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காலை நூல்களிலே வெளியீடு  
விவசாயத் தொழில்களுட்பவியல் |  
**Agro Technology** |

18 E I

ପ୍ରେସ ଦେଣାକି  
ଇରଣ୍ଣଟୁ ମଣିତତ୍ତ୍ୟାଳମ୍  
*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. Evolution of soft technology from the ancient society to modern society was least influenced by  
(1) income of population. (2) limitation of arable land.  
(3) increasing demand for quality food. (4) global warming.  
(5) depletion of water resource.

2. Following information could be obtained through internet.  
A - Internet Service Providers  
B - Present data on crops and animals  
C - Various institutions and their services  
D - Marketing facilities  
Of the above, information needed to start a new agro-enterprise are  
(1) A and B only. (2) B and C only.  
(3) A, B and C only. (4) A, C and D only.  
(5) B, C and D only.

3. The Body Mass Index (BMI) indicates the  
(1) social status of a person. (2) economic status of a person.  
(3) educational status of a person. (4) nutritional status of a person.  
(5) life expectancy of a person.

4. High fibre content available in food may  
(1) increase the absorption of iodine.  
(2) decrease the absorption of sugar.  
(3) increase the absorption of cholesterol.  
(4) aggravate constipation problems.  
(5) minimize micronutrient deficiencies.

5. Enzymatic browning can be considered as  
(1) chemical spoilage. (2) physical spoilage.  
(3) microbial-induced chemical spoilage. (4) enzyme-induced microbial spoilage.  
(5) chemical-induced microbial spoilage.

6. Microbial contamination may reduce the  
(1) off-colour of a food. (2) off-flavour of a food.  
(3) nutrient content of a food. (4) spoilage of a food.  
(5) chemical spoilage of a food.

7. Popularization of commonly available under-utilized food materials may help to improve the  
(1) affordability of people. (2) food security of the country.  
(3) economic status of the people. (4) educational status of the people.  
(5) social status of the people.

8. The number of agro-ecological regions in the wet, intermediate and dry zones of Sri Lanka are  
 (1) 3, 7 and 24, respectively. (2) 3, 7 and 46, respectively.  
 (3) 11, 15 and 20, respectively. (4) 15, 20 and 11, respectively.  
 (5) 20, 15 and 11, respectively.

9. The elevations that demarcate low, mid and up country regions of Sri Lanka are  
 (1) less than 100m, between 100-300m and more than 300m above mean sea level, respectively.  
 (2) less than 300m, between 300-900m and more than 900m above mean sea level, respectively.  
 (3) less than 500m, between 500-1000m and more than 1000m above mean sea level, respectively.  
 (4) less than 750m, between 750-1250m and more than 1250m above mean sea level, respectively.  
 (5) less than 1750m, between 1750-2500m and more than 2500m above mean sea level, respectively.

10. Consider the following statements.

A - Vegetative propagation produces genetically identical plants.  
 B - Sexual reproduction contributes to increase biodiversity of an ecosystem.  
 C - A large number of propagules are produced by vegetatively-propagating plants than sexually reproducing plants.

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

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

11. Select the correct statement from the following.

(1) Rhizome is a branched vegetative stem.  
 (2) Bud is found in the top of a corm.  
 (3) Stolon is an underground vegetative stem.  
 (4) Bulb of a plant is not a food storage part.  
 (5) Bulbils originate from the first node of a stem.

12. Cell division of a plant is promoted by

(1) Jasmonic acid. (2) Abscisic acid. (3) Cytokinin.  
 (4) Ribonucleic acid. (5) Ethylene.

13. Following are some parts of the katuwal batu (*Solanum virginianum*) plant.

A - Leaves B - Roots  
 C - Seeds D - Berries

Of the above, the plant parts used for medicinal purposes are

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

14. Consider the following statements about Turmeric (*Curcuma longa*).

A - It is used to treat insect bites.  
 B - It is used to treat skin diseases.  
 C - It is used to cure the lung diseases.  
 D - It is used to treat diarrhea.

Of the above, the correct statements are

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

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15. The Pinus resin is used for the production of

(1) sheet rubber. (2) tooth paste. (3) perfume.  
 (4) paper. (5) medicinal drinks.

