

ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව
இலங்கைப் பரீட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம்
Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka
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Department of Examinations, Sri Lanka

අධ්‍යයන පොදු සහතික පත්‍ර (උසස් පෙළ) විභාගය, 2025
கல்விப் பொதுத் தராதரப் பத்திர (உயர் தர)ப் பரீட்சை, 2025
General Certificate of Education (Adv. Level) Examination, 2025

කෘෂි විද්‍යාව I
விவசாய விஞ்ஞானம் I
Agricultural Science I

08 E I

පැය දෙකයි
இரண்டு மணித்தியாலம்
Two hours

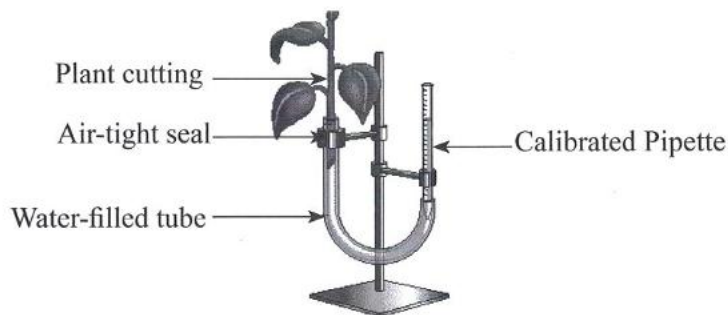
Instructions:

- * Answer **all** the 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. Surface irrigation is a widely used and relatively simple method. An example for a surface irrigation method is
 - (1) drip irrigation.
 - (2) basin irrigation.
 - (3) pitcher irrigation.
 - (4) sprinkler irrigation.
 - (5) porous pipe irrigation.
2. In a balanced diet, the nutrient group primarily responsible for growth and repair of body tissues would be
 - (1) fat.
 - (2) water.
 - (3) protein.
 - (4) vitamin.
 - (5) carbohydrate.
3. In plants, PCR test is used to identify
 - (1) virus diseases.
 - (2) abiotic stresses.
 - (3) deficiency symptoms.
 - (4) physiological disorders.
 - (5) both viral diseases and deficiency symptoms.
4. During the first month after birth, a calf should be daily fed with milk
 - (1) *ad-libitum*.
 - (2) at 2.5% of its body weight.
 - (3) at 5% of its body weight.
 - (4) at 7.5% of its body weight.
 - (5) at 10% of its body weight.
5. It was reported that most of the crowns of a commercial papaya cultivation had fallen down during last night. The most possible reason for this incident would be
 - (1) heavy rainfall.
 - (2) damage by wild boar.
 - (3) heavy wind-blown.
 - (4) damage by wild elephants.
 - (5) damage by peacocks.
6. The most important two climatic factors that affect the soil genesis are
 - (1) wind and rainfall.
 - (2) wind and humidity.
 - (3) humidity and rainfall.
 - (4) temperature and wind.
 - (5) rainfall and temperature.

7. A common visible symptom of nitrogen deficiency in plants would be
- (1) scorching appearance of leaf margins.
 - (2) curling and twisting of leaves.
 - (3) purple coloration of older leaves.
 - (4) interveinal chlorosis in new leaves.
 - (5) stunted growth and yellowing of older leaves.
8. An example for a nitrogen fixing bio-fertilizer commonly used in paddy fields would be
- (1) *Azospirillum*.
 - (2) *Mycorrhiza*.
 - (3) *Rhizobium*.
 - (4) *Anabaena azollae*.
 - (5) *Bacillus subtilis*.

● Use the following diagram to answer the question 9.

