.
 C - Consumption of street foods may increase the risk of severe health problems.

Of the above, correct statement/s is/are

- A only.
- B only.
- C only.
- A and B only.
- B and C only.

30. Rice flour does not provide required leavening property in making bakery products because it,

- does not contain gluten.
- does not contain adequate amount of fibre.
- contains anti-leavening compounds.
- contains high amount of amylopectin.
- contains high amount of amylopectin and less amount of gluten.

31. Consider the following rice types.

A - Long grain red and white rice
 B - Short grain red and white rice
 C - Medium grain red and white rice
 D - Samba rice
 E - Nadu rice
 F - Mixed rice

Of the above, rice types classified based on their physical characteristics under Sri Lankan standards include,

- A, B, C and D only.
- A, B, C and F only.
- A, B, D and E only.
- B, C, D and E only.
- C, D, E and F only.

32. The correct statement regarding parboiling of rice is

- parboiling results in absorption and disruption of starch granules.
- steam parboiling removes high amount of nutrients in the bran.
- parboiling of rice in water improves the appearance of the grains.
- soaking of rice in water before parboiling improves the texture of the grains.
- gelatinization takes place during water soaking of rice before parboiling.

33. In making hard dough biscuits,

- fat and table sugar are added to wheat flour.
- wheat flour is added to a creamed sugar and fat mixture.
- dough is shaped in a mould to the shape of the biscuit.
- sodium bicarbonate, ammonium bicarbonate and yeast are used.
- wheat flour with 14–16% gluten is required.

34. Anti-nutritional compounds that could be found in some of the pulses include

- hemagglutinin, trypsin inhibitors and lecithin.
- hemagglutinin, trypsin inhibitors and phytate.
- lecithin, phytate and trypsin inhibitors.
- hemagglutinin, lecithin and phytate.
- hemagglutinin, trypsin inhibitors and gluten.

35. The cut surfaces of some of the minimally processed fruits become brown in colour when exposed to oxygen. This is due to the action of

- peroxidase.
- polyphenoloxidase.
- pectinase.
- polygalactouranase.
- cellulase.

36. According to the Sri Lankan Standards (SLS 265: 1985), specifications for total soluble solids and pectin in Jam are

- 68.5% and not more than 5g/kg, respectively.
- 68.5% and not more than 10g/kg, respectively.
- 78.5% and less than 5g/kg, respectively.
- 78.5% and less than 10g/kg, respectively.
- 86.5% and not more than 5g/kg, respectively.

37. The correct statement on dehydration of fruits is

- the water content of osmotically dehydrated fruits should be less than 30%.
- the water content of hot air-dried fruits should be less than 20%.
- the quality of dehydrated fruits does not depend on the temperature used.
- osmotically dehydrated fruits may preserve due to low water activity and high sugar content.
- it is not necessary to store hot air-dried fruits in packages with moisture barrier properties.

38. Blanching is not recommended

- for vegetables rich in volatile aroma compounds.
- to inactivate enzymes in vegetables.
- to control micro-organisms in vegetables.
- for leafy vegetables.
- for vegetables rich in vitamin C.

39. Yoghurt is produced by

- refrigeration.
- chemical treatment.
- fermentation.
- fermentation and refrigeration.
- chemical treatment, fermentation and refrigeration.

40. Friesian cow milk contains

- 3.5% of fat and 2.8% of protein.
- 5% of lactose and 8.5% of solid non-fat (SNF).
- 3.2% of fat and 10% of total solids.
- 2.5% of minerals and 85% of water.
- 3.5% of fat and 3.2% of protein.

41. The preservative used in the production of sausages and meat balls is

- Common salt (NaCl).
- Monosodium glutamate (MSG).
- Potassium bicarbonate.
- Sodium nitrite.
- Calcium carbonate.

42. When compared to R.B.D. (Refined, Bleached, Deodorized) coconut oil, raw (unrefined) coconut oil contains

- high amount of natural vitamin E.
- high amount of long chain saturated fatty acids.
- high amount of unsaturated fatty acids.
- moderate amount of DHA (Decosahexenoic acid).
- high amount of carotenoid pigments.

43. The standard taste of a ginger biscuit is due to

- essential oil of ginger.
- ginger essence.
- ginger oleoresin.
- pieces of raw ginger.
- combination of ginger essence and raw ginger.

● Question No. 44 and 45 are based on the following packaging materials.

A - Clear glass containers
 B - Metal cans with base resistant inner layer
 C - Amber colour glass containers

44. The most suitable packaging material/s for coconut oil is/are

- A only.
- B only.
- C only.
- A and C only.
- B and C only.

45. The most suitable packaging material/s for passion fruit juice is/are

- A only.
- B only.
- C only.
- A and C only.
- B and C only.

46. Moisture content of a food sample can be determined by

- Kejeldhal method.
- Soxhlet method.
- Oven drying method.
- Lane and Eynon method.
- Dye binding method.