16. Consider the following statements with respect to a mangrove ecosystem.

A - It acts as a buffer zone against sea erosion.  
 B - It is used by most fish species as a breeding ground and as a suitable place for early larval growth.  
 C - It provides economically-valuable materials for mankind.  
 D - It exists only in countries in the temperate regions.

Of the above, the correct statements are

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

17. From the following, the least effective method in reducing post-harvest losses of perishable fruits is the

- use of paper wrapping to cover the fruits after harvest.
- use of plastic crates during transportation.
- application of pesticides to control fruit fly.
- use of cold storage facilities.
- harvesting before full ripening.

18. Postharvest losses of grain crops may be increased due to

- storage in poly-sack bags.
- day and night temperature difference.
- storage of several varieties in the same warehouse.
- high humidity in storage.
- high ventilation in storage.

19. An example for a modern biotechnological use is the

- production of genetically-modified tomato.
- propagation of valuable plants through tissue culture.
- production of a vaccine against influenza virus.
- production of drinking yoghurt.
- transplanting a kidney.

20. A good entrepreneur should

- be self-confident, independent and financially stable.
- be devoted to work, flexible and respects everybody's opinion.
- be devoted, flexible, but strong in decision making.
- have interest to achieve objectives, flexible and depend on others.
- respond to issues after discussing with employees.

21. Following are three statements regarding entrepreneurship.

A - Private extension service offered to paddy farmers is a food technological entrepreneurship.

B - Production and selling of hoppers can be considered as an application of soft technology in a business.

C - Market situation should be studied in selecting an entrepreneurship opportunity.

Of the above,

- A is correct but B and C are incorrect.
- B is correct but A and C are incorrect.
- C is correct but A and B are incorrect.
- A and B are correct but C is incorrect.
- B and C are correct but A is incorrect.

22. A good leadership is necessary for a successful management of an enterprise. A good leader

- is able to communicate with others effectively but do not listen to others.
- attempts to do things by himself and make his own decisions.
- delegates responsibilities to others and coordinates among them.
- works independently.
- is not a good decision maker but a good coordinator.

23. Consider the following statements.

A - Fixed assets is an item that should be included in a balance sheet of a business.

B - The net profit of a business is found in the cash flow statement.

C - Fixed assets always reflects the capital investment.

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

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

24. Select the factor that contributes the least to prevent injuries from an agricultural tractor.

- Drive at very low speed
- Maintain appropriate tyre pressure
- Use only the standard accessories
- Used only by skilled operators
- Regular servicing

25. The major category of the municipal solid waste generated in Sri Lanka is  
 (1) polythene and plastics. (2) paper.  
 (3) plant and animal parts. (4) building materials.  
 (5) food and kitchen waste.

26. The most important factor that should be considered in selecting an appropriate machinery for ploughing a lowland paddy field is the  
 (1) slope of the field. (2) size of the field.  
 (3) soil texture. (4) depth of the hardpan.  
 (5) weight of the machine.

27. An example for a multipurpose land preparation equipment is  
 (1) moldboard plough. (2) disc plough. (3) rotavator.  
 (4) mammoty. (5) rake.

28. Of the following species, the weed that is most troublesome in a lowland paddy cultivation in Sri Lanka is,  
 (1) *Mimosa pigra*. (2) *Echinochloa crus-galli*. (3) *Salvinia molesta*.  
 (4) *Cyperus iria*. (5) *Parthenium hysterophorus*.

29. Followings are some statements regarding the mechanical weeding in paddy fields.  
 A - Mammoty is the most common mechanical weeder in Sri Lanka.  
 B - Row planting is necessary to practice mechanical weeding.  
 C - Japanese rotary weeder can be effectively used for weed control in lowland paddy fields.  
 Of the above, the correct statement/s is/are  
 (1) A only. (2) C only. (3) A and B only.  
 (4) A and C only. (5) B and C only.

30. Following are some agricultural practices found in Sri Lanka.  
 A - Addition of cowdung to vegetable cultivation in Welimada  
 B - Use of Inorganic fertilizer in paddy cultivation at Anuradhapura  
 C - Inter-cultivation in chilli cultivation in Matale  
 D - Cultivation of potato in Nuwara Eliya  
 Of the above, the practices that contribute to soil erosion are  
 (1) A and B only. (2) B and C only. (3) C and D only.  
 (4) A, B and C only. (5) B, C and D only.

