

அன்றை கோடி கல்விக் கலை (ஏவ்வு கலை) விதிக்கு, 2015 அன்றைக்கல்விப் பொதுத் தொகுப்பு பத்திரி (உயர் தொ)ப் பறித்துச், 2015 ஒக்டோப்ரம்-General Certificate of Education (Adv. Level) Examination, August 2015

உணவுத் தொழில்நுட்பவியல்

Food Technology

17 E I

அடை டெக்கா
இரண்டு மணித்தியாலம்
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. Select the correct statement from the following in relation to the use of appropriate technology in a production system.

- Increase cost of production and labour use efficiency.
- Increase productivity and production efficiency.
- Ensure use of less labour and more machinery.
- Extends shelf-life and improve quality of the product.
- Improves appearance and texture of the product.

2. Following are some techniques used in banking.

A - Money transfer	B - Internet banking
C - Credit card	D - Debit card

Of the above, new technologies used in buying and selling of commodities in successful business management are

- A, B and C only.
- A, B and D only.
- A, C and D only.
- B, C and D only.
- All A, B, C and D.

3. A chronic disease condition which is not directly associated with over-nutrition, is

- cancer.
- heart attack.
- stroke.
- diabetes.
- osteoporosis.

4. The body mass index (BMI) of a person is best explained as the

(1) $\frac{\text{body mass (kg)}}{\text{body height (cm)}}$	(2) $\frac{\text{body mass (kg)}}{\text{body height}^2 (\text{m})}$
(3) $\frac{\text{body mass}^2 (\text{kg})}{\text{body height (m)}}$	(4) $\frac{\text{body mass}^2 (\text{kg})}{\text{body height (cm)}}$
(5) $\frac{\text{body mass (kg)}}{\text{body height}^2 (\text{cm})}$	

5. Following two statements are based on the biochemical spoilage of food.

- A - Enzymatic reactions may lead to spoilage of food.
- B - Browning of food can be explained as an enzymatic reaction

Of the above,

- (1) only A is correct.
- (2) only B is correct.
- (3) both A and B are correct.
- (4) A is correct and it is further explained by B.
- (5) B is correct and it is further explained by A.

6. The most common microorganism, which is responsible for the spoilage of meat, is
 (1) *Clostridium botulinum*. (2) *Aspergillus flavus*.
 (3) *Aspergillus oryzae*. (4) *Lactobacillus bulgaricus*.
 (5) *Lactobacillus thermophilus*.

7. A student listed the following as the processes affecting food security of a country,
 A - Increasing food production B - Reducing post-harvest losses
 C - Food diversification D - Food preservation
 Of the above, the processes directly contribute to food security are,
 (1) A and B only. (2) A and C only.
 (3) A, B and C only. (4) B, C and D only.
 (5) All A, B, C and D.

8. Following statements are based on the agroclimatic regions, great soil groups and mean annual rainfall of Sri Lanka.
 A - 14 great soil groups have been identified in Sri Lanka.
 B - Based on the distribution of rainfall, Sri Lanka has been divided into three agro-climatic zones.
 C - The dry zone of Sri Lanka receives a mean annual rainfall less than 1,750 mm with a distinct dry season from May to September.
 Of the above, correct statement(s) is/are
 (1) A only. (2) B only.
 (3) A and B only. (4) A and C only.
 (5) B and C only.

9. The elevation of the mid country of Sri Lanka is
 (1) 0 – 50 m above sea level. (2) 50 – 100 m above sea level.
 (3) 100 – 300 m above sea level. (4) 300 – 900 m above sea level.
 (5) 900 – 1500 m above sea level.

● Use the given figure to answer question No. 10.

10. The plant propagation technique shown in the figure is
 (1) budding.
 (2) side grafting.
 (3) veneer grafting.
 (4) in-arching.
 (5) wedge grafting.



11. Parthenocarpy is best defined as
 (1) artificially-induced production of fruits without seeds.
 (2) natural or artificially-induced production of fruits without fertilization of ovules.
 (3) growth and development of embryos occurring without fertilization.
 (4) a sexual reproduction technique that produces fruits without seeds.
 (5) an asexual reproduction technique through which seedless fruits are produced.

12. Select the correct statement from the following.
 (1) Insecticides are commonly used in Sri Lanka as seed treatments before planting.
 (2) Roots of the leeks plant are used as material for vegetative propagation.
 (3) Propagation by seeds will increase the biological diversity of the ecosystem.
 (4) Vegetative propagation will increase the genetic diversity of the plant population.
 (5) Captan is the chemical used to remove dormancy of crop seeds before planting.