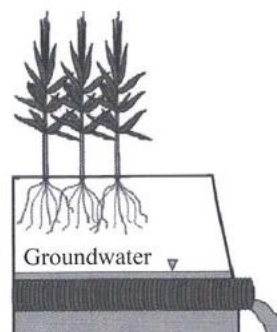


9. The setup shown in above diagram is used to measure
- (1) transpiration.
 - (2) respiration.
 - (3) evaporation.
 - (4) nutrient uptake.
 - (5) photosynthesis.
10. Non calcic brown soil is
- (1) rich in nitrogen and phosphorous.
 - (2) a deep soil with rough and dry surface.
 - (3) a less fertile soil due to impaired soil structure.
 - (4) a loamy clay soil and located in B zone of the soil profile.
 - (5) not used to cultivate paddy under any circumstances.
11. In an agricultural science textbook, it is stated that a particular micronutrient is immobile and therefore deficiency symptoms first appear in the newly emerged leaves. An example for this micronutrient would be
- (1) sulfur.
 - (2) calcium.
 - (3) nitrogen.
 - (4) magnesium.
 - (5) manganese.
12. One of the main objectives of secondary tillage is to
- (1) break large soil clods.
 - (2) form ridges and furrows.
 - (3) mix fertilizer to the soil.
 - (4) improve drainage in the field.
 - (5) make holes in the soil for transplanting of seedlings.
13. The main purpose of a foot valve in a water lifting system operated by a centrifugal pump is to
- (1) mix fertilizer with water.
 - (2) reduce energy consumption.
 - (3) control suction pressure of the pump.
 - (4) maintain optimum speed of the motor.
 - (5) prevent the suction line from losing prime.

- Use the following diagram to answer the question 14.

14. The drainage system shown in the above diagram is

- (1) vertical drainage.
- (2) surface drainage.
- (3) controlled drainage.
- (4) open ditch drainage.
- (5) subsurface drainage.



15. The primary purpose of the recent national census on selected wildlife species conducted in Sri Lanka is to

- (1) identify species suitable for domestication.
- (2) document the current status of biodiversity.
- (3) study animal behaviour and migration patterns.
- (4) boost eco-tourism by mapping wildlife hot spots.
- (5) estimate animal population size for assessing crop damage.

16. Wind has both positive and negative impacts on crop cultivation. A positive impact of wind on crop cultivation would be

- (1) facilitation of pollination.
- (2) removing impurities from grains.
- (3) helping broadcasting of seeds.
- (4) increasing the evapotranspiration.
- (5) causing drift of agro chemicals to non-target crops.

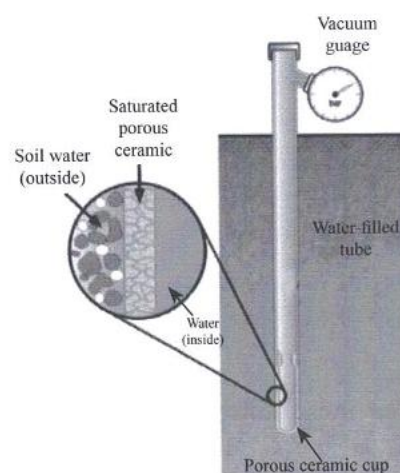
17. Clay minerals are considered as

- (1) secondary minerals such as montmorillonite and kaolinite.
- (2) non silicate minerals such as calcite and hematite.
- (3) secondary minerals such as quartz and feldspar.
- (4) primary minerals such as quartz and feldspar.
- (5) primary minerals such as kaolinite and illite.

- The following diagram illustrates an equipment used to measure a soil parameter. Use this diagram to answer the question 18.

18. This equipment is used in the field, to measure

- (1) soil pH.
- (2) soil resistance.
- (3) soil temperature.
- (4) soil water tension.
- (5) soil electrical conductivity.

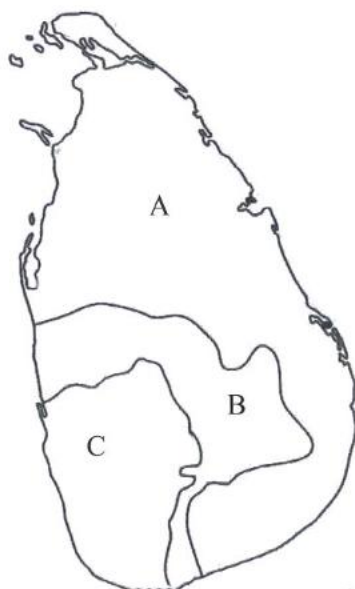


19. One of the key economic benefits of vegetative propagation compared to seed propagation is it

- | | |
|--------------------------------------|--------------------------------------|
| (1) prevents insect attacks. | (2) increases genetic variation. |
| (3) shortens the time to harvest. | (4) reduces the need for fertilizer. |
| (5) reduces the need for irrigation. | |