31. Addition of organic matter to water logged paddy field will enhance the release of  
 (1) Carbon dioxide. (2) Methane. (3) Ammonia.  
 (4) Chlorofluorocarbon. (5) Ozone.

32. The water source that can be used to draw permanent water supply for irrigation is  
 (1) ancuts. (2) agro wells. (3) deep tube wells.  
 (4) major irrigation channels. (5) streams.

33. The most appropriate technique to conserve water in a field irrigation system is to  
 (1) convey water through concrete drains. (2) convey water through pipes.  
 (3) convey water through grass waterways. (4) grow shade trees in the field.  
 (5) mulching the entire field with plastic sheets.

34. An advantage of sprinkle irrigation is the  
 (1) reduction of frost damage. (2) reduction of evaporation.  
 (3) applicability in any weather condition. (4) increase of water holding capacity of soil.  
 (5) increase of water content of plants.

35. Select the most correct statement from the following.  
 (1) Use of straight fertilizer is advantageous than using mixed fertilizer.  
 (2) Weed control has no relationship with the fertilizer use efficiency.  
 (3) Micro-irrigation systems could be used to supply fertilizers to the crop.  
 (4) Incorporation of fertilizer to the soil reduces their uptake by plants.  
 (5) Organic fertilizer fulfils the total requirement of nutrients to a crop.

36. Consider the following statements.

- A - Availability of large quantities of crop residues
- B - Short time duration between two cultivating seasons
- C - Production of compost at the homestead
- D - Availability of inorganic fertilizer

Of the above, the conditions that enhances the practical use of integrated plant nutrient management are

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

37. From the following, the major nutrients that are usually **not** found deficient in plants are,

- (1) N, P and K. (2) C, H and P. (3) Ca, Mg and H. (4) C, H and O. (5) P, K and C.

38. Select the correct statement in relation to tissue culture.

- (1) MS is a growing media, which is not readily available at the market.
- (2) Virus-free planting materials can be produced.
- (3) It can be initiated as a self-employment with low initial cost.
- (4) A laminar flow is essential to transfer plantlets.
- (5) It is a subdivision of Micro-propagation.

39. Select the correct statement from the following.

- (1) Rock garden could be considered as an indoor garden arrangement.
- (2) Large number of trees could be considered as one of the important characters in a Japanese garden.
- (3) Roof garden is the most common type of garden found in Sri Lanka.
- (4) Statues are one of the important components in a water garden.
- (5) Formal gardens are always symmetrical.

40. Of the following the major insect pest that damages rice plant is

- (1) Fruit fly. (2) Leaf miner. (3) Mealy bug.
- (4) Brown plant hopper. (5) Leaf eating caterpillar.

41. Select the correct statement from the following in relation to plant growing systems.

- (1) Protected culture is a soilless culture.
- (2) Aeroponic systems are established in non-misty environments.
- (3) Deep flow technique (DFT) uses compost as a plant growth medium.
- (4) Nutrient film technique (NFT) uses a flow of nutrient solution inside a growing channel.
- (5) In hydroponic systems, maintenance of pH of the medium is the least important practice.

42. Following are some statements related to landscaping of a home garden.

- A - Use of concrete stepping stones on a grass lawn is an example for structural integration in landscaping.
- B - Thorny bushes are ideal for vegetative fences.
- C - Colour contrast is an important factor in selecting plant species for landscaping.

Of the above, the 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.

43. Consider the following.

- A - Control of Brown Plant Hopper
- B - Improve water management
- C - Control of *Cyperus rotundus*
- D - Facilitates seedling establishment of the crop

Of the above, the primary land preparation in paddy is done with the objectives of

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

44. Compared to direct seed broadcasting, transplanting paddy

- (1) increases the total growth duration of the crop.
- (2) reduces the final grain yield.
- (3) increases the weed competition.
- (4) reduces total cost of labour.
- (5) increases the use of inorganic fertilizer.

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45. Following are some statements of landscape gardening.

- A - Japanese garden consists of Bonsai.
- B - Formal garden needs high maintenance and high care.
- C - Light and shade are important components to design a garden in an artistic way.
- D - Indoor garden does consist of miniature gardens.

Of the above, the correct statements are

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

46. Following are few statements on farm animals.

- A - The potential production of Friesian cows is greater than that of Jersey cows.
- B - Under good management, a healthy pig should reach the market weight in 8 months.
- C - The potential production of a modern commercial layer is about 320-340 eggs per year.
- D - All animals that depend on roughage feeds are known as ruminants.