13. Following are some parts of *Aegle marmelos* (Bael).
 A - Thorns on the stem B - Roots
 C - Leaves D - Fruits
 E - bark
 Of the above, the part(s) not used for medicinal purpose is/are
 (1) A only. (2) B only.
 (3) A and E only. (4) C and E only.
 (5) B, D and E only.

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14. Select the incorrect statement about ginger.

(1) It is used to treat vomiting. (2) It is used to treat abdomen pain.
 (3) It is used to treat cough. (4) It is used to treat food poisoning.
 (5) It is used to treat Asthma.

15. Consider the following diseases.

A - worm diseases	B - eye diseases
C - skin diseases	D - heart diseases
E - kidney diseases	

Of the above, diseases treated by using plant parts of Murunga (*Moringa oleifera*) are

(1) A, B, and C only. (2) A, B, and D only.
 (3) A, C and E only. (4) B, C and D only.
 (5) C, D and E only.

16. Ecosystem-Based Management (EBM) is a management approach that is used to integrate

(1) economic, ecological and business goals.
 (2) ecological, social and economic goals.
 (3) ecological, social and agricultural goals.
 (4) social, business and economic goals.
 (5) agricultural, social and economic goals.

17. The main reason for storing perishables at low temperature is to

(1) minimize moisture loss.
 (2) increase the respiration of soft tissues.
 (3) maintain the viability.
 (4) minimize the microbial and physiological activities.
 (5) improve the colour.

18. The presence of fungi in dried chilli is mainly due to

(1) harvesting at immature stage. (2) improper drying conditions.
 (3) storing at dry places. (4) storing in dark places.
 (5) sun drying.

19. Following are three statements on biotechnology.

A - Modern-day science is developed based on biotechnology.
 B - Biotechnological applications are found in traditional practices.
 C - Biotechnology is one of the important technologies developed recently.

Of the above, the correct statement/s is/are

(1) A only. (2) B only. (3) C only. (4) A and B only. (5) A and C only.

20. A potential good entrepreneur

(1) is always prepared to take high risks.
 (2) never take high risks.
 (3) usually take risks and manage them carefully.
 (4) tries to avoid risks and minimize losses.
 (5) manage risks without external assistance.

21. Consider the following statements in relation to entrepreneurship.

A - A good entrepreneur is flexible, independent and devoted to work.
 B - The success of an entrepreneur depends on the initial investment.
 C - Delegation of responsibilities to others exhibits the leadership of an entrepreneur.

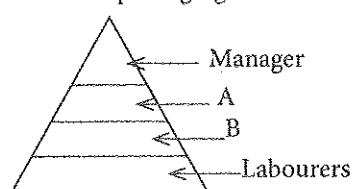
Of the above, the correct statement/s is/are

(1) A only. (2) B only. (3) C only. (4) A and B only. (5) A and C only.

22. The pyramid represents the employees of different categories of a tea packaging business.

The categories 'A' and 'B' would be

(1) owner and director, respectively.
 (2) director and assistant manager, respectively.
 (3) assistant manager and supervisor, respectively.
 (4) supervisor and foreman, respectively.
 (5) senior supervisor and junior supervisor, respectively.



23. The information required to prepare a balance sheet of a small enterprise are

- income and expenditure.
- income, expenditure and profit.
- capital investment and gross income.
- assets and liabilities.
- assets, liabilities and profit.

24. Wind direction is important during application of agrochemicals using a knapsack sprayer as it

- reduces the droplet size and application rate.
- determines the direction of movement of the operator to minimize the risk.
- increases the dosage of the chemical applied.
- reduces the amount of chemicals applied on plants.
- does not support the use of liquids.

25. The limitation of the Sri Lankan type biogas digester is

- low moisture content in biogas compared to other types of biogas digesters.
- that it is restricted only for the digestion of rice straw.
- that it requires skilled labour for construction.
- it stops the biogas production during refilling stage.
- it is more prone to gas leakage.

26. Application of technology in food manufacturing process always

- improves the nutritional quality of food.
- improves the colour of a food.
- decreases the risk of non-communicable diseases.
- improves the economic value of a food.
- improves the enzyme activity of a food.

27. Consider the following statements on food constituents.

A - Most plant-based proteins consist of all essential amino acids.
 B - Lycopene is a carotenoid present in tomato and water melon.
 C - Ascorbic acid and tocopherols are water soluble antioxidants.
 D - Animal fat is rich in saturated fatty acids.

Of the above, the correct statements are

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

28. The rate of rising (proofing) of wheat dough used in bakery products depends

- only on the amount of gluten in the dough.
- only on the proofing temperature.
- only on the moisture level of the dough.
- on gluten and yeast contents.
- on salt and gluten contents.