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47. Quality assurance systems of a food manufacturing process may
(1) improve the market demand of a food product.
(2) decrease the nutritional value of a food product.
(3) decrease the raw material cost of a food product.
(4) increase the transport and packaging cost of a food product.
(5) not highly depend on the hygienic condition of the production process.

48. Food Act No. 26 of 1980 controls the
(1) market price of food additives. (2) critical usage limit of food additives.
(3) attractiveness of a food label. (4) attractiveness of a food packaging materials.
(5) market demand of food additives.

49. Consider the following statements.
A - Less consumption of fruits and vegetables may create constipation.
B - A considerable amount of nutrient of a diet may get lost due to the use of improper processing methods.
C - Consumption of refined wheat flour may improve human health.
Of the above, the correct statements is/are
(1) A only. (2) B only. (3) C only. (4) A and B only. (5) B and C only.

50. A fruit-based product manufacturing company planned to improve the quality of their product. The most suitable service provider who could help for this is
(1) Industrial Technology Institute (ITI).
(2) National Engineering Research and Development (NERD) Centre.
(3) Department of Agriculture.
(4) National Research Council (NRC).
(5) National Science Foundation (NSF).

* * *

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ଆହାର ତାତ୍କର୍ଷଣଲେଖିଦ୍ୟ II
ଉଣ୍ଣବୁତ୍ ତୋମ୍ରିଣ୍ଟପବିଯଳ୍ II
Food Technology II

17 E II

ஒரே ஓரை
மூன்று மணித்தியாலும்
Three hours

Index No. :

Instructions:

- * This question paper consists of 10 question in 07 pages.
- * This question paper comprises of Parts A, B and C.
The time allotted for all three parts is three hours.

Part A - Structured Essay (2 - 6 pages)

- * *Answer all questions on this paper itself.*
- * *Write your answers in the space provided for each question. Please note that the space provided is sufficient for your answers and extensive answers are not expected.*

Part B and C - Essay : (page No. 7)

- * Select two questions from each of the Parts B and C and answer four questions only. Use the papers supplied for this purpose.
- * At the end of the time allotted for this paper, tie the three parts together so that Part A is on the top of Parts B and C before handing over to the supervisor.
- * You are permitted to remove only Parts B and C of the question paper from the Examination Hall.

For Examiner's Use only

Final Marks

Part	Question No.	Marks
A	1	
	2	
	3	
	4	
B	5	
	6	
	7	
C	8	
	9	
	10	
Total		
Percentage		

In Numbers	
In Letters	

Code Numbers

Marking Examiner 1.	
Marking Examiner 2.	
Marks Checked by	
Supervised by	

Part A - Structured Essay
Answer all questions on this paper itself.
(Each question carries 10 marks.)

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column

1. (A) State two examples of application of the knowledge of soft technology in environment conservation.

(1)
 (2)

(B) List two ways of obtaining market information for business management.

(1)
 (2)

(C) (i) State two major functions of lipids in the body.

(1)
 (2)

(ii) State two major functions of minerals in the body.

(1)
 (2)

(D) Hygienic practice is one of the most important activities in food manufacturing process. State four ways of contamination of food.

(1)
 (2)
 (3)
 (4)

(E) State two activities of community-based food security.

(1)
 (2)

(F) Mention the time periods for the following rainfall seasons in Sri Lanka.

	Month	Month
(1) First inter-monsoon	From	To
(2) Southwest monsoon	From	To
(3) Second inter-monsoon	From	To
(4) Northeast monsoon	From	To

(G) (i) Name the grafting technique given in this figure.

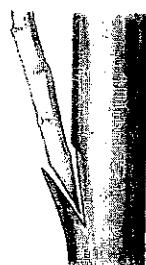
.....

(ii) Name a crop that is used for the grafting technique stated in (G)(i) above.

.....

(iii) Compared to vegetative propagation, state the main advantage of sexual propagation of plants.

.....



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column

(H) State **two** advantages and **two** disadvantages of vegetative propagation with respect to the survival of a species.

(i) Advantages

(1)

(2)

(ii) Disadvantages

(1)

(2)

2. (A) List **three** medicinal uses of wood apple.

(1)

(2)

(3)

(B) Name **two** government institutes that deal with aquatic resources of Sri Lanka.

(1)

(2)

(C) State **two** possible methods of reducing post-harvest losses of fruits in Sri Lanka.

(1)

(2)

(D) State **two** methods/structures of storing grains for minimizing post-harvest losses of grains.

(1)

(2)

(E) State **two** traditional and **two** modern bio-technological applications.

Traditional applications

Modern applications

(1) (1)

(2) (2)

(F) Mention whether the following technologies are labour intensive or capital intensive.

(i) Plucking of tea leaves in a tea estate:

(ii) Drying of fermented tea leaves in a tea factory:

(iii) Traditional way of producing curd:

(G) A farmer established a dairy farm with 10 milking cows by investing Rs.5 millions. He spends Rs. 1500.00 for feeding and another Rs.500.00 for other supplies daily. The average daily milk production in the farm is 70 litres and the farm gate price of milk is Rs.55.00 per litre. Answer the following questions using these information.