Of the above, the correct statements are

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

47. Few examples for energy supplements are

- (1) soybean meal, maize meal and rice bran.
- (2) coconut poonac, rice polish and wheat bran.
- (3) maize meal, coconut poonac and rice bran.
- (4) fish meal, blood meal and meat meal.
- (5) brocken rice, coconut oil and maize meal.

48. The ideal weight of a chicken egg selected for incubation should be

- (1) 45 grams.
- (2) 50 grams.
- (3) 55 grams.
- (4) 60 grams.
- (5) 65 grams.

49. The best technique/s to bring all the cows to pregnancy at the same time in a dairy farm is/are,

- (1) embryo transfer.
- (2) estrus synchronization.
- (3) artificial insemination.
- (4) artificial insemination and estrus synchronization.
- (5) artificial insemination and embryo transfer.

50. An example for a chemical preservative added to meat when producing meat sausages is

- (1) Sodium chloride.
- (2) Sodium nitrite.
- (3) Sodium hydroxide.
- (4) Sodium peroxide.
- (5) Sodium glutamate.

\* \* \*

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உயிர்கள் கோட்டு கல்விக் கால (கல்வி கோட்டு) விழாக்கல், 2017 கல்விக் கல்விப் பொதுக் கருதாப் பத்திர (2 ம் தருப்பு) பாட்டுச், 2017 ஒக்டோபர் General Certificate of Education (Adv. Level) Examination, August 2017

காலை காக்ஷன் வெடிய விவசாயத் தொழில்நுட்ப வியல் Agro Technology

18 E II

ପ୍ରେସ ବୁନ୍ଦି  
ମୁଣ୍ଡରୁ ମଣିତତ୍ତ୍ୟାଳମ୍  
*Three hours*

**Index No.:** .....

### Instructions:

- \* This question paper consists of 10 questions 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 Examiners' Use only**

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

## Final Marks

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 a direct and indirect benefit of using soft technology in food production.

(1) Direct benefit : .....

(2) Indirect benefit : .....

(B) State **four** disease conditions that may occur due to over-nutrition.

(1) .....

(2) .....

(3) .....

(4) .....

(C) Name **four** microbes, which may be responsible for food poisoning.

(1) .....

(2) .....

(3) .....

(4) .....

(D) State **two** factors that are responsible for food security at the domestic level.

(1) .....

(2) .....

(E) List **three** uses of the knowledge on agro-ecological regions in the development of agriculture in Sri Lanka.

(1) .....

(2) .....

(3) .....

(F) State **four** techniques used by farmers in Sri Lanka to adapt to climate changes in their farming operations.

(1) .....

(2) .....

(3) .....

(4) .....

(G) Budding and grafting techniques can be used successfully on a commercial basis for plant propagation. List **three** advantages and **three** disadvantages of budding and grafting of horticultural crops.

Advantages

(1) .....

(2) .....

(3) .....

Disadvantages

(1) .....

(2) .....

(3) .....

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2. (A) Name a crop each that the postharvest loss could mainly occur at the following stages.

- (1) harvesting : .....
- (2) packaging : .....
- (3) drying under direct sunlight : .....
- (4) long-term storage : .....

(B) Betel (*Piper betle*) is considered as one of the important medicinal plants in the rural areas of Sri Lanka. List **four** medicinal uses of betel plant.

- (1) .....
- (2) .....
- (3) .....
- (4) .....

(C) State **two** anthropogenic activities that lead to destruction of coral reefs.

- (1) .....
- (2) .....

(D) State **three** management practices adopted for sustainable management of aquatic environments.

- (1) .....
- (2) .....
- (3) .....

(E) State **two** disadvantages of modern biotechnology.

- (1) .....
- (2) .....

(F) State **two** examples each for production and service enterprises.

(i) Production enterprises

- (1) .....
- (2) .....

(ii) Service enterprises

- (1) .....
- (2) .....

(G) Followings are some information on a smallscale agro-enterprise.

The value of the buildings = Rs. 5 000 000

The land value = Rs. 2 000 000

Value of the two vehicles = Rs. 8 000 000

Value of animals = Rs. 1 000 000

Value of machinery = Rs. 2 000 000

Salaries and wages = Rs. 200 000

Electricity and other inputs = Rs. 60 000

Use the above information to answer the following questions.