29. Consider the following food items.

A - Chinese roll
 B - Cooked noodles
 C - Cooked jackfruit seeds
 D - Cooked parboiled rice

Of the above, the food/s that can be considered as slow digesting is/are

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

30. Soaking of paddy before parboiling

- facilitate gelatinization.
- facilitate digestion.
- reduces nutrient availability.
- facilitate polishing.
- facilitate milling.

31. Pink-coloured raw rice is processed

- using a special paddy variety with pink-coloured bran.
- by polishing red rice after soaking.
- by partial polishing of red raw rice.
- by staining white raw rice.
- mixing white and red raw rice.

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32. Secondary processing of rice

A - provides a better profit. B - promotes food security.
 C - increase nutrient availability. D - must use preservatives.

Of the above, the correct statements are

(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.

33. According to Sri Lankan Food Standards, polished rice is graded as

(1) Grade I, Grade II and Grade III.
 (2) Grade I, Grade II and Grade III and Grade IV.
 (3) Premium, Grade I, Grade II and Grade III.
 (4) Premium, Grade I, and Grade II.
 (5) Standard, Premium, Grade I and Grade II.

34. Select the correct statement in relation to the processing of soft dough biscuits.

(1) Relatively high amount of fat and sugar are used.
 (2) Yeast is used as the texture-improving agent.
 (3) Sodium bicarbonate is not used as the texture-improving agent.
 (4) Development of 'gluten' structure is encouraged.
 (5) Rice flour cannot be used.

35. Minimal processing of fruits and vegetables,

(1) generally includes cleaning, peeling, cutting and blanching.
 (2) enhances consumer preference due to convenience in usage.
 (3) can be done for any kind of fresh produce.
 (4) is done to enhance the shelf-life.
 (5) may use minimum amount of flavour enhancers.

36. Natural fruit drinks available in the market

(1) are made out of only fruit juices.
 (2) are made out of only fruit pulps.
 (3) do not contain any added preservative, but pasteurized.
 (4) can be classified into different groups based on the fruit content.
 (5) should always be diluted prior to consumption.

37. During processing of jam,

(1) citric acid is used to maintain its pH at 5.0.
 (2) sugar is added only to increase the sweetness.
 (3) pectin must be added to any kind of fruit pulp.
 (4) Brix value needs to be increased above 68° by heating.
 (5) sulphur dioxide cannot be used as a preservative.

38. Select the correct statement with respect to dehydration of fruits.

(1) Heat drying must reduce the final moisture content of fruits below 20%.
 (2) A series of sugar solutions with declining concentration gradient is used in osmotic dehydration.
 (3) Chemical pre-treatments should not be used before heat drying.
 (4) It cannot be done using simple traditional techniques.
 (5) Cannot control degradation of nutritional quality of the final product.

39. Examples for fermented animal products are

(1) ice cream, fish pickle and Maldives fish.
 (2) yoghurt, meat balls and fish sauce.
 (3) Jadi, dry fish and salted fish.
 (4) ice cream, yoghurt and jadi.
 (5) yoghurt, fish sauce and fish pickle.

40. The average SNF content in cow milk would vary between

(1) 5 to 6%. (2) 6 to 7%. (3) 7 to 8%. (4) 8 to 9%. (5) 9 to 10%.

41. Meat can be stored for a longer period under frozen conditions because

(1) the microbial growth is suppressed by frozen conditions.
 (2) the chemical reactions are suppressed by frozen conditions.
 (3) the microbes are killed by frozen conditions.
 (4) the meat get dried by frozen conditions.
 (5) both chemical reactions and microbial growth are suppressed by frozen conditions.

42. A nutritionally important group of fatty acids available in coconut oil is
 (1) long-chain saturated fatty acids. (2) unsaturated fatty acids.
 (3) long-chain unsaturated fatty acids. (4) medium-chain unsaturated fatty acids.
 (5) medium-chain saturated fatty acids.

43. Consider the following spice-based products.

A - Ginger oleoresin
 B - Cinnamon oil
 C - Clove extract

Of the above, the product/s that can be used to add flavour as well as pungent taste to the food is/are

(1) A only. (2) B only.
 (3) C only. (4) A and B only.
 (5) A and C only.

44. Following statements are on the packaging materials.

A - Packaging material may affect the nutritional quality of food.
 B - Amber colour containers are recommended for sterilized milk.

Of the above statements,

(1) only A is correct.
 (2) only B is correct.
 (3) both A and B are correct.
 (4) A is correct and it is further explained by B.
 (5) B is correct and it is further explained by A.

