පැරණි නිර්දේශය/பழைய பாடத்திட்டம்/Old Syllabus

අධ්‍යයන පොදු සහතික පත්‍ර (උසස් පෙළ) විභාගය, 2019 අගෝස්තු
கல்விப் பொதுத் தராதரப் பத்திர (உயர் தர)ப் பரீட்சை, 2019 ஓகஸ்ற்
General Certificate of Education (Adv. Level) Examination, August 2019

07.08.2019 / 1300 – 1500

ජෛවපද්ධති තාක්ෂණවේදය I
உயிர்முறைமைகள் தொழினுட்பவியல் I
Biosystems Technology I

66 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 them 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** (×) in accordance with the instructions given at the back of the answer sheet.*
- ***Use of calculators is not allowed.***

1. The most commonly practiced method for root induction in plants is
(1) cutting. (2) budding. (3) grafting. (4) layering. (5) transplanting.

● Use following diagram to answer the question No. **2**.

2. The flower plant shown in above diagram is
(1) Vanda. (2) Cattleya. (3) Oncidium. (4) Dendrobium. (5) Phalaenopsis.

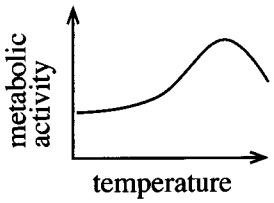
3. A biosystem is an
(1) any community of vegetation interacting with animals.
(2) any aquatic ecosystem consisting flora and fauna.
(3) any ecosystem having the highest species diversity.
(4) any system of mutually interacting biological organisms.
(5) any biological system consisting only invertebrates and lower plants.

4. A farmer received a soil testing report on his field mentioning that the soil pH is 4.0. With the intention to cultivate bush beans in his field, he wants to correct the soil pH to the range of 6.0–6.5. He should
(1) add gypsum. (2) add dolomite.
(3) add organic matter. (4) add green manure.
(5) flush the field with good quality water.

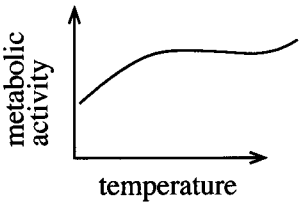
5. Pitcher irrigation is considered as a
(1) drip irrigation method. (2) bubble irrigation method.
(3) modern irrigation method. (4) surface irrigation method.
(5) subsurface irrigation method.

[See page two

6. From among the following graphs, the variation of metabolic activity of aquatic organisms with the temperature of the water is best explained by



(1)



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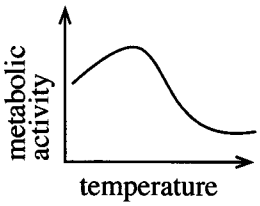

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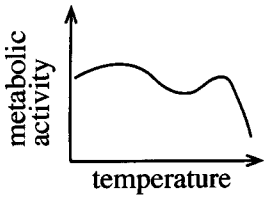
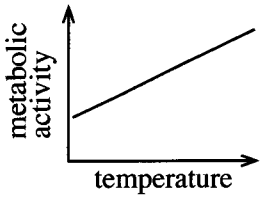


(4)



(5)

7. On a 1:10,000 scale map, a student measured the distance between two cities and found the distance is 4.50 cm on the map. The corresponding actual distance between these two cities on the ground should be
(1) 0.045 km. (2) 0.45 km. (3) 4.5 km. (4) 45 km. (5) 450 km.

8. Colloids in soils are important for biosystems because, they
(1) provide paths for gases and support plant respiration.
(2) increase the soil consistency and minimize land degradation.
(3) allow transportation of water and prevent water logging conditions.
(4) adsorbs, hold and release base ions and provide nutrients to the plants.
(5) attract acidic compounds by their positive charges and buffer the soil pH.

9. From among the following statements, the correct statement regarding contours would be
(1) contours may reach each other on a cliff.
(2) very rarely contours may cross one another.
(3) equally spaced contour denotes an uneven slope.
(4) contours at a plain are located close to each other.
(5) contours at a mountain peak are located wide apart.

10. Length of the oestrus cycle of cattle usually
(1) 12 days. (2) 21 days. (3) 30 days. (4) 45 days. (5) 60 days.

11. A few days before transferring the nursery plants to the field, a farmer gradually reduced the frequency of watering the plants and increased the exposure time to the direct sunlight. This process is called
(1) hardening. (2) adaptation. (3) suberization.
(4) vernalization. (5) transformation.

