

සියලු ම හිමිකම් ඇවිරිණි / முழுப் பதிப்புரிமையுடையது / All Rights Reserved

ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව Department of Examinations, Sri Lanka இலங்கைப் பரீட்சைத் திணைக்களம் Department of Examinations, Sri Lanka	<b>81 E I, II</b>
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අධ්‍යයන පොදු සහතික පත්‍ර (සාමාන්‍ය පෙළ) විභාගය, 2019 දෙසැම්බර්  
 கல்விப் பொதுத் தராதரப் பத்திர (சாதாரண தர)ப் பரீட்சை, 2019 டிசெம்பர்  
**General Certificate of Education (Ord. Level) Examination, December 2019**

කෘෂි හා ආහාර තාක්ෂණය விவசாயமும் உணவுத் தொழில்நுட்பவியலும் <b>Agriculture and Food Technology</b>	<b>I, II</b> <b>I, II</b> <b>I, II</b>	<b>06.12.2019 / 0830 - 1140</b>
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පැය තුනයි மூன்று மணித்தியாலம் <b>Three hours</b>	අතිරේක කියවීමේ කාලය - මිනිත්තු 10 යි மேலதிக வாசிப்பு நேரம் - 10 நிமிடங்கள் <b>Additional Reading Time - 10 minutes</b>
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Use **additional reading time** to go through the question paper, select the questions and decide on the questions that you give priority in answering.

### Agriculture and Food Technology I

**Note :**

- (i) Answer all questions.
- (ii) In each of the questions 1 to 40, pick one of the alternatives (1), (2), (3), (4) which is correct or most appropriate.
- (iii) Mark a cross (X) on the number corresponding to your choice in the answer sheet provided.
- (iv) Further instructions are given on the back of the answer sheet. Follow them carefully.

1. 'Tank' (Wewa) can be identified as a special creation of ancient irrigation technology in Sri Lanka. The first tank constructed in Anuradhapura era was
 

(1) Parakrama Samudraya.	(2) Senanayake Samudraya.
(3) Abhaya wewa.	(4) Nuwara wewa.
  
2. The activities done by a group of students while preparing pots for vegetable cultivation are stated below.
 

A - Adding a layer of pieces of bricks to the bottom of the pot.
B - Adding decomposed leaves on it.
C - Mixing soil and compost in 1 : 1 ratio.
D - Filling pots with the above mixture.

 Out of the above, which activity improves the drainage of pots?  
 (1) A                      (2) B                      (3) C                      (4) D
  
3. To determine soil texture, a student tried to make a ball by keeping slightly moist soil sample on his palm, but failed. This soil is a  
 (1) clay soil.              (2) sandy soil.              (3) clay loamy soil.      (4) sandy loamy soil.
  
4. In which layers/horizons of a soil profile, are soil organisms abundant?  
 (1) O and A              (2) A and B              (3) B and C              (4) C and R
  
5. Soil water and soil air are retained in micro and macro pores which are found among soil particles. The optimum percentage of soil pores suitable for crop cultivation is  
 (1) 30%.                      (2) 40%.                      (3) 50%.                      (4) 60%.
  
6. Out of the following statements regarding the equipment used to measure climatic parameters, which is the correct statement?
  - (1) By a simple rain gauge, only the amount of rainfall can be measured.
  - (2) A rain gauge should be installed 1.5 metres above ground level.
  - (3) Dry bulb reading of a wet and dry bulb thermometer is always lower than the wet bulb reading.
  - (4) The duration of light could be measured by light intensity meter.