45. Modified atmospheric packaging conditions may

(1) control the internal environment of a package.
 (2) reduce the cost of a package.
 (3) improve the colour of a food.
 (4) reduce the moisture content of a food.
 (5) reduce the transport cost of a food.

46. One of the major objectives of quality assurance of food is to

(1) enhance consumer attraction. (2) improve the market chain.
 (3) reduce the cost. (4) minimize the use of food additives.
 (5) protect the nutrients.

47. Purity of chilli powder in the market can be determined by

(1) ash content of chilli. (2) moisture content of chilli.
 (3) carbohydrate content of chilli. (4) fibre content of chilli.
 (5) fat content of chilli.

48. A student consumed an excessive amount of roasted peanuts showed symptoms of severe vomiting and stomach-ache. Medical investigations confirmed food poisoning as a main cause for this condition. This could be due to contamination of peanuts with

(1) bacteria. (2) algae. (3) virus. (4) yeast. (5) fungi.

49. The following symptoms were observed in a patient by a medical practitioner.

A - Weak eye vision
 B - Letharginess

The most probable micro nutrient deficiencies that can directly be associated with these conditions are

(1) vitamin A and iron. (2) vitamin A and calcium.
 (3) vitamin B₆ and calcium (4) iron and calcium.
 (5) iron and potassium.

50. The following statements are on a service provider of the food industry.

A - Production technology of yoghurt can be obtained from Veterinary Research Institute (VRI).
 B - VRI is the only institute that can provide technological information on yoghurt manufacturing process.

Of the above statements,

(1) only A is correct.
 (2) only B is correct.
 (3) both A and B are correct.
 (4) A is correct and it is further explained by B.
 (5) B is correct and it is further explained by A.

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ஏற்றுக் கொடுக்கப்படுகிற பாட (ஏஏ. எல்) விஷயத், 2015 முதல்தாழ்வு கல்விப் பொதுத் தொகுப் பந்தி (உயர் தரு)ப் பிரிவை, 2015 ஒகஸ்ட் General Certificate of Education (Adv. Level) Examination, August 2015

ஆரார் காந்தீன் வீட்டிய உணவுத் தொழில்நுட்பவியல் Food Technology

17 E II

ஈடு ஒன்றி
மூன்று மணித்தியாலம்
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 four* 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 Part 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

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

Final Marks

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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1. (A) Soft technology is based on different components. State **two** such components.

(1)

(2)

(B) State **two** ways to use internet to find information on business management.

(1)

(2)

(C) State a disease condition associated with inadequate dietary intake of each of the following nutrients.

Nutrient	Disease condition
(i) Vitamin A
(ii) Iron
(iii) Iodine
(iv) Calcium

(D) Spoilage of food can be explained as a multi-factorial process.

(i) State **two** factors that are directly associated with chemical spoilage of food.

(1)

(2)

(ii) State **two** possible conditions that directly affect the spoilage of food under unhygienic conditions.

(1)

(2)

(E) State **three** ways that household food security can be promoted.

(1)

(2)

(3)

(F) List **four** factors that has been used to classify agro-ecological regions in Sri Lanka.

(1)

(2)

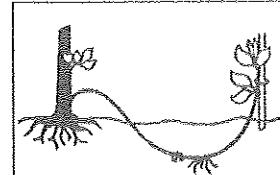
(3)

(4)

(G) Name the vegetative propagation method shown in each of the figures and state an example of a crop for which the method can be used.

(i) Method :

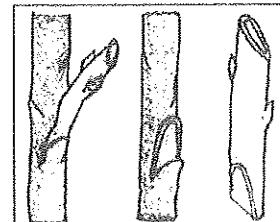
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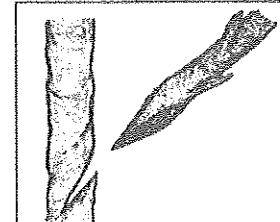
(ii) Method :

Crop :



(iii) Method :

Crop :



2. (A) Name three sensitive aquatic ecosystems found in Sri Lanka.

(1)

(2)

(3)

(B) State two threats for the sustainability of aquatic systems.

(1)

(2)

(C) State two important measures to reduce post-harvest losses of fish related products.

(1)

(2)

(D) State two technological methods used to minimize post-harvest losses of grains.

(1)

(2)

(E) State two advantages and two disadvantages of genetically modified crops.

(i) Advantages

(1)

(2)

(ii) Disadvantages

(1)

(2)

(F) A small-scale yoghurt production business was badly affected due to increased price of raw milk and plastic containers. Few employees have volunteered to resign due to poor financial situation of the business.

(i) State **one** external factor responsible for the current condition of the business.