12. The following are two statements on baseline used in chain surveying.
A - Baseline is the main and longest line, which passes approximately through the centre of the land.
B - Offsets are drawn only from the baseline and they should be perpendicular to the baseline.
Of the above,
(1) both A and B are correct. (2) both A and B are incorrect.
(3) A is correct but B is incorrect. (4) A is incorrect but B is correct.
(5) A is correct and B further explains A.

[See page three

13. Following are some statements about *Yoda Ela*.

A - *Youd Ela* is an 87 km (54 mile) long single banking water canal carrying excess water from *Kala Wewa* reservoir to *Thisawewa* reservoir.

B - *Jaya Ela* is another name for the *Yoda Ela*.

C - The gradient of *Yoda Ela* is about 10 centimetres per kilometre (6 inches per mile)

Of the above, the correct statement/s would be

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

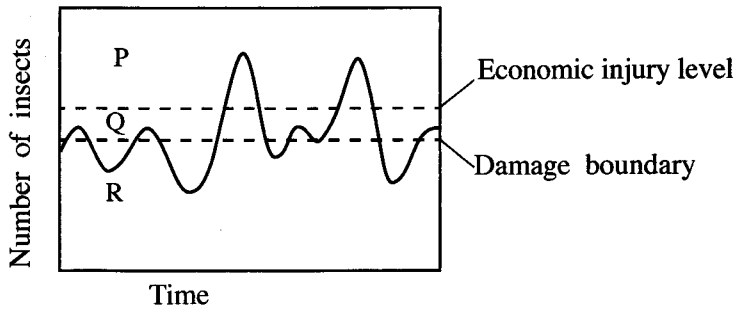
14. Most of the sub-merged aquatic plants reproduce by asexual propagation. This is an adaptation to

(1) lack of pollinators.
(2) avoid rotting of seeds.
(3) diffused light in underwater.
(4) avoid washing of flowers by water.
(5) maintain genetic identity of the plants.

● Distribution of pest population against time is shown in following graph. Use this graph to answer question No. **15**.

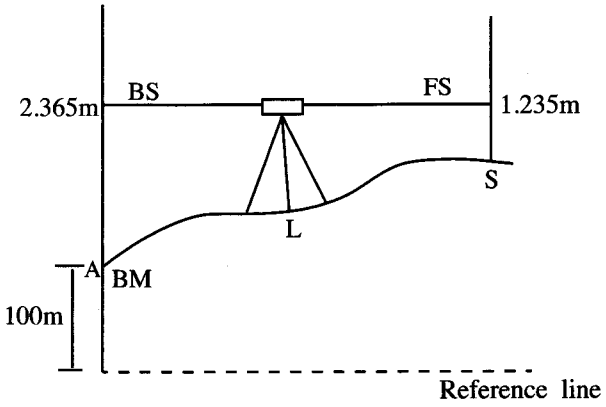
15. Noneconomic losses are shown as

(1) P.
(2) Q.
(3) R.
(4) P and Q.
(5) Q and R.



16. As per the levelling measurements stated in the following diagram, the elevation of the site S should be

(1) 98.87 m.
(2) 101.130 m.
(3) 101.235 m.
(4) 102.365 m.
(5) 103.600 m



17. Following are two statements on confined aquifers in Sri Lanka.

A - Confined aquifers are recharged mainly by *Maha* rains.

B - Confined aquifers can supply water at the same rate for a longer duration.

Of the above

(1) both A and B are correct. (2) both A and B are incorrect.
(3) A is correct but B is incorrect. (4) A is incorrect but B is correct.
(5) A is correct and B further explains A.

18. The change of the colour in milk during the sterilization process can be best explained as a reaction between

(1) sugar and amino acids.
(2) amino acids and water.
(3) carbohydrate and peroxidase enzyme.
(4) amino acids and polyphenol oxidase enzyme.
(5) polyphenolic compounds and peroxidase enzyme.

[*See page four*

19. Following are two statements related to the food fish production in Sri Lanka.

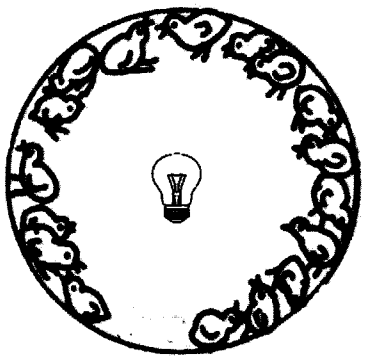
A - Fish species are cold-blooded.

B - Fish species convert more food to growth rather than spending energy on maintaining body temperature.

Of the above,

(1) statement A is correct but statement B is incorrect.
(2) statement A is incorrect but statement B is correct.
(3) both statements A and B are correct and B further explains A.
(4) both statements A and B are correct and A further explains B.
(5) both statement A and B are correct but there is no relationship between the two statements.

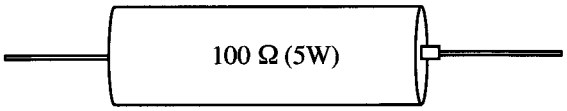
● Use the following diagram to answer question No. **20**.



20. When a student inspected his chicken brooder in the morning, the behaviour of the chicks was as in the above diagram. To correct this situation, the best thing for him to do is to

(1) switch off the electric bulb.
(2) increase the humidity in the brooder.
(3) improve the ventilation in the brooder.
(4) increase the supply voltage of the electric bulb.
(5) decrease the wattage of the electric bulb.

● Use the following diagram of a resistor to answer question No. **21**. (Assume that the resistor has no defects).



21. It was noted that the above resistor was getting heated up when the circuit was in operation. The most appropriate solution to prevent this situation would be the replacement of the above resistor with

(1) four 25 Ω (5W) resistors in series mode.
(2) two 50 Ω (5W) resistors in series mode.
(3) two 100 Ω (5W) resistors in series mode.
(4) two 200 Ω (5W) resistors in parallel mode.
(5) two 100 Ω (5W) resistors in parallel mode.

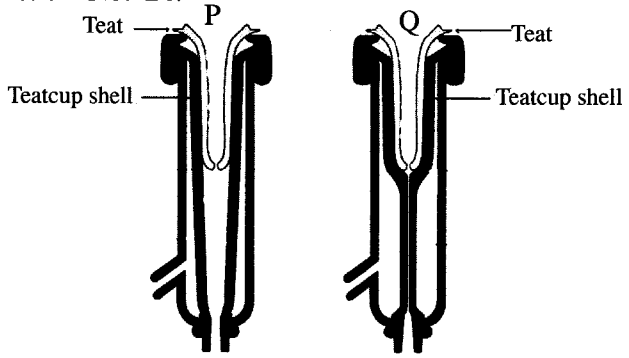
22. In a hydroponic system, the reservoir containing the nutrient solution should be fully covered to avoid exposing the nutrient solution to the light. This is done to prevent

(1) excessive root growth.
(2) negative phototropism of roots.
(3) growing of algae in solution.
(4) clogging of nutrients in the solution.
(5) developing chlorophyll on the root surfaces.

[*See page five*

23. Polytunnels are usually covered with Ultra Violet rays (UV) resistant polyethylene. The main reason to use UV resistant polyethylene is to
(1) provide partial shade to the polytunnel.
(2) prevent the UV light entering the polytunnnel.
(3) delay the photodegradation of polyethylene.
(4) lower the temperature inside the polytunnel.
(5) maintain high humidity inside the polytunnel.

● Following diagram shows two steps of a milking machine during the milking. Use this diagram to answer question No. **24**.



24. During the milking by using this machine, milk
(1) comes out during the step P only.
(2) comes out during the step Q only.
(3) comes out during both steps P and Q.
(4) does not come out during both steps P and Q.
(5) mainly comes out during step P and it continues during step Q but at a reduced rate.

● Use the following food additives to answer question numbers **25** and **26**.
A - Sodium nitrate/nitrite
B - Sodium benzoate
C - Potassium sorbate
D - Sodium metabisulphite

25. The food additives affecting the final colour of a food product are
(1) A and B only. (2) A and D only. (3) B and C only.
(4) B and D only. (5) C and D only.

26. The food additives that are widely used in fruits and vegetables processing industry are
(1) A and B only. (2) A and D only. (3) B and C only.
(4) B and D only. (5) C and D only.

27. A sprayer having a tank with 16 litres capacity has been calibrated to apply 8 litres/ha. It is mentioned in the label of the pesticide container to apply 160 ml of the pesticide per ha. The quantity of pesticide need to add to the sprayer tank is
(1) 80 ml (2) 160 ml (3) 320 ml (4) 160 × 8 ml (5) 160 × 16 ml

28. Following are two statements regarding the flywheel of an engine.
A - A flywheel is a rotating mechanical device that is used to store rotational energy.
B - When the energy source is discontinuous, flywheel converts it into a continuous energy.
Of the above,
(1) statement A is correct but statement B is incorrect.
(2) statement A is incorrect but statement B is correct.
(3) both statements are incorrect as engines do not have flywheels.
(4) both statements are correct but statement B does not explain statement A.
(5) statement A is correct and statement B further explains the use of the flywheel.

[*See page six*

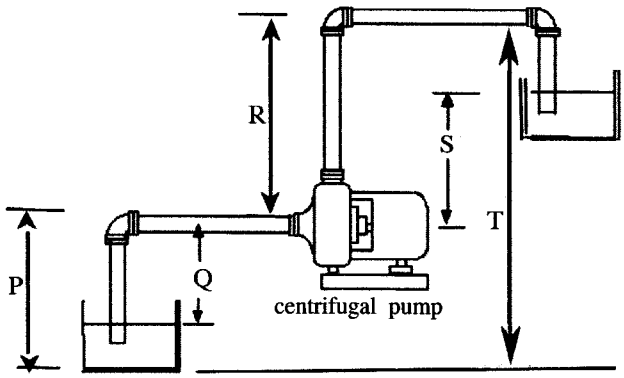
29. Examples for open loop and closed loop control systems are
(1) electric iron and refrigerator, respectively.
(2) electric kettle and ceiling fan, respectively.
(3) ceiling fan and air conditioner, respectively.
(4) air conditioner and electric bulb, respectively.
(5) electric bulb and immersion heater, respectively.

30. An example for cold pasteurization of food is
(1) smoking. (2) fortification.
(3) spray drying. (4) pulse electric heating.
(5) high pressure processing.

31. Following are some statements regarding food packaging.
A - Controlling the internal gas environment of a package by introducing external inert gas is known as 'controlled atmospheric packaging'.
B - Controlling the internal gas environment of a package without introducing external inert gas is known as 'modified atmospheric packaging'.
C - The package consisting indicators such as radio frequency identification sensors to detect the quality of the food materials is known as 'intelligent packaging'.
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.

● Use the following diagram to answer question numbers **32**.

32. As per this diagram, the suction head of the centrifugal pump should be
(1) P.
(2) Q.
(3) R.
(4) S.
(5) T.



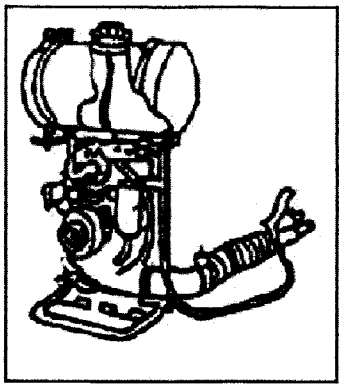
33. The most suitable storage conditions for fresh fruits and vegetables are
(1) low temperature, low humidity and low CO_2/O_2 ratio.
(2) high temperature, low humidity and low CO_2/O_2 ratio.
(3) low temperature, high humidity and low CO_2/O_2 ratio.
(4) low temperature, high humidity and high CO_2/O_2 ratio.
(5) high temperature, high humidity and high CO_2/O_2 ratio.

34. Drip irrigation
(1) leads to unavoidable wetting of foliage in field crops.
(2) is highly sensitive to wind, causing evaporation losses.
(3) without water filters may cause clogging of water emitters.
(4) with saline water (>7 millimhos/cm) cause leaf burning of crop plants.
(5) may increase weed growth in the field as water and nutrients are more efficiently used in the field.

35. Multimeters are becoming more popular compared to ordinary voltmeters in measuring the voltage differences. The reason for this popularity is
(1) quickness in response.
(2) easiness to connect it into the circuit.
(3) easiness to read the numbers in the display.
(4) ability to measure both current and resistance.
(5) ability to switch into measuring different ranges of voltage.

[*See page seven*

● Use the following diagram to answer question **36**.



36. The equipment shown in above diagram is a
(1) power sprayer. (2) knapsack sprayer. (3) mist sprayer.
(4) hand sprayer. (5) boom sprayer.

37. Following are some statements about the function of an impeller in a water pump.
A - Impeller transmits the power from the running fluid to the motor that drives the pump.
B - The velocity achieved by the impeller transfers into pressure.
C - The force generated by the rotation of the impeller move the fluid outwards from the centre.
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.

38. When a livestock development officer visited a livestock farm, he observed a heap of cow dung mixed with pasture, creating an environmental issue. He advised the farmer to prepare silage and feed the cattle instead of fresh cut pasture and install a biogas plant to use farm waste including cow dung. As per the 4R concept, use of silage and producing biogas can be considered as
(1) reduce and reuse respectively. (2) recycle and reuse respectively.
(3) reuse and recycle respectively. (4) reduce and recycle respectively.
(5) recycle and reduce respectively.

39. Ecotourism should
(1) be limited only to local tourists.
(2) use only locally available inputs.
(3) have a zero impact on environment.
(4) have a zero impact to the ecosystem.
(5) have a minimum impact to the culture of the local people.

40. An example for a component that can be connected to a circuit without identifying their terminal connections is
(1) diode. (2) transformer. (3) relay switch.
(4) electrolytic capacitor. (5) light dependent resistor.

41. Following are some statements about equipment used in land preparation.
A - Subsoil plough is used to break the surface crust in hard clayey soil.
B - Moldboard plough is more suitable for rocky lands.
C - Disc plough can be used in muddy and sticky soils.
Of the above, correct statement/s would be
(1) A only. (2) B only. (3) C only. (4) A and B only. (5) B and C only.

42. Provision of intervals during the work shifts in a food processing factory can be identified as
(1) prevention of psychosocial hazards.
(2) engineering control of biological hazards.
(3) engineering control of ergonomic hazards.
(4) administrative control of biological hazards.
(5) administrative control of ergonomic hazards.

[*See page eight*

43. Certain viable seeds are not germinated due to various reasons. Inhibitors are one such substance preventing germination. Inhibitors are found in
(1) paddy seeds. (2) tomato seeds. (3) mustard seeds.
(4) tamarind seeds. (5) winged bean seeds.

44. Bricks are commonly used in farm building constructions. Good quality bricks should be
(1) free from stones and organic matter and able to absorb water more than 50% of its weight when immersed in water.
(2) uniform in size and able to absorb water more than 60% of its weight when immersed in water.
(3) free from stones and organic matter and able to absorb water less than 20% of its weight when immersed in water.
(4) given a metallic sound when struck with another brick and able to absorb water less than 50% of its weight when immersed in water.
(5) uniform in size and able to absorb water more than 20% of its weight when immersed in water.

45. A tree which had no commercial value a few years back but suddenly came under the spot light in Sri Lanka due to frequent effort on smuggling out of the country is
(1) Walla patta (*Gyrinops walla*). (2) Dragon fruit (*Hylocereus undatus*).
(3) Dewadara (*Cedrus deodara*). (4) Sandalwood (*Santalum album*).
(5) Laulu (*Pouteria campechiana*).

46. In implementing a landscape design, the first to be established should be
(1) statues. (2) hedges. (3) pathways
(4) large trees. (5) interlock paving.

47. Renewable energy has many advantages over traditional fuel energy. However, the main drawback of the renewable energy production is
(1) high initial cost. (2) limited availability.
(3) lack of technology. (4) geographic limitations.
(5) depletion of renewable energy sources.

48. The use of either naturally occurring or deliberately introduced microorganisms to break down environmental pollutants, in order to clean a polluted site is called
(1) bioremediation. (2) mold remediation (3) nano remediation
(4) micro remediation (5) photo remediation.

49. The most appropriate way to obtain energy security for Sri Lanka is through the use of
(1) natural gas. (2) solar power. (3) dendro power.
(4) urban agriculture. (5) edible landscaping.

50. A newly passed out young management graduate wishes to establish a commercial plant nursery for export market. According to the SWOT analysis,
(1) her young age and management degree can be considered as a strength and an opportunity respectively.
(2) her young age and lack of management skills can be considered as a strength and a weakness respectively.
(3) her degree and lack of experience in agri-business can be considered as a strength and a weakness respectively.
(4) lack of market avenues for export market and difficulty to find quality planting materials can be considered as a weakness and a threat respectively.
(5) her lack of knowledge in agriculture and lack of practical experience in running a business can be considered as a weakness and a threat respectively.

* * *

පැරණි නිර්දේශය/பழைய பாடத்திட்டம்/Old Syllabus

OLD

අධ්‍යයන පොදු සහතික පත්‍ර (උසස් පෙළ) විභාගය, 2019 අගෝස්තු
கல்விப் பொதுத் தராதரப் பத்திர (உயர் தர)ப் பரீட்சை, 2019 ஓகஸ்ற்
General Certificate of Education (Adv. Level) Examination, August 2019

ජෛවපද්ධති තාක්ෂණවේදය II உயிர்முறைமைகள் தொழினுட்பவியல் II **Biosystems Technology II**	**66 E II**	**09.08.2019 / 1400 – 1710**

පැය තුනයි மூன்று மணித்தியாலம் ***Three hours***	අමතර කියවීම් 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 and decide on the questions that you give priority in answering.

Index No. : .....

Instructions :

* *This question paper comprises of **two** parts, Part **A** and Part **B**. The time allotted for **both parts** is **three hours**.*

PART A — Structured Essay : (pages 2 - 8)

*Answer **all four** 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 that extensive answers are not expected.*

PART B — Essay : (page 9)

* *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 top of Part **B** before handing them over to the Supervisor.*
* *You are permitted to remove only Part **B** of the question paper from the Examination Hall.*

For Examiner's Use Only

Part	Question Nos.	Marks Awarded
A	1	
	2	
	3	
	4	
B	5	
	6	
	7	
	8	
	9	
	10	
Total		

Total Marks

In numbers	
In words	

Code Numbers

Marking Examiner 1	
Marking Examiner 2	
Marks checked by	
Supervised by	

[see page two

PART A — Structured Essay

*Answer **all four** questions on this **paper itself**.*

Do not write in this column

1. (A) Weather station provides important information to manage biosystems effectively and efficiently.

(i) Name **two** instruments need to be located in Stevenson screen.

(1) .....

(2) .....

(ii) State the installation height of the anemometer from the earth.

.....

(B) Budding and grafting are popular vegetative propagation techniques used in agriculture.

(i) What is the most important factor for a successful budding or grafting between compatible stock and scion?

.....

(ii) State **two** main factors to be considered in selecting a stock.

(1) .....

(2) .....

(iii) Why budding or grafting is **not** successful in monocots?

.....

.....

(C) A group of students came to know that the biogas unit at the school produces biogas more than the requirement. Furthermore, it is observed that the storage tank is not sufficient to store excess biogas. As a solution, one student named Kamal proposed to release the biogas to environment by opening the releasing valve. But another student named Chathura opposed and suggested to burn the extra biogas instead of releasing to the environment.

(i) With whom do you agree? Kamal or Chatura?

.....

(ii) State the reason for your answer.

.....

.....

(D) Urban agriculture is becoming popular among health-conscious middle-class community.

(i) State **two** main reasons for the popularity of urban agriculture in Sri Lanka.

(1) .....

(2) .....

(ii) Name an organic pesticide that could be prepared at home and use in urban home gardens.

.....

(iii) List **two** advantages of edible landscaping.

(1) .....

(2) .....

[see page three

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(E) Consumption of spoiled foods creates serious health issues to the human.

(i) State **two** physical factors causing food spoilage.

(1) .....

(2) .....

(ii) What is autoxidation?

.....

(iii) Name a technique used to prevent autoxidation.

.....

(F) Food adulteration affects the quality of the food found in the market and it leads to many health issues.

(i) What is food adulteration?

.....

.....

(ii) Name **two** adulterants commonly used in dairy industry.

(1) .....

(2) .....

(G) Sensory evaluation plays an important role in new food product formulation process. State **three** mandatory requirements that should be maintained in a sensory evaluation laboratory.

(i) .....

(ii) .....

(iii) .....

Q1

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2. (A) State **three** methods that can increase recharging of ground water.

(i) .....

(ii) .....

(iii) .....

(B) Due to the prevailing drought, a farmer found the water table in his agro-well has gone down below the suction lift of his existing water pump. A neighbour proposed him to use a bigger water pump having a higher horse power to solve his problem of water lifting.

(i) Will the problem of the farmer be solved if he implements the neighbour's proposal?

.....

(ii) State the reason for your answer.

.....

.....

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(C) Drip and sprinkler irrigation systems are considered as water efficient irrigation systems.

(i) State **two** main factors to be considered in selecting the emitters in a drip irrigation system.

(1) .....

(2) .....

(ii) State **two** advantages and **two** disadvantages of a drip irrigation system.

Advantages

(1) .....

(2) .....

Disadvantages

(1) .....

(2) .....

(iii) Name **three** categories of sprinkler heads based on discharge rate.

(1) .....

(2) .....

(3) .....

(D) A farmer observed blue smoke coming from the exhaust of his old tractor. When he checked the engine he could not find any fault in engine head, gasket or air filter.

(i) What could be the reason for blue smoke?

.....

(ii) What is your solution to correct this situation to a certain extent for a shorter period until the cultivation season is over?

.....

(E) Soil erosion is one of the main factors that cause soil degradation. State **two** mechanical methods to control soil erosion.

(i) .....

(ii) .....

(F) (i) State **two** examples of adventure tourism.

(1) .....

(2) .....

(ii) What is spiritual tourism?

.....

.....

(G) Landscape designers use standard symbols to show soft and hard elements on a landscape plan.

(i) State **two** main advantages of using standard symbols on a scaled landscape plan.

(1) .....

(2) .....

[see page five

(ii) Name the elements shown by the following standard symbols in a landscape plan.

Symbol	Name of the element
(1) 	.....
(2) 	.....
(3) 	.....

(H) Cut flower industry provides significant contribution in foreign exchange earning to the country. What is the most suitable stage to harvest following cut flowers for export?

Name of the cut flower	Most suitable stage for harvesting
(i) Anthuriums	.....
(ii) Orchids	.....
(iii) Roses	.....

Q2

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3. (A) It is estimated that when the rainfall is 60 mm/month, the effective rainfall of a particular crop field is 26 mm/month.

(i) Define 'effective rainfall'.

.....

.....

(ii) Name **two** main factors affecting effective rainfall.

(1) .....

(2) .....

(iii) Calculate the amount of water loss from the soil.

.....

.....

(iv) Name **two** main ways of water loss from the soil.

(1) .....

(2) .....

(B) Domestic waste water can mainly be categorized as Gray water and Black water.

(i) State **one** major concern in handling black water.

.....

(ii) State **two** major environmental impacts of discharging black water into a surface water body.

(1) .....

(2) .....

(iii) State a use of **untreated** gray water.

.....

[see page six

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(C) Ornamental fish breeding for export market brings considerable amount of foreign exchange to the country.

(i) Name **three** suitable characters of an ornamental fish to be selected for the breeding stock.

(1) .....

(2) .....

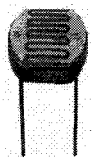
(3) .....

(ii) State **two** main quarantine measures used in a fish breeding farm.

(1) .....

(2) .....

(D) In circuit diagrams, circuit components are indicated by standard symbols. Draw the relevant standard symbol and state the purpose of using each of the following components in circuits.

	Circuit component	**Symbol**	**Purpose**
(i)		.....	.....
(ii)		.....	.....

(E) The most of the filament bulbs available in the market are not up to the given specifications. Electric current passing through a 75 W filament bulb connected with 230 V stable household electricity supply has been recorded as 0.320 A.

(i) Calculate the actual power (W) of the bulb.

.....

.....

.....

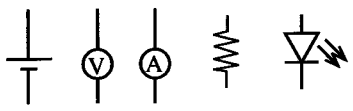
(ii) Calculate the electrical resistance of the bulb.

.....

.....

.....

(F) Using symbols of components shown below, sketch a circuit that could be used to measure the voltage and current through the shown type of bulb.



Q3

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[see page seven

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4. (A) Land surveying is highly important in land use planning.

(i) Name **three** plain table surveying methods.

(1) .....

(2) .....

(3) .....

(ii) Name a surveying method that can be used without any equipment.

.....

(iii) State **one** important factor to be considered in determining the contour interval of a contour map.

.....

(B) Broiler chicken production provides high returns within a short time period.

(i) Name **two** diversified chicken meat products commonly found in the market.

(1) .....

(2) .....

(ii) Name **two** pre-slaughtering factors that affect the quality of poultry meat.

(1) .....

(2) .....

(iii) List **two** visible characters of fresh good quality chicken meat.

(1) .....

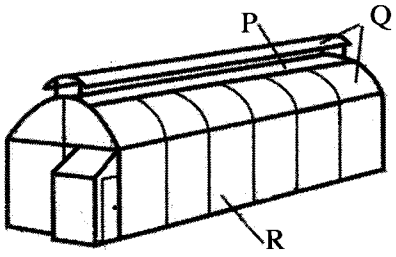
(2) .....

(C) Name **two** edible forest products.

(i) .....

(ii) .....

(D) A sketch of a polytunnel designed for low country wet zone is shown in the following diagram. Use this diagram to answer question (i) to (iii).



Name suitable covering materials P, Q and R.

(i) P. .....

(ii) Q. .....

(iii) R. .....

(E) Different types of seed treatment methods are used to breakdown the seed dormancy.

(i) What seed dormancy?

.....

.....

[see page eight

(ii) State **two** treatment methods used to break the seed dormancy.

(1) .....

(2) .....

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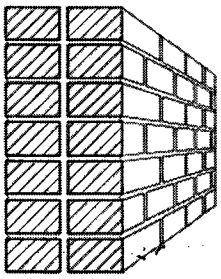
(F) Following diagram shows a wall constructed using bricks. Use this diagram to answer questions (i) and (ii).



(i) What is the mistake done in constructing this wall?

.....

.....

(ii) Draw a sketch correcting the mistake.

(G) During a safety audit of a work place, the audit team made following recommendations. State the relevant category of each recommendation as per the protocol of the disaster prevention.

Recommendation	**Category**
(i) Replace old malfunctioning plug bases with new ones	.....
(ii) Install exhaust fans for the stores	.....
(iii) Labelling the chemical materials kept in the stores	.....

(H) A rich person wants to establish a farm in a particular location. He does not have a training or knowledge on farming but found there is a very capable agricultural extension officer in that area. When he further investigated, he found an agricultural market and a successful farm nearby.

(i) Based on the above information, if he does a SWOT analysis, name a

(1) strength

.....

(2) weakness

.....

(3) opportunity

.....

(4) threat

.....

(ii) State how he could overcome the weakness he identified in the above question (i) (2).

.....

.....

Q4

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* *

[see page nine

පැරණි නිර්දේශය/பழைய பாடத்திட்டம்/Old Syllabus

අධ්‍යයන පොදු සහතික පත්‍ර (උසස් පෙළ) විභාගය, 2019 අගෝස්තු
கல்விப் பொதுத் தராதரப் பத்திர (உயர் தர)ப் பரீட்சை, 2019 ஓகஸ்ற்
General Certificate of Education (Adv. Level) Examination, August 2019

ජෛවපද්ධති තාක්ෂණවේදය II
உயிர்முறைமைகள் தொழினுட்பவியல் II
Biosystems Technology II

66 E II

Part B - Essay

Instructions:
* *Answer **four** questions only.*
* *Give clearly labelled diagrams where necessary.*

5. (a) Describe the importance of soil organisms in biosystems.
(b) Describe the instances where chain surveying **cannot** be implemented in land surveying.
(c) Explain the process of secondary treatment of wastewater from a fruit processing industry.

6. (a) Describe the quality standards of nursery plants prepared for the market.
(b) Write advantages and disadvantages of polyculture in food fish rearing.
(c) Describe the importance of using modern technology in livestock production.

7. (a) Explain the causing factors and prevention mechanisms of soil compaction.
(b) Describe the factors to be considered in selecting a suitable cladding material for a protected plant house.
(c) Describe the special features and uses of following land preparation equipment.
(i) Moldboard plough
(ii) Disc plough
(iii) Sub-soil plough

8. (a) State the non-timber forest products commonly found in Sri Lanka with their uses.
(b) Describe surface irrigation methods.
(c) List the differences between Programmable Logic Control (PLC) systems and microcontroller systems in process automation.

9. (a) Explain the importance of Good Agricultural Practices (GAP) as a quality management system.
(b) Describe the functions and features of lubrication oils used in automobile engines.
(c) Describe the advantages and disadvantages of weeds.

10. (a) Describe the benefits of landscaping.
(b) Name the most common semen collection method in cattle breeding and describe the strategy use to collect maximum volume of good quality semen.
(c) Explain the importance of management skills required for a successful business.

* * *