- (1) Value of all fixed assets Rs.....
- (2) Value of all movable assets Rs.....
- (3) Capital investment Rs.....
- (4) Recurrent expenditure Rs.....

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(H) List the **two** most widely used solid waste disposal methods in the world.

(1) .....

(2) .....

3. (A) Name a traditional farm implement each that can be used to perform following activities in paddy cultivation.

(1) Primary land preparation : .....

(2) Puddling : .....

(B) Farmers' adaptation to modern farm mechanization is hindered by financial limitations and many other factors.

(i) Except the financial limitations, state one limiting factor each that hinders the farmers' adaptation to following modern farm mechanization methods.

(1) Use of Combine harvester for paddy harvesting : .....

(2) Sprinkler irrigation in chilli cultivation : .....

(ii) State an example each for appropriate modern agriculture machinery that can be used to perform following activities.

(1) Rice transplanting : .....

(2) Weed control on bunds : .....

(C) List **three** factors that affect the rate of soil erosion.

(1) .....

(2) .....

(3) .....

(D) State an advantage and a disadvantage of piston pumps over centrifugal pumps in lifting water from an agro well.

(1) Advantage : .....

(2) Disadvantage : .....

(E) Name the most appropriate irrigation technique that can be used for a tomato cultivation in dry zone of Sri Lanka under each of the following situations.

(1) Surface irrigation : .....

(2) Sub-surface irrigation : .....

(F) Name the **four** main components of a drip irrigation system.

(1) .....

(2) .....

(3) .....

(4) .....

(G) State **two** methods that can be used to identify the nutrient needs of a plant.

(1) .....

(2) .....



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column

(H) State **two** nutritional functions of dietary proteins.

(1) .....  
(2) .....

(I) State the main reason/purpose for each of the following activities during hatching of eggs.

(1) Candling : .....  
(2) Turning of eggs : .....

(J) Name **two** tests done to evaluate bull semen.

(1) .....  
(2) .....

(K) State the temperature and time combination used in low temperature/long duration pasteurization of milk.

(1) Temperature : .....  
(2) Time : .....

\* \*

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Department of Examinations, Sri Lanka

ආධ්‍යාත්‍රී පොදු සහතික පත්‍ර (ලුප්ස් පෙළ) විභාගය, 2017 පෙරේස්ත්‍රා

கலவீர் பொதுத் தராதுப் பந்தி (பூர் தூப் பாரி) செ, 2017 ஒக்டோபர்

காலை காங்கிரஸ் வேட்டை II  
விவசாயத் தொழில்நுட்பவியல் II  
**Agro Technology** II

18 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 factors that need to be considered in establishing a medicinal garden for commercial purpose.  
(ii) Describe the use of food pyramid to maintain a healthy life of a person.  
(iii) State the practices adopted in homegarden agriculture in Sri Lanka to minimize the impacts of climate changes.
6. (i) Giving examples, describe the chemical spoilage of a food.  
(ii) Explain the different anthropogenic activities that affect on the sustainable existence of brackish water aquatic resources.  
(iii) Explain the importance of protecting genetic resources in Sri Lanka.
7. (i) Describe the contribution of research institutes to assure the food security of a country.  
(ii) Describe various factors that should be considered in evaluating the potential for a new enterprise.  
(iii) Describe the possible ways to minimize the pollution created by the waste generated in the food industry.

### Part C

8. (i) Explain the factors to be considered in selecting an appropriate type of combine harvester for a farmer society in a village in the dry zone of Sri Lanka.

(ii) Describe the role of major plant nutrients on the growth of crops.

(iii) Describe different factors that should be considered in selecting eggs for incubation.

9. (i) Using an appropriate diagram, name the components of a moldboard plough and describe their operation procedure.

(ii) Giving examples, describe different types of feedstuffs available for feeding farm animals.

(iii) Explain the methods used to preserve milk using high temperature.

10. (i) Describe **three** methods to conserve rainwater to be used for irrigation in the dry zone of Sri Lanka.

(ii) Giving appropriate examples, explain how a vegetable cultivation can be maintained in a protected house.

(iii) Describe the process involved in collecting and processing of bull semen for artificial insemination.

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