7. Agro climatic zones of Sri Lanka are denoted by various symbols. WU and IM respectively denote
- (1) the low country wet zone and the low country intermediate zone.
  - (2) the up country intermediate zone and the mid country dry zone.
  - (3) the up country dry zone and the low country wet zone.
  - (4) the up country wet zone and the mid country intermediate zone.
8. The insect which eats brinjal leaves leaving the veins as a net is
- (1) Aulacophora.      (2) Cucurbit fly.      (3) Epilachna.      (4) Fruit fly.
9. Out of the following activities, select the option which includes the activities belonging to secondary land preparation **only**?
- (1) Loosing soil around plants and mixing fertilizer to the soil
  - (2) Weed controlling and earthing up
  - (3) Cutting soil clods, turning them and mixing organic matter to the soil
  - (4) Breaking soil clods that turned over, levelling and making planting beds
10. The suitable nursery type for crops which are **not** resistant for transplanting is
- (1) dapog nurseries.      (2) compots.
  - (3) nursery beds.      (4) neridoko nurseries.
11. What is expected by sterilizing the nursery medium before seeding is to
- (1) accelerate seed germination.      (2) control pest damages.
  - (3) improve drainage.      (4) increase the abundance of plant nutritions.
12. Out of the irrigation methods used in crop cultivation, the most efficient and intensive method is
- (1) drip irrigation.      (2) flood irrigation.
  - (3) basin irrigation.      (4) sprinkler irrigation.
13. A condition that occurs in crop cultivation due to poor drainage is
- (1) increasing the population of aerobic organisms in soil.
  - (2) reduction of root diseases of crops.
  - (3) growth of root system of the crop into deeper levels.
  - (4) production of methane gas by decomposing organic matter.
14. Select the correct statements out of the following statements on weeds.
- A - The leaves of broad leaved weeds have reticulate venation.  
 B - There is a fibrous root system in grasses.  
 C - The broad leaved weeds have hollowed stems.
- (1) A and B only      (2) A and C only
  - (3) B and C only      (4) All A, B and C
15. What is the type of weedicide that should be applied to control the weeds with underground stems such as 'Atawara' (*Panicum repens*) and 'Kalanduru' (*Cyperus rotundus*)?
- (1) Selective weedicide      (2) Systemic weedicide
  - (3) Contact weedicide      (4) Total weedicide
16. Several statements on the relationship between crop classification and pest management are given below.
- A - Bacterial wilt can be controlled by cultivating potatoes in the same land, just after a tomato cultivation.  
 B - Damage caused by Cucurbit fly can be controlled by cultivating a non cucurbit crop just after cultivating a cucurbit crop.  
 C - When a selective weedicide is applied to a paddy-field, broad leaved weeds are destroyed, leaving paddy plants.
- Out of the above, what are the true statements?
- (1) A and B only      (2) A and C only      (3) B and C only      (4) All A, B and C

17. What is expected by covering the fruits of cucurbitaceae crops with polythene bags?

- (1) To prevent cucurbit fly damage
- (2) To enhance the size of fruits
- (3) To give the real colour to the fruit
- (4) To prevent photosynthesis in fruits

18. Several statements on plant nutrients are mentioned below.

- A - Macro nutrients required for plants are nitrogen, phosphorus and potassium only.
- B - Some of the micro nutrients needed for plants are iron, copper, zinc and manganese.
- C - Compost contains macro and micro nutrients needed for plant.

Out of the above, what are the correct statements?

- (1) A and B only
- (2) A and C only
- (3) B and C only
- (4) All A, B and C

19. Out of the following, which is the most suitable activity to accelerate the process of composting?

- (1) Heaping the materials to be composted on a polythene sheet
- (2) Increasing the mixing interval of materials
- (3) Covering the materials with a black polythene to prevent aeration
- (4) Cutting the raw materials to be composted into small pieces

20. Some chemical fertilizers in polysack bags were stored in a school agriculture unit. The characteristics of those fertilizers are as follows.

- A - Gray coloured, round shaped granules
- B - Brick red coloured, small crystals
- C - White coloured, round shaped granules

The fertilizers in A, B and C bags respectively are

- (1) triple super phosphate, muriate of potash and urea.
- (2) triple super phosphate, urea and muriate of potash.
- (3) ammonium sulphate, muriate of potash and urea.
- (4) rock phosphate, ammonium sulphate and urea.

21. The reproductive phase of a paddy plant is the period from

- (1) seed germination to flower primordia initiation.
- (2) flower primordia initiation to flowering.
- (3) flower primordia initiation to panicle ripening.
- (4) from flowering to panicle ripening.

22. In which of the following plants bulbils are produced as natural vegetative reproduction propagules?

- (1) Potato
- (2) Big onions
- (3) Gotukola (*Centella*)
- (4) Agave

23. According to the growth stage, the shoot cuttings used for propagation are three types as soft wood, semi hard wood and hard wood. Out of the following plants, soft wood cuttings are used to propagate

- (1) manioc.
- (2) sweet potato.
- (3) croton.
- (4) bougainvillea.

24. Which diagram depicts the correct cutting of the scion used in inverted T budding?



(1)



(2)



(3)



(4)

25. Select the option from the following table, which indicates the type of seeds and the reason for its dormancy correctly.

	Type of seeds	Reason for dormancy
(1)	Papaw	Thick seed coat
(2)	Tomato	Presence of inhibitors
(3)	Orchids	Impermeable seed coat
(4)	Teak	Undeveloped embryo

26. What is the major problem faced in crop cultivation in the polythene houses in low country wet zone in Sri Lanka?

- (1) Tearing of polythene due to high wind
- (2) Increasing temperature in the polythene house
- (3) Increasing pest damages
- (4) Growth of algae on polythene

27. Statements on a nutrient medium used in soilless culture are mentioned below.

A - It should contain all macro and micro nutrients needed for plant nutrition.