(i) Daily recurrent expenditure of the farm = Rs.

(ii) Daily total income of the farm = Rs.

(iii) Daily gross profit of the business = Rs.

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(H) List the **two** major financial components required to prepare a balance sheet of a business.

(1)

(2)

(I) Name **two** types of nozzles that are recommended to be used when applying herbicides with a knapsack sprayer.

(1)

(2)

(J) Reuse is one component of the 3R concept in waste management. State **two** instances where the reuse of waste is applied.

(1)

(2)



3. (A) State **two** important minerals that should be given to a pregnant woman.

(1)

(2)

(B) Name the pigment responsible for the unique colour of each of the following fruits and vegetables.

Gotu kola:

Carrot :

Tomato :

Purple grapes :

(C) State **two** cultural food habits.

(1)

(2)

(D) (i) State the enzyme and its resultant product responsible for developing unique beany flavour in soy products.

(1) Enzyme

(2) Resultant product :

(ii) State why cow's milk should be added to soy milk in making 'soy yoghurt'.

.....

.....

(iii) Name **three** types of micro-organisms used in processing 'soy yoghurt'.

(1)

(2)

(3)

(E) (i) In preparing breakfast grain powder mixtures, cereals and pulses are mixed with the objective of having a balanced amino acid composition. State an amino acid which is deficient each in cereals and pulses.

(1) Amino acid deficient in cereals

.....

(2) Amino acid deficient in pulses

.....

(ii) State **two** health benefits of consuming sprouted legume seeds compared to non-sprouted legume seeds.

(1)

(2)

(F) (i) State **three** factors to be considered in selecting fruits for minimal processing.

(1)

(2)

(3)

(G) (i) State the role of pectin in jam.

.....

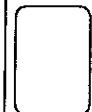
(ii) Name a fruit rich in pectin.

.....

(iii) Desiccated coconut has a big demand in the food industry. State **two** reasons for this demand.

(1)

(2)



4. (A) State **three** methods of controlling browning of cut surfaces of minimally processed fruits.

(1)

(2)

(3)

(B) State **two** main differences in the yoghurt and ice cream production processes.

(1)

(2)

(C) State **two** characteristics that are useful to differentiate fresh fish from old fish.

(1)

(2)

(D) Name **two** examples for fermented fish products.

(1)

(2)

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column

(E) Spices can be used as multifunctional food items. State **two** main functions of spices.

(1)

(2)

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column

(F) Packaging under special conditions may add an additional protection to the food.

(i) State **two** additional advantages that could be obtained through aseptic packaging.

(1)

(2)

(ii) State **two** additional advantages that could be obtained through modified atmospheric packaging.

(1)

(2)

(G) State **four** major objectives of food quality assurance.

(1)

(2)

(3)

(4)

(H) Consumption of safe food may improve human health. State **two** health problems that may be created due to microbial contamination of food.

(1)

(2)

(I) Consumption of organic foods is an important current trend among the people. State **two** important benefits of the consumption of organic foods.

(1)

(2)

(J) Name **two** institutes that can provide processing technology of dairy-based products.

(1)

(2)

* *

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General Certificate of Education (Adv. Level) Examination, August 2016

ଆହାର କାର୍ଯ୍ୟଙ୍କ ବୈଜ୍ୟ
ଉନ୍ନତି ତେବ୍ରୀନୁଟ୍ଟପାବିଯାଳ
Food Technology

17 E II

Essay

* Select two questions from each of the Parts B and C and answer four questions only.
(Each question carries 15 marks.)

Part B

5.
 - (i) Describe the possibility of improving livelihood of Sri Lankans through proper application of knowledge on soft technology.
 - (ii) Describe the impact of bad food habits on non-communicable diseases.
 - (iii) Explain the impact of agrochemicals on food spoilage.
6.
 - (i) Describe the methods that can be used to maintain food security at domestic level.
 - (ii) State the adaptation measures used in agriculture to minimize impacts of climate changes.
 - (iii) Describe the challenges faces by mangrove ecosystems for their sustainable existences.
7.
 - (i) Describe different bio-technological applications used in agriculture.
 - (ii) State the risks of inappropriate use of agrochemicals.
 - (iii) Describe the harmful impacts of agricultural waste on the environment.

Part C

8. (i) Classify the chemical constituents in food as macronutrients, micronutrients and other components important for human health promotion and describe the major roles of each constituent.

(ii) Explain the impact of convenient food on human nutrition.

(iii) A newly established company plans to introduce bottle drinking water to the market. Name a suitable service provider and explain their role with respect to the production.

9. (i) Explain the unit operations of bread making process highlighting the critical conditions required for maintaining quality of the product.

(ii) Giving reasons explain how minimally processed fruits and vegetables are prone for rapid quality deterioration and propose measures to increase their shelf-life.

(iii) Giving examples, describe different methods used to produce dehydrated fish products.

10. (i) Describe the steps that can be taken to improve the final quality of coconut oil.

(ii) Describe the unit operations of raw curry powder manufacturing process.

(iii) Explain the importance of a food standards with respect to food safety.

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