.....

(ii) State **one** internal factor responsible for the current condition of the business.

.....

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(G) A rice miller purchased a new milling machine for Rs 150,000. He received Rs 100,000 as a bank loan at 1% monthly interest and invested another Rs 20,000 to install the machine. His electricity bill per month is Rs 12,000. Answer the following questions.

(i) What is the capital investment of this business?

.....

.....

(ii) Calculate the recurrent expenditure per month for this business

.....

.....

(iii) State **two** additional information that is required to calculate the profit/loss of the business.

(1)

(2)

(H) State **two** factors that should be considered in selecting a suitable entrepreneurship opportunity.

(1)

(2)

(I) State **two** examples for risks that could result due to processing food without following proper standards.

(1)

(2)

(J) Market waste and agricultural waste are suitable raw material for composting. State **two** conditions suitable for better composting of these raw materials.

(1)

(2)

3. (A) Special food formulations should be given to people under special conditions.

State **two** conditions that could be considered as Special Conditions for special food formulations.

(1)

(2)

(B) (i) Name **two** macro-molecules that compose starch.

(1) (2)

(ii) Classify fatty acids based on the type of Carbon-Carbon bonds.

(1) (2)

(C) Food habits that are specific to certain cultures are identified as cultural food habits.
State two cultural food habits in Sri Lanka.

(1)
(2)

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(D) (i) State **one** structural and **one** nutritional differences of raw and parboiled rice.

(1) Structural difference :
(2) Nutritional difference :

(ii) State **three** important constituents in bread dough and their contribution to obtain preferred bread quality.

Constituent	Contribution to obtain preferred bread quality
(1)
(2)
(3)

(iii) State **two** biochemical changes that take place in sprouted beans compared to non-sprouted beans.

(1)
(2)

(E) (i) Name the principle physico-chemical reaction responsible for the following observations.

(1) Development of brown colour on baked products

.....

(2) Softening of rice grains during cooking

.....

(ii) Name **two** microorganisms used in soya-yoghurt processing.

(1)
(2)

(iii) State **four** parameters used in Sri Lankan standards in grading raw and parboiled rice.

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

(F) State the importance of each of the following steps of yoghurt manufacture.

Manufacturing step	Importance
(i) Boiling milk
(ii) Homogenizing of milk



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4. (A) List three visible characteristics of fresh fish.

(1)
(2)
(3)

(B) State two additives commonly used in making meat balls.

(1) (2)

(C) Certain naturally available nutrients in coconut oil can be destroyed during the production process of RBD coconut oil.
State two naturally available nutrients in coconut oil that can be destroyed during the production process of RBD coconut oil.

(1) (2)

(D) List three important factors that should be considered in selecting spices for the manufacturing process of value added products.

(1)
(2)
(3)

(E) Natural packaging materials may protect the nutritional as well as physical properties of a food.
List four natural food packaging materials.

(1) (2)

(3) (4)

(F) List four benefits of establishing Sri Lankan Standards (SLS) for food.

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

(G) State two important regulations available for the design of a label of spray-dried milk powder.

(1)
(2)

(H) List three health effects that can occur due to the consumption of fast food.

(1)
(2)
(3)

(I) Name two responsible institutes that directly provide information and services to maintain economic as well as nutritional value of agricultural products.

(1)
(2)

**

அறார காக்டனவீடு
உணவுத் தொழினுட்பவியல்
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) State the advantages and disadvantages of using traditional technology in the development programmes of Sri Lanka.

(ii) Describe the harmful impacts of waste on the environment.

(iii) Explain the importance and strategies to achieve national food security.

6. (i) Explain the possible changes that can occur in food due to spoilage.

(ii) Explain the factors that should be considered in planning a healthy diet for school children.

(iii) Describe the methods of milk preservation.

7. (i) Justify the following statement.
“Biotechnological applications have immensely contributed in achieving high food production.”

(ii) Describe the characteristics of a good entrepreneur.

(iii) Describe how the environmental damages caused due to use of machinery in food production could be minimized.

Part C

8. (i) Write the importance and impact of traditional technology on modern technologies.
(ii) Giving reasons and examples, classify unprocessed foods into different groups based on their composition.
(iii) Explain the impact of traditional food habits on healthy human life.

9. (i) State the important considerations of minimal processing of fruits and vegetables.
(ii) Explain the importance of promoting value-added food products of rice.
(iii) Briefly describe the different methods used to dehydrate fish.

10. (i) Explain the practical use of desiccated coconut.
(ii) State the differences between production processes of essential oil and oleoresin
(iii) Describe the impact of food packaging regulations on consumer safety.

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