20. The most suitable planting materials to propagate Coleus and Roses would be
- (1) soft-wood cuttings.
 - (2) semi-hard wood cuttings.
 - (3) semi-hard wood and soft-wood cuttings respectively.
 - (4) soft-wood and semi-hard wood cuttings respectively.
 - (5) semi-hard wood and hard-wood cuttings respectively.
21. The **minimum** germination percentage required for certified seed paddy in Sri Lanka would be
- (1) 55%. (2) 65%. (3) 75%. (4) 85%. (5) 95%.
22. In a successful grafting process, the initial union between scion and stock occurs at the
- (1) pith. (2) bark. (3) xylem. (4) phloem. (5) cambium.
23. The progeny of a cross between two different inbred parent plants is called
- (1) F_2 plants. (2) Hybrid plants. (3) Mutant plants.
 - (4) Asexual plants. (5) Homozygous plants.
24. When a commercial farmer tested the soil in his field, he found that the soil pH is low and nutrient mobility is slow. He wants to get a quick response from the leafy vegetable crop grown in his field to the fertilizer applied. The most suitable method to apply fertilizer to his crop field would be
- (1) top dressing to the soil.
 - (2) split application to the soil.
 - (3) foliar application to the plants.
 - (4) fertigation through drip irrigation.
 - (5) strip application of fertilizer along the crop rows.

- Use the following map to answer the question 25.



25. The most suitable breeds of dairy cattle to be reared under semi intensive management in zone A, B and C in above map would be
- (1) Jersey, Sindhi and Friesian respectively.
 - (2) Sindhi, Friesian and Jersey respectively.
 - (3) Sahiwal, Jersey and Friesian respectively.
 - (4) Kilari, Shorthorn and Red Sindhi respectively.
 - (5) Sahiwal, Shorthorn and Red Sindhi respectively.

26. Following are few statements regarding equipment used in land preparation.

- A - Mammoets, and ploughs can be considered as primary land preparation equipment.
- B - Rakes and hand folks can be considered as inter-cultivation equipment.
- C - Rotavators and disc ploughs can be considered as secondary land preparation equipment.

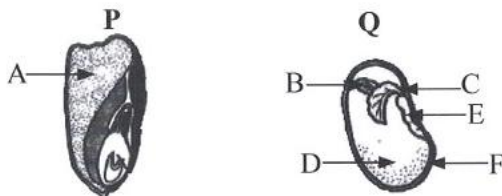
Of the above, the correct statement/s would be

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

27. Net Irrigation Requirement (NIR) refers

- (1) total rainfall received during the cropping season.
- (2) amount of water required from outside to bring soil moisture to field capacity.
- (3) total amount of water applied to a field through irrigation during the cropping season.
- (4) amount of water required from outside for crop growth, drainage and evapotranspiration.
- (5) amount of water required from outside for crop growth, drainage, percolation and evaporation.

● Use the following diagrams P and Q to answer the question 28.



28. The corresponding part of the diagram Q which is functionally similar to the role of part 'A' of the diagram P would be

- (1) B.
- (2) C.
- (3) D.
- (4) E.
- (5) F.

29. One of the major limitations of *in-situ* conservation of plant genetic resources in Sri Lanka is

- (1) less species diversity.
- (2) lack of interaction between species.
- (3) lack of natural selection due to limited space.
- (4) high maintenance cost due to natural disasters.
- (5) risk of habitat destruction due to climate or human activity.

30. An example for a Climate-Smart Agricultural (CSA) practice would be

- (1) use of flood irrigation.
- (2) growing of drought-tolerant crops.
- (3) improving drainage by constructing drains.
- (4) increasing fertilizer use to speed up plant growth.
- (5) growing high-yield crops that require frequent irrigation.

31. A common feature of intercropping and multi-layered cropping systems would be

- (1) better light utilization.
- (2) less land use efficiency.
- (3) less water use efficiency.
- (4) zero inter-species competition.
- (5) high pest and diseases incidences.

32. The following equation describes the market demand for big onion.

$Q_d = 600 - 3P$, where Q_d = quantity demanded and P = price of big onion per kg.

If the price of one kilogram of big onion is Rs. 120, the quantity of big onion demanded would be

- (1) 200 kg. (2) 220 kg. (3) 240 kg. (4) 260 kg. (5) 280 kg.

33. Heat signs of a cow can be observed

- (1) during pro-oestrus. (2) during oestrus.
(3) during met-oestrus. (4) at the beginning of die-oestrus.
(5) during latter part of die-oestrus.

34. The climacteric fruits

- (1) are always sweeter. (2) change color before ripening.
(3) ripen after harvesting. (4) need more water for ripening.
(5) have a skin with less chlorophyll content.

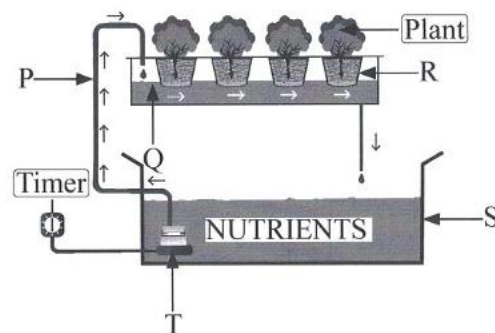
35. An example of physiological indices used to determine crop maturity would be

- (1) total soluble solids content. (2) leaf moisture content.
(3) days from flowering. (4) skin color.
(5) size of the fruit.

36. The primary purpose of using lath houses in agriculture is to

- (1) store harvested crops.
(2) protect crops from rainfall.
(3) protect crops from pests and diseases.
(4) reduce the light intensity for shade loving plants.
(5) increase the temperature for tropical plants.

● Use the following diagram to answer the question 37.



37. In the above diagram, the component essential to continuously circulate the nutrient solution would be

- (1) P. (2) Q. (3) R. (4) S. (5) T.

38. Pheromones are used in pest management. This can be classified as a/an

- (1) biochemical method. (2) physical method. (3) chemical method.
(4) biological method. (5) agronomic method.

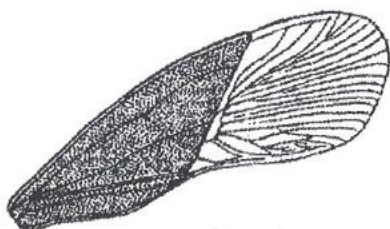
● Use the following characteristics of an organism to answer the question 39.

- A - Presence of antennae
B - Presence of wings
C - Presence of three pairs of legs
D - Body is consisted of three parts

39. Of above, the common characteristics found in insects are

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

- Use the following diagram to answer the question 40.



40. The order of the insects having the fore wings shown in the above diagram is
 (1) Diptera. (2) Isoptera. (3) Hemiptera. (4) Coleoptera. (5) Orthoptera.
41. Alligator weed (*Alternanthera philoxeroides*) can be best explained as
 (1) an alien aquatic plant. (2) an alien invasive plant.
 (3) an endemic aquatic plant. (4) an endemic medicinal plant.
 (5) an underutilized medicinal plant.
42. The correct statement regarding iron in foods would be
 (1) "cow milk is a good source of iron".
 (2) "tannin inhibits iron absorption to the body".
 (3) "calcium enhances iron absorption in the diet".
 (4) "easily absorbable iron is available in plant food sources".
 (5) "vitamin C reduces the absorption of iron present in foods".
- Following are few statements on 'Thermo Neutral Zone' of animals.
 - A - It is a fixed range of temperature common to any farm animal.
 - B - It is the temperature range between lower critical temperature and upper critical temperature for an animal.
 - C - Animals start panting and reduce activities at temperatures outside the thermo neutral zone.
 - D - It provides the most comfortable environmental temperature for an animal.
43. Of the above, correct statements would be
 (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.
- Following are images of two specimens taken from a complex stomach of a cow. Use these images to answer the question 44.



Image A



Image B

44. The above, A and B images could be most probably taken from
 (1) rumen and reticulum, respectively.
 (2) rumen and abomasum, respectively.
 (3) reticulum and omasum, respectively.
 (4) abomasum and rumen, respectively.
 (5) omasum and abomasum, respectively.

45. The correct statement regarding animal feeds and digestion would be
- (1) "purpose of conserving of pasture as silage is to increase its quality".
 - (2) "glucose is the main end product of carbohydrate digestion in both cattle and poultry".
 - (3) "concentrate feeds always contain less than 18% crude fiber and more than 20% crude protein".
 - (4) "in both ruminant and non-ruminant animals, enzymatic feed digestion takes place mainly in the duodenum".
 - (5) "carbohydrates is the main group of nutrients found in feeds given to cattle but it is not true for poultry".
46. Following are three statements regarding broiler breeding.
- A - All commercial broiler strains are produced by crossing two breeds of chicken.
B - Hybrid vigor contributes to faster growth of broiler chickens.
C - Usually layer type hens are mated with meat type cockerels to obtain high number of broiler chicks.
- Of above statements,
- (1) all A, B and C are correct.
 - (2) A is correct but B is incorrect.
 - (3) A and C are correct but B is incorrect.
 - (4) A and B are correct and B is further explained by A.
 - (5) B and C are correct and B is further explained by C.
47. The most valid reason for the decision taken by the government to maintain a buffer stock of paddy would be to
- (1) meet the demand of animal feed industry.
 - (2) stabilize market price during shortages.
 - (3) meet the demand during the off season.
 - (4) reduce the market share of private traders.
 - (5) provide rice to needy communities free of charge.
48. If consumers assume that the price of milk powder will increase in the near future, the immediate change in the market would be
- (1) supply curve will shift to the left.
 - (2) demand curve will shift to the right.
 - (3) demand curve will shift to the left.
 - (4) both supply and demand curves will shift to the left.
 - (5) both supply and demand curves will shift to the right.
49. A consumer drank tea and experienced the following total utility: Twenty five utils from the first cup, 45 utils after the second cup, and 60 utils after the third cup. The marginal utility of drinking the third cup of tea would be
- (1) 15 utils. (2) 25 utils. (3) 45 utils. (4) 60 utils. (5) 70 utils.
50. A dried fish processor has decided to introduce a biodegradable package to her product. The following three statements describe her objectives.
- A - Help maintaining green environment.
B - Receiving a premier price for her products.
C - Increase the income of other stakeholders in the dried fish product value chain.
- Of the above, the correct statement/s would be
- (1) A only.
 - (2) B only.
 - (3) A and B only.
 - (4) B and C only.
 - (5) all A, B and C.

ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව
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Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka
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இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரīட்சைத் திணைக்களம் இலங்கைப் பரīட்சைத் திணைக்களம் இலங்கைப் பரīட்சைத் திணைக்களம்
Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka

අධ්‍යයන පොදු සහතික පත්‍ර (උසස් පෙළ) විභාගය, 2025
கல்விப் பொதுத் தராதரப் பத்திர (உயர் தர)ப் பரீட்சை, 2025
General Certificate of Education (Adv. Level) Examination, 2025

කෘෂි විද්‍යාව II
விவசாய விஞ்ஞானம் II
Agricultural Science II

08 E II

පැය තුනයි
மூன்று மணித்தியாலம்
Three hours

අමතර කියවීමේ කාලය - මිනිත්තු 10 යි
மேலதிக வாசிப்பு நேரம் - 10 நிமிடங்கள்
Additional Reading Time - 10 minutes

Use additional reading time to go through the question paper, select the questions you will answer and decide which of them you will prioritise.

Index No. :

Instructions:

- * This question paper consists of 10 questions in 11 pages.
- * This question paper comprises Part A and Part B. The time allotted for both parts is three hours.

PART A — Structured Essay (Pages 2 - 10)

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

PART B — Essay (Page 11)

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

For Examiners' Use only

(08) Agricultural Science - II		
Part	Question No.	Marks
A	1	
	2	
	3	
	4	
B	5	
	6	
	7	
	8	
	9	
	10	
Total		

Total	
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 100 marks.)*Do not
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column

1. (A) (i) Plants need nutrients to complete their life cycle. Following are few statements regarding plant nutrients.

- P - Required for normal growth and reproduction
- Q - May not cause visible symptoms
- R - Not required by all plants, but improve plant growth
- S - Causes severe deficiency symptoms
- T - Required by some plant species
- U - Required by all plants

- (1) From the above statements, state **two** statements relevant to the essential plant nutrients.

- (a)
- (b)

- (2) From the above statements, state **two** statements relevant to beneficial plant nutrients.

- (a)
- (b)

- (ii) State **two** benefits of using organic manure in crop fields.

- (1)
- (2)

- (iii) State **two** techniques used to reduce waste in fertilizer application in crop fields.

- (1)
- (2)

- (iv) An agricultural instructor provided following instructions to a farmer who wants to use bio fertilizer for his crop field. State the reason for each of the instruction given by the Agricultural Instructor.

Instruction		Reason
(1)	Avoid mixing with chemical fertilizers or pesticides.	
(2)	Store in a cool and dry place.	
(3)	Apply to moist soil.	

- (v) Explain how adding organic matter to the soil help to improve chemical fertilizer use efficiency.

.....

.....

.....

.....

[see page three]

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- (B) Plant genetic resources refer to the genetic material of plants that are important for breeding, research and conservation. Following are few examples of plant genetic resources conservation methods.

biosphere reserves, seed banks, field gene banks, botanical gardens, national parks, protected areas

- (i) From the above examples, state **two** *in situ* conservation methods.

(1)

(2)

- (ii) From the above examples, state **two** *ex situ* conservation methods.

(1)

(2)

- (C) Sri Lanka experiences significant temperature variations due to various factors.

- (i) List **two** factors that affect temperature variations in Sri Lanka.

(1)

(2)

- (ii) Daily temperature variation has a direct effect on tuber formation in tuber crops.

- (1) What is the suitable temperature difference between day and night for tuber formation in potato?

.....

- (2) How does this temperature difference affects the physiological process of tuber formation in potato?

.....

.....

.....

- (iii) A farmer observed that Scotch Bonnet (*Nai Miris*) plants in his polytunnel are producing many flowers but fewer fruits, even after proper fertigation. What could be the **two** main environmental reasons for this situation?

(1)

(2)

- (D) Soil formation is a complex process which produces a dynamic substrate for plant growth and development.

- (i) State the **two** major processes affecting soil formation.

(1)

(2)

- (ii) State **two** main active factors affecting soil formation.

(1)

(2)

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(iii) State **two** chemical processes of soil formation.

(1)

(2)

(iv) State **two** limitations for crop cultivation in acidic soils.

(1)

(2)

2. (A) Following are few statements regarding drainage in crop fields. State whether the statements are correct or incorrect.

Statement		Correct/Incorrect
(i)	Use of crop species with low evapotranspiration helps to improve drainage.	
(ii)	Poor drainage causes shallow root systems, making plants more susceptible to lodging.	
(iii)	In general, drainage systems are established at the upper part of the land.	

(B) Following diagram shows a traditional irrigation method. Use this diagram to answer questions (i) to (iii).

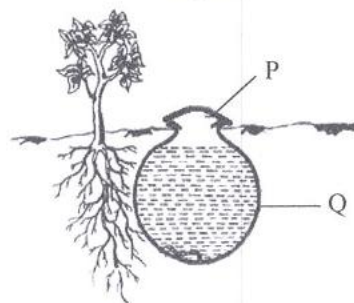
(i) Name this irrigation method.

.....

(ii) Name the parts labelled as P and Q.

(1) P

(2) Q



(iii) What is the special feature of Q needed to facilitate irrigation?

.....

(C) Respiration is a biochemical process of converting sugar into energy in living cells.

(i) Draw a graph to show the relationship between rate of respiration and temperature.



(ii) State the **three** steps of respiratory mechanism.

(1)

(2)

(3)

[see page five

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(D) Plant hormones are organic substances produced naturally in plant. They regulate growth and other physiological functions at a site remote from its site of production in plants.

(i) State **two** functions of Absciscic acid in plants.

(1)

(2)

(ii) Name a plant hormone used to regulate rooting in tissue culture.

.....

(E) Plant propagation is the process by which new plants are multiplied from various sources, including seeds, cuttings and other plant parts.

(i) Name **two** fruit crops which are multiplied by natural propagules.

(1)

(2)

(ii) State **three** characteristics to be considered in selecting a scion for grafting in fruit crops.

(1)

(2)

(3)

(iii) A commercial farmer wants to produce large number of disease-free, uniform banana plants within a short period.

(1) What is the most suitable method of propagation to obtain disease-free banana plants?

.....

(2) State how this method provide disease-free planting materials.

.....

.....

(3) State **two** limitations the farmer might face when using this method.

(1)

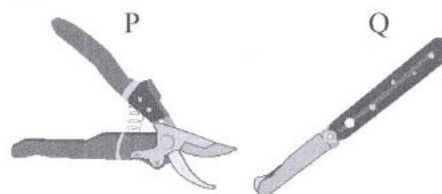
(2)

(iv) Following diagram shows two equipment used in budding and grafting of plants. Use this diagram to answer questions (1) and (2).

(1) Name equipment P and Q.

(a) P

(b) Q



(2) State the use of each equipment in budding and grafting.