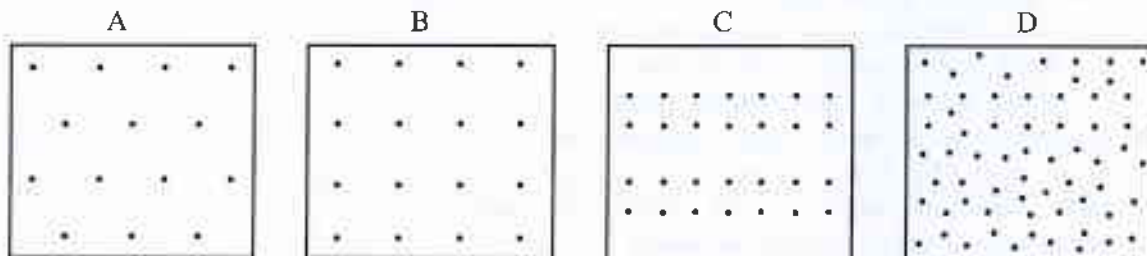
B - pH value of the medium should be maintained from 4.0 to 5.2.

C - Electrical conductivity of the medium should be from 1.5 to 2.5 decisiemens per meter.

Out of the above, the correct statements are

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

28. A farmer intends to grow perennial fruit crops in his land of one hectare. Out of the following diagrams of crop establishment methods, which are the most suitable for this?



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

29. Crop cultivation, animal husbandry and power generation done together is known as

- (1) chena cultivation.
- (2) crop rotation.
- (3) street cropping.
- (4) integrated farming.

30. Cellulose should be a major component of food even if human cannot digest it. The reason for this is cellulose

- (1) is needed to make cell walls.
- (2) prevents constipation.
- (3) is a food with stored starch.
- (4) is an energy source.

31. When cooked rice is exposed to the environment for about 12 hours, an unpleasant odour and slimy texture were experienced. What is the reason for it?

- (1) Activating enzymes in it
- (2) Oxidation of it
- (3) Action of microbes on it
- (4) Reducing the temperature around it

32. Some food can be preserved by drying. A food preserved by spray drying is

- (1) milk powder.
- (2) plums.
- (3) dried chillies.
- (4) dried fish.

33. In preservation of milk, it is subjected to a high temperature, then quickly cooled and stored under low temperature. What is this preservation method?

- (1) Sterilization
- (2) Pasteurization
- (3) Concentration
- (4) Freezing

34. Out of the following dairy cattle breeds, which breed can be reared successfully in Jaffna peninsula?

- (1) Friesian
- (2) Ayrshire
- (3) Jersey
- (4) Red Sindhi

35. The food that can be given as a protein source in animal husbandry is

- (1) maize.
- (2) grass.
- (3) poonac.
- (4) rice bran.

36. Out of the following, what is the correct statement on the methods of rearing cattle?

- (1) The milk yield under intensive system is lower than that of free range system.
- (2) Under free range system of rearing cattle, houses are supplied only during the night.
- (3) 'Head to head' method and 'tail to tail' method of rearing cattle are semi intensive methods.
- (4) Under loose barn system, cattle are freely kept in a house without tying up.

37. Out of the following, select the correct statement.

- (1) Foot and mouth disease in cattle is a viral disease.
- (2) Mastitis in cattle is a viral disease.
- (3) Ranikhet in poultry is a viral disease.
- (4) Coccidiosis in poultry is a bacterial disease.

38. The length of the oestrous cycle and the standard lactation period of a cow, in days, respectively are

- (1) 21 and 305.
- (2) 285 and 305.
- (3) 28 and 285.
- (4) 305 and 285.

39. Select the correct answer paying your attention to the following statement and the reason for it.

Statement	Reason
It is recommended to cultivate short day crops in Maha season, because the day length is short and the long day crops in Yala season since the day length is long in this season.	The day length affects in flowering of photo periodic sensitive plants.

- (1) The statement and the reason are true.
- (2) The statement is true. The reason is false.
- (3) The statement is false. The reason is true.
- (4) The statement and the reason are false.

