සියලු ම හිමිකම් ඇවිරිණි /முழுப் பதிப்புரிமையுடையது/All Rights Reserved]
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
ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව
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இலங்கைப் பரீட்சைத் திணைக்களம்
Department of Examinations, Sri Lanka

අධ්‍යයන පොදු සහතික පත්‍ර (උසස් පෙළ) විභාගය, 2024
கல்விப் பொதுத் தராதரப் பத்திர (உயர் தர)ப் பரீட்சை, 2024
General Certificate of Education (Adv. Level) Examination, 2024

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.***
* ***Non programmable calculators are allowed to use.***

1. GPS stands for
(1) Google Play Store. (2) Global Processing System.
(3) Global Positioning System. (4) Global Political Spectrum.
(5) Geographic Processing System.

2. The most commonly found soil type in the dry zone of Sri Lanka would be
(1) Laterite soil. (2) Regosol soil.
(3) Low Humic Glay soil. (4) Red Yellow Podsolic soil.
(5) Reddish Brown Earth soil.

3. Of the following, the test used to measure a biological parameter of water would be
(1) pH test. (2) salinity test. (3) turbidity test.
(4) Coliform test. (5) dissolved oxygen test.

4. In aquaculture, fingerlings of certain fish species are collected from their natural habitat. An example for a such species would be
(1) Catla. (2) Rohu. (3) Thilapia.
(4) Milkfish. (5) Grass carp.

5. One **disadvantage** of sterilizing milk would be
(1) loss of nutrients. (2) formation of clots.
(3) formation of a precipitate. (4) increase of sweetness.
(5) formation of undesirable smell.

6. A technique used in cold sterilization of food is
(1) irradiation. (2) spray drying. (3) open air sun drying.
(4) osmotic dehydration. (5) modified solar drying.

- Use following symbols to answer question no. **7.**



X


Y

7. Above X and Y map symbols represent
(1) park and view point, respectively.
(2) vehicle park and view point, respectively.
(3) park and place of worship, respectively.
(4) vehicle park and meeting point, respectively.
(5) vehicle park and place of worship, respectively.

[*See page two*

8. A farmer observed increased pest and disease incidences in his crops and decreased feed intake of farm animals. The most probable climatic factor responsible for these conditions would be
(1) Relative Humidity. (2) wind.
(3) rainfall. (4) temperature.
(5) light intensity.

9. The properties that enhance the cation exchange capacity of a soil would be
(1) soil porosity and clay content.
(2) soil texture and microbial activity.
(3) organic matter content and soil porosity.
(4) water holding capacity and soil texture.
(5) organic matter content and clay content.

10. Agrowell is considered as
(1) artificial surface water body. (2) artificial groundwater body.
(3) natural surface water body. (4) natural groundwater body.
(5) natural subsurface water body.

11. Effect of contaminants on surface water bodies would be
(1) eutrophication.
(2) contamination of aquifers.
(3) drying of natural water fountains.
(4) increase of salinity in river mouths.
(5) increase of hardness in artesian wells.

12. The optimum moisture content of paddy at the time of harvesting should be
(1) 7 - 10%. (2) 10 - 13%. (3) 13 - 16%. (4) 16 - 19%. (5) 19 - 22%.

13. In broiler processing, stunning is practiced to
(1) hang birds on shackle. (2) facilitate evisceration.
(3) facilitate defeathering. (4) improve the carcass quality.
(5) prepare for ante-mortem inspection.

14. The main objective of homogenization of milk is to
(1) obtain a white colour. (2) reduce oxidation of fat.
(3) increase the fat content. (4) prevent separation of fat.
(5) improve the keeping quality.

15. The pump which produces a head and a flow by increasing the velocity of water with the help of a rotating impeller is called,
(1) rotating pump. (2) centrifugal pump.
(3) diaphragm pump. (4) single action piston pump.
(5) double action piston pump.

- Following are some statements regarding a particular irrigation system. Use these statements to answer question no. **16**.
  - Initial cost is high
  - **Does not** promote extensive root system in crop plants
  - Reduces runoff and evaporation
  - