නව නිර්දේශය/புதிய பாடத்திட்டம்/New Syllabus

අධ්‍යයන පොදු සහතික පත්‍ර (උසස් පෙළ) විභාගය, 2020
கல்விப் பொதுத் தராதரப் பத்திர (உயர் தர)ப் பரீட்சை, 2020
General Certificate of Education (Adv. Level) Examination, 2020

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** (×) on the number of the correct option in accordance with the instructions given on the back of the answer sheet.*

1. An example for a man-made water source to extract groundwater is
   (1) a pond. (2) a river. (3) a canal. (4) a reservoir. (5) an agro-well.

2. One of the adaptations of flowering plants to self-pollination is having
   (1) diocious plants. (2) bisexual flowers.
   (3) monoecious plants. (4) self-incompatibility.
   (5) monosexual flowers.

3. The light affects crop production in various ways. The quality of light mainly affects the
   (1) osmosis. (2) flowering. (3) respiration.
   (4) transpiration. (5) photosynthesis.

4. Land preparation increases,
   (1) both porosity and bulk density of soil.
   (2) both bulk density and aeration of soil.
   (3) both porosity and microbial population in soil.
   (4) bulk density while decreasing microbial population in soil.
   (5) microbial population while decreasing the aeration in the soil.

5. From among the following irrigation methods, the most water-efficient method is
   (1) drip irrigation. (2) basin irrigation. (3) furrow irrigation.
   (4) bubbler irrigation. (5) sprinkler irrigation.

6. Water absorption of plants is regulated by
   (1) guttation and evaporation. (2) root pressure and guttation.
   (3) evaporation and transpiration. (4) root pressure and transpiration.
   (5) evaporation and root pressure.

7. Seed viability can be determined by
   (1) GA3 test. (2) seed purity test. (3) tetrasolium test.
   (4) acid treatment test. (5) seed germination test.

8. In a soil profile, distinct soil horizons can be clearly seen in
   (1) a virgin soil. (2) a mature soil.
   (3) an immature soil. (4) a developing soil.
   (5) an agricultural soil.

[See page two

9. The most suitable fertilizer to provide a specific nutrient to a crop is
(1) biochar. (2) compost. (3) bio fertilizer.
(4) vermicompost. (5) chemical fertilizer.

10. Deep ploughing is categorized under
(1) primary tillage. (2) inter-cultivation. (3) optimum tillage.
(4) minimum tillage. (5) secondary tillage.

11. The most appropriate instrument to prune small branches in horticultural crops would be
(1) scissors. (2) hand saw. (3) secateur. (4) pruning saw. (5) budding knife.

12. The frequency of recording different meteorological parameters in an agro-meteorological unit varies from parameter to parameter. The soil thermometer readings are recorded
(1) once a day. (2) twice a day. (3) thrice a day.
(4) once in two days. (5) once in three days.

13. An example for a plant vegetatively propagated by leaves is
(1) Coleus. (2) Dahlias. (3) Dracaena. (4) Caladiums. (5) Bryophyllum.

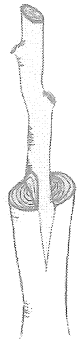
14. To cover a polytunnel, the most appropriate material is
(1) UV cut polyethylene. (2) normal polyethylene.
(3) low density polyethylene. (4) UV resistant polyethylene.
(5) high density polyethylene.

15. Among the factors of production, the factor which is scarce, immovable, impossible to increase but improvable would be
(1) land. (2) labour. (3) capital.
(4) technology. (5) entrepreneurship.

16. The institution responsible for formulating the national agricultural research policy and priorities is
(1) Department of Agriculture.
(2) Department of Agrarian Services.
(3) National Research Council of Sri Lanka.
(4) Sri Lanka Council for Agricultural Research Policy.
(5) Hector Kobbekaduwa Agrarian Research and Training Institute.

17. Compared with the composition of atmospheric air, soil air is high in
(1) O_2 content. (2) CO_2 content.
(3) O_2 and CO_2 content. (4) CO_2 and N_2 content.
(5) O_2 and water vapor content.

- Use the following diagram to answer question No. 18.



18. Vegetative propagation method shown in the above diagram is termed as
(1) bark graft. (2) wedge graft. (3) whip graft. (4) splice graft. (5) saddle graft.

19. The most abundant greenhouse gas found in the atmosphere is
(1) methane. (2) nitrous oxide. (3) water vapour.
(4) carbon dioxide. (5) chlorofluorocarbon.

[See page three

20. A farmer who continuously worked in his cattle farm got severe heart pain and cough with symptoms of fever. He might have been infected with
(1) dengue. (2) malaria. (3) brucellosis. (4) tuberculosis. (5) leptospirosis.

21. The concept of agriculture that meets the needs of present and future generations for its products and services, while ensuring profitability and environmental health is referred to as,
(1) organic agriculture. (2) intensive agriculture.
(3) protected agriculture. (4) sustainable agriculture.
(5) conservation agriculture.

22. Pest outbreak has deleterious effects on crop production. A method to control the pest population below the epidemic level is
(1) practicing crop rotation. (2) cultivation of monocrop.
(3) destroying the natural enemies. (4) repeated cultivation of the same crop.
(5) cultivation of improved high yielding crops.

23. Azolla is used as biofertlizer in paddy fields because it
(1) has an association with mycorrhiza.
(2) has an association with nitorgen fixing Rhizobium.
(3) has an association with nitrogen fixing cyanobacteria.
(4) does not compete with rice plant for nutrients.
(5) multiples very fast to produce massive biomass.

24. The top layers of soil are darker in colour mainly due to high
(1) microbial activity. (2) decomposition rate.
(3) number of soil organisms. (4) amount of organic matter.
(5) amount of secondary minerals.

25. An example for a terrestrial, broadleaf, edible weed is
(1) Nut grass (*Cyperus rotundus*). (2) Tasselflower (*Emilia sonchifolia*).
(3) Couch panicum (*Panicum repens*). (4) Little ironweed (*Vernonia cinerea*).
(5) Common lantana (*Lantana camara*).

26. According to the Liebig's Law of the Minimum, from among the nutrients available to the plant, it's growth mainly depends on
(1) the least available essential nutrient at that time.
(2) the least available beneficial nutrient at that time.
(3) all minimum available nutrients at that time.
(4) the least available micro nutrient at that time.
(5) the least available macro nutrient at that time.

27. When tested a soil sample from the school garden, following chemical properties were found.
- Exchangeable sodium percentage (ESP) = 16%
- Electrical conductivity (EC) = 3.2 Milli-Mohs/cm
- pH = 9.5

This soil can be classified as
(1) sodic soil. (2) saline soil. (3) normal soil.
(4) alkaline soil. (5) saline-alkali soil.

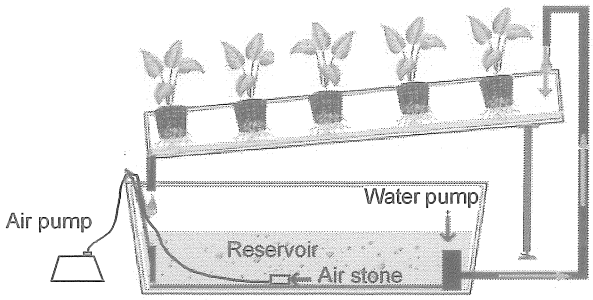
28. A farmer observed waterlogged condition at the lowest part of his land. He found that the nearby canal is located higher than the waterlogged part. The best way to drain the waterlogged part of his land is
(1) deep ploughing to improve deep percolation.
(2) establishment of sub-surface drainage system.
(3) pumping of water from the waterlogged part to the canal.
(4) use of water from the waterlogged part to irrigate the rest of the land.
(5) cultivation of plants having high transpiration in the waterlogged part.

[*See page four*

29. The one-sided green leaf area per unit ground surface area in broadleaf canopies is called
(1) total leaf area. (2) leaf area index. (3) leaf area duration.
(4) leaf area ratio. (5) green leaf percentage.

30. The following are two statements on genetics.
A - High genetic variation can be observed in cross pollinated plant species.
B - Genetic diversity plays an important role in the survival of a species over changing environments.
Of above statements,
(1) A is correct but B is incorrect.
(2) A is incorrect but B is correct.
(3) both A and B are correct and A further explains B.
(4) both A and B are correct and B further explains A.
(5) both A and B are correct but there is no relationship between the two.

- Use the following diagram to answer question No. **31**.



31. The hydroponic system shown in the above diagram can be best explained as
(1) Floating Technique (FT). (2) Deep Flow Technique (DFT).
(3) Root Dipping Technique (RDT). (4) Nutrient Film Technique (NFT).
(5) Capillary Action Technique (CAT).

32. Pest control by improving or changing all processes from the establishment of the crop in the field to harvesting is called agronomical pest control.
Examples of agronomical pest control practices are
(1) burning and mulching. (2) burning and crop rotation.
(3) use of light traps and mulching. (4) water management and mulching.
(5) crop rotation and water management.

33. A laboratory test/s to identify plant virus diseases would be
(1) Polymerase Chain Reaction (PCR).
(2) High Performance Liquid Chromatography (HPLC).
(3) Ultra-high Pressure Liquid Chromatography (UPLC).
(4) both PCR and HPLC.
(5) both HPLC and UPLC.

34. Recently, Department of Agriculture informed the community about a risk of an overseas pest. The name of this pest is
(1) mealybug (*Pseudococcidae*).
(2) desert locust (*Schistocerca gregaria*).
(3) diamondback moth (*Plutella xylostella*).
(4) fall armyworm (*spodoptera frugiperda*).
(5) red coconut beetle (*Rhynchophorus ferrugineus*).

[*See page five*

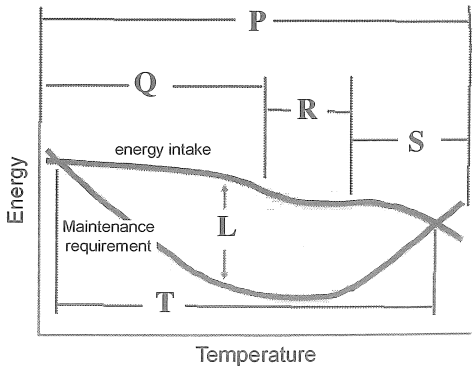
35. In slow freezed food items
(1) fat content is decreased due to dripping.
(2) micro nutrients can be lost due to dripping.
(3) micro fiber content is high due to slow cooling.
(4) protein is denaturized due to delayed freezing.
(5) water is frozen into small ice particles due to slow cooling.

36. At the temperature of a domestic refrigerator, most of the food poisoning bacteria,
(1) get destroyed. (2) form spores.
(3) become inactive. (4) multiply rapidly.
(5) grow very slowly.

37. Losses at harvest of Manioc crop can be reduced by
(1) irrigating the field on previous day.
(2) washing the tubers just after harvesting.
(3) removing the aerial parts two days prior to harvesting.
(4) applying weedicides to the field 2-3 days prior to harvesting.
(5) loosening the soil around the plants one day prior to harvesting.

38. The ideal time to harvest Ambul banana is
(1) 6-7 weeks after the occurrence of the first comb.
(2) 8-9 weeks after the occurrence of the first comb.
(3) 10-11 weeks after the occurrence of the first comb.
(4) 12-13 weeks after the occurrence of the first comb.
(5) 14-15 weeks after the occurrence of the first comb.

- The following diagram shows the relationship between energy intake and maintenance requirement of cattle at different temperatures. Use this diagram to answer question No. **39** and **40**.