(a) P

(b) Q

3. (A) Postharvest losses of fruits and vegetables are significantly high in Sri Lanka.

(i) Name the government institute responsible for improving postharvest technology of food crops.

.....

(ii) With the intention of reducing postharvest losses of fruits and vegetables, the government recently opened a temperature controlled storage complex. State the location where this complex is established.

.....

(B) Land preparation and selection of correct crop establishment methods are crucial in managing crops to achieve target yields.

(i) State **two** objectives of land preparation.

(1)

(2)

(ii) List **two** advantages of planting crops in rows.

(1)

(2)

(C) (i) List **two** common zoonotic diseases that may affect agricultural workers.

(1)

(2)

(ii) A farmer who was working in his paddy field experienced fatigue, blurred vision and reduced concentration while working. What could be the cause of this condition?

.....

(D) Macronutrients and micronutrients are two categories of nutrients essential for human health and they differ in the quantities needed by the body.

(i) State **two** major constituents of macronutrients and micronutrients.

Macronutrients

(1)

(2)

Micronutrients

(1)

(2)

- (ii) Complete the following table by stating the major carbohydrate present in the food listed below.

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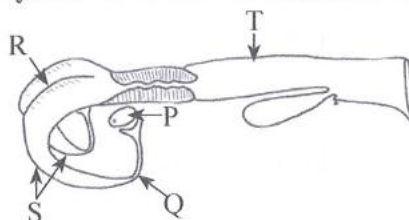
Food	Main carbohydrate present
(1) Ripe mango	
(2) Cane sugar	
(3) Bittergourd	
(4) Rice	
(5) Milk	

- (iii) Vitamin A deficiency is a common nutritional problem, particularly in developing countries. State **two** complications that can occur due to vitamin A deficiency.

(1)

(2)

- (E) The reproductive system of a cow is illustrated in the following diagram.



Answer the following questions using the above diagram.

- (i) Name the parts labelled as P and Q, and state their main function.

Name of the part

Main function

(1) P

(2) Q

- (ii) State the label of the part in which semen should be deposited for artificial insemination.

- (iii) Under good management, at what age of a Friesian heifer the part P becomes active?

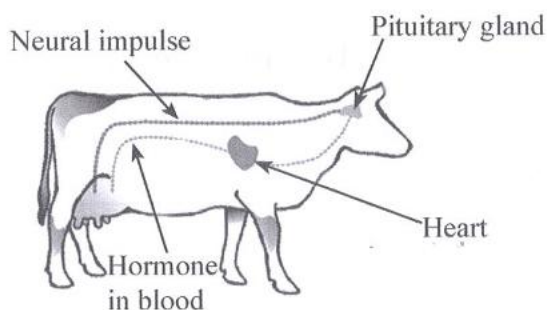
- (F) Indicate the main reason for each of the following practices in a farm.

- (i) At the end of milking a cow, the teats are dipped in potassium permanganate solution.

- (ii) A farmer attends to the work in the chick brooder before attending to the work in the layer flock.

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(G) Use the following diagram to answer the questions (i) to (iv).



(i) State an action that initiates neural impulse.

.....

(ii) Name the hormone released by pituitary gland.

.....

(iii) Once released, for how long the above hormone remains active in blood?

.....

(iv) What is the role of the heart in this process?

.....

(H) State whether the following statements are **True** or **False**.

True/False

- (i) Both cross breeding and inbreeding result hybrid vigor.
- (ii) European cow milk typically contains around 87% water.
- (iii) The causal agent of Coccidiosis in poultry is a bacterium.
- (iv) Free range rearing is more suitable for broilers than for layers.

.....

.....

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4. (A) The following diagram illustrates a polytunnel used in protected agriculture. Use this diagram to answer the questions (i) to (iii).

(i) What is the main role of P?

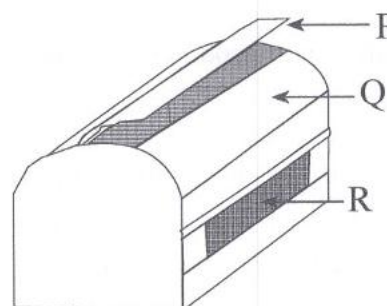
.....

(ii) What is the most suitable material to be used to cover section Q?

.....

(iii) Why it is important to use bionets in section R?

.....



[see page nine

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column

(B) Soilless culture refers to growing plants without using soil as the rooting media.

(i) State **two** artificial media used in soilless culture.

(1)

(2)

(ii) State a main characteristic to be considered in selecting an artificial solid media for soilless culture.

.....

(C) A commercial farmer intends to spray pesticides to his vegetable farm using a power sprayer. The actions that are needed to perform by him are stated below in **incorrect** order.

P - Check whether sprayer is in proper working condition.

Q - Fill the sprayer tank with water.

R - Switch on the engine of the sprayer.

S - Pour the required amount of pesticide to the sprayer tank.

T - Close the sprayer tank lid tightly.

(i) Arrange the correct order of above actions.

(1)

(2)

(3)

(4)

(5)

(ii) State the reason for the actions below when using the power sprayer.

(1) Changing the position of throttle lever

.....

(2) Changing the position of shutter lever

.....

(D) Use the following diagram to answer the questions (i) to (iii).

(i) Why the grain store has been built elevated on pillars?

.....

(ii) What type of mouth part can be observed in the pest on cabbage plant?

.....

(iii) State **two** safety gears used by the farmer applying pesticides.

(1)

(2)



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(E) Postharvest losses in Sri Lanka are significantly high as 12% for cereals and 40% for vegetables.

(i) State **two** benefits of postharvest technology.

(1)

(2)

(ii) State **one** example for each of the following factors affecting postharvest losses.

(1) Internal factors

(2) External factors

(3) Pre-harvesting factors

(iii) Name a postharvest insect pest commonly found in cereals.

.....

(F) A farmer cultivated one hectare of banana during the *Yala* Season. He paid Rs. 40,000 to lease the land and spent Rs. 20,000 on agrochemicals. He used his tractor for land preparation and spent Rs. 6,000 on fuel. He bought a water pump for Rs. 30,000 and spent Rs. 30,000 for labour.

(i) Name **two** fixed and **two** variable cost components.

(1) Fixed cost components

(a)

(b)

(2) Variable cost components

(a)

(b)

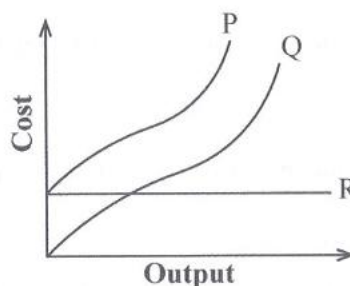
(ii) Use the following graph to answer question (1) to (3).

(1) Name the short run cost curves.

(a) P

(b) Q

(c) R



(2) Calculate the cost of production per hectare.

.....

.....

.....

(3) It was reported that the total cost for producing 1,000 kg of papaya is Rs. 55,000. When the production increases to 2,000 kg, the total cost rises to Rs. 67,000. Calculate the marginal cost.

.....

.....

.....

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කෘෂි විද්‍යාව II
விவசாய விஞ்ஞானம் II
Agricultural Science II

08 E II

Part B - Essay

Instructions:

- * Answer **four** questions only.
- * Give clearly labelled diagrams where necessary. (Each question carries **150** marks.)

5. (i) Describe the detrimental effects of weeds in agriculture.
(ii) Describe the methods to improve irrigation efficiency in crop fields.
(iii) Describe the advantages, disadvantages, and limitations of food product diversification.
6. (i) Describe the environmental benefits of using integrated pest management.
(ii) Describe the importance and management of business resources.
(iii) Describe the factors affecting soil degradation.
7. (i) Explain the impact of fertilizer subsidy on paddy market in Sri Lanka.
(ii) Explain the importance of transpiration for plant growth.
(iii) Describe the importance of data management in agriculture.
8. (i) Describe the importance and methods of pasture conservation in Sri Lanka.
(ii) Stating the major sections of a tissue culture laboratory, describe the main function of each section.
(iii) Describe the integrated plant nutrient management (IPNM) practices used in agriculture.
9. (i) Describe the important management practices involved in rearing a flock of layer type chicks in a deep litter house from day-old up to 8 weeks of age.
(ii) Explain how to prepare a nutrition solution for a soilless culture using Albert Solution.
(iii) Describe the impact of using machinery in land preparation on soil and environment.
10. (i) Describe the essential instruments for an agro meteorological unit.
(ii) Describe the methods of blanching used in vegetable processing and state the advantages and limitations of blanching.
(iii) Describe the advantages of crop rotation.

* * *



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