40. Out of the following, which abbreviation indicates the international standard of a food?

- (1) SLS
- (2) ISO
- (3) BMI
- (4) INS

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 கல்விப் பொதுத் தராதரப் பத்திர (சாதாரண தர)ப் பரீட்சை, 2019 டிசெம்பர்  
 General Certificate of Education (Ord. Level) Examination, December 2019

කෘෂි හා ආහාර තාක්ෂණය	I, II
விவசாயமும் உணவுத் தொழினுட்பவியலும்	I, II
Agriculture and Food Technology	I, II

### Agriculture and Food Technology II

\* Answer five questions only, selecting the first question and four others.

- Members of a Farmers' Organization planned to cultivate paddy in paddy fields in dry zone during Maha Season and to cultivate additional food crops during the season which has no sufficient water for paddy cultivation.
  - Mention **respectively**, the steps of land preparation in lowland paddy cultivation.
  - Name **four** traditional paddy varieties which are suitable to cultivate in this field.
  - Write **four** characteristics of improved paddy varieties.
  - Mention **two** types of nurseries that could be prepared in order to obtain paddy seedlings for this field.
  - Mention **two** common diseases of paddy.
  - Mention **four** types of organic manure that could be applied to this field.
  - Mention **two** advantages gained by the farmer by cultivating additional food crops, when paddy is not cultivated.
  - Write,
    - two** crops of family Solanaceae
    - two** crops of family Cucurbitaceae
 that could be cultivated in this field.
  - Write **two** crops that could be grown in this field in order to fulfil the protein requirement of the human being.
  - Write **two** main functions of protein in food.
- Paying attention on climatic factors and on soil factors is very important in crop cultivation.
  - (a) Mention **three** main ways of raining that occur in Sri Lanka.
  - Write **three** favourable effects of light on crop cultivation.
  - (a) What is meant by 'soil structure'?
    - Give **two** examples with figures for soil structure.
  - Write **three** reasons that affect soil degradation.
- Pest management is important in order to get a high yield in crop cultivation.
  - (a) Write causative factors of plant diseases with the help of the disease triangle.
  - Write **three** activities that could be followed in order to prevent entering pathogens to a cultivating field.

(ii) Copy the following table regarding insect damages, on your answer script and fill in the blanks.

Type of the damage	Name of the insect	Stage of the life cycle that causes the damage
Biting and chewing tissues	1. ....	.....
	2. ....	.....
Piercing and sucking sap	1. ....	.....
	2. ....	.....

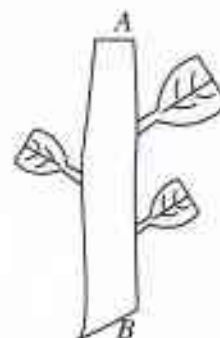
- (iii) (a) Mention **two** harmful effects of using chemical pesticides.
- (b) Write **four** protective measures that should be taken in using chemical pesticides.

4. Watering crops in adequate amounts when it is required is known as irrigation.

- (i) Mention **three** importances of water for crop cultivation.
- (ii) (a) Mention **three** ways of loss of irrigated water from soil.
- (b) Write **two** actions that could be taken to prevent water loss from soil.
- (iii) (a) Mention **three** factors that should be taken into account in selecting an irrigation method for a crop.
- (b) Write **two** advantages and **two** disadvantages of sprinkler irrigation.

5. (i) This diagram depicts a shoot cutting prepared for planting.

- Give the reason separately for,
- (a) cutting the stem horizontally at A
  - (b) cutting the stem to a slant at B
  - (c) cutting a part of each leaf.



- (ii) In plant propagation by budding,
  - (a) write **three** characteristics that should be in a stock plant.
  - (b) write **three** characteristics that should be in a scion plant.
- (iii) Describe the steps of cleft (wedge) grafting with labelled diagrams used in propagation of mango plants.

6. Animal husbandry is very important to obtain protein, which is a main component in human nutrition.

- (i) (a) Mention **two** advantages of rearing farm animals under free range system.
- (b) Write **four** advantages of rearing farm animals in houses.
- (ii) (a) Write **four** facts that should be considered, when buying day old broiler chicks.
- (b) Write **three** activities that should be practised to maintain the poultry litter in dry condition.
- (iii) (a) Mention **two** after birth activities that should be done to the calf.
- (b) Mention the reason for milk fever of cows and write **two** symptoms of that disease.

7. Yield losses can be minimized by maintaining proper management practices from the beginning of the crop cultivation to consumption of the yield.

- (i) Mention **four** pre-harvest factors that affect the yield losses.
- (ii) Write **three** facts that should be followed in order to minimize yield losses during the process of harvesting.
- (iii) (a) Mention **four** actions that should be taken to minimize the yield losses of harvested vegetable and fruit yields until they reach the consumer.
- (b) Mention **two** preservative methods that can be used to preserve fruit and vegetable harvests.