39. On the above diagram, 'L' denotes the amount of
(1) energy available for production.
(2) body weight gain of the animal per day.
(3) energy intake at a particular temperature.
(4) energy used to maintain body temperature.
(5) energy need to be given to the animal at that temperature.

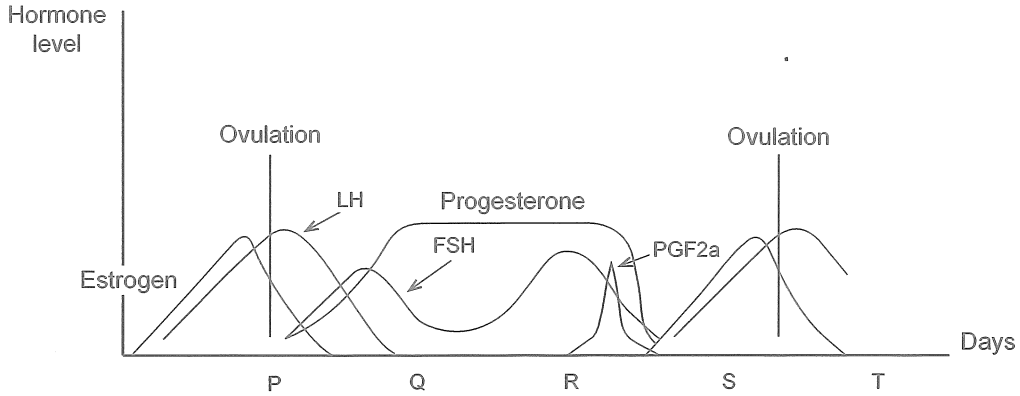
40. According to the above diagram, the thermal neutral zone of cattle would be
(1) P. (2) Q. (3) R. (4) S. (5) T.

41. When the cattle are in thermal neutral zone, compared to European cattle breeds, Indian cattle breeds
(1) have short body hair and produce less milk.
(2) have fewer sweat glands and produce more milk.
(3) have well-developed dewlap with fewer sweat glands.
(4) are less susceptible to tick fever and produce more milk.
(5) are more susceptible to tick fever and have a well-developed navel-sheath.

[See page six

42. Disbudding of calves are normally done when they are under the age of two months, because it should be done
(1) before the horns are emerged.
(2) before the horns get hardened.
(3) to minimize the risk of catching in fences.
(4) before the horns are attached to the skull.
(5) to avoid the risk of injury to the herdmates.

- Use the following diagram of estrous cycle of a cow to answer question No. 43.

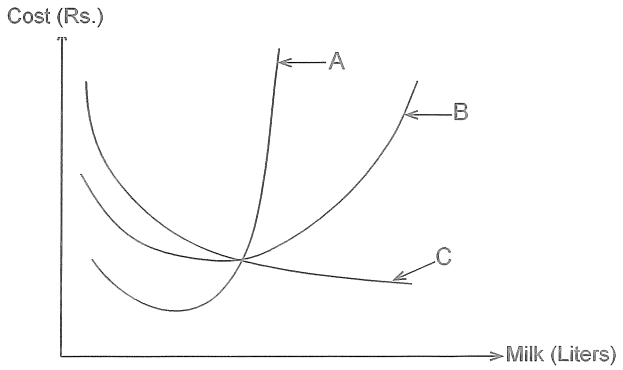


43. As per the above diagram, the cow will come to the oestrus on
(1) P. (2) Q. (3) R. (4) S. (5) T.

44. Marek's vaccine should be given to the chicks at
(1) hatching. (2) the age of 3 weeks.
(3) the age of 6 weeks. (4) the age of 7 weeks.
(5) the age of 13 weeks.

45. A farmer observed the layer hens in his poultry eat their own eggs. He also found that they lay thin shelled eggs. The most probable reason for this behaviour of hens would be
(1) lack of Calcium in the diet. (2) lack of minerals in the diet.
(3) overcrowding of poultry shed. (4) high temperature in the poultry shed.
(5) insufficient water supply for drinking.

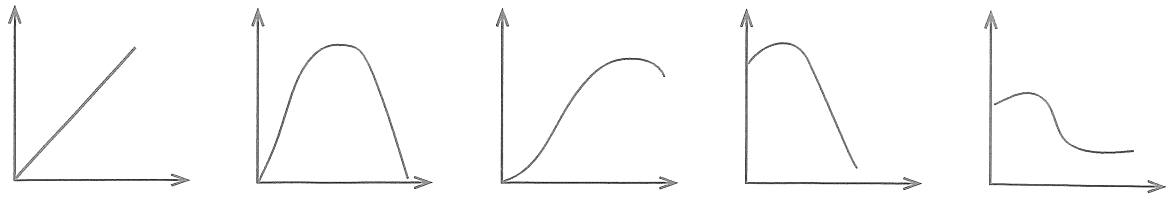
- The following diagram describes the three cost curves of a dairy farm in short run. Use this diagram to answer question No. 46.



46. Of the above diagram, the curves A, B and C are described as
(1) marginal cost, average variable cost and average fixed cost, respectively.
(2) marginal cost, average fixed cost and average variable cost, respectively.
(3) marginal cost, average total cost and average variable cost, respectively.
(4) average total cost, average fixed cost and average variable cost, respectively.
(5) average fixed cost, average total cost and average variable cost, respectively.

[See page seven

47. If Kamal drinks several glasses of cool drinks to quench his thirst, the diagram that best express his total utility would be



(1) (2) (3) (4) (5)

48. Following are three statements on potato cultivation

A - Harvest loses due to heavy rains.

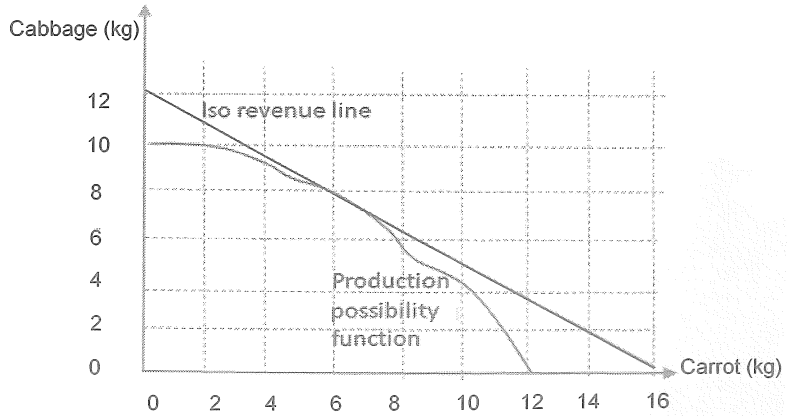
B - Government reduces the import tax on potato.

C - New variety of seed potato is introduced to farmers.

The order of the components of the external environment of the business described by the three above mentioned statements would be,

	A	B	C
(1)	Economic	Political and legal	Social and cultural
(2)	Natural	Political and legal	Technical
(3)	Natural	Technical	Social and cultural
(4)	Economic	Technical	Social and cultural
(5)	Social	Political and legal	Technical

- An upcountry vegetable farmer wants to cultivate carrot and cabbage in his agricultural land. The following graph describes the relationship between Iso revenue line and production possibility function of carrot and cabbage. Use this diagram to answer question No. **49**.



49. The best production combination of carrot and cabbage for the farmer to obtain highest profits, would be

(1) 10 kg and 12 kg, respectively. (2) 06 kg and 08 kg, respectively.

(3) 12 kg and 04 kg, respectively. (4) 08 kg and 06 kg, respectively.

(5) 04 kg and 10 kg, respectively.

50. Following are three statements regarding organic agriculture.

A - Use of chemical fertilizer is minimum.

B - Increases soil fertility and biodiversity.

C - Improves the income of farmers by maximizing yield.

Of the above, the correct statement/s would be

(1) A only. (2) B only. (3) C only.

(4) A and B only. (5) B and C only.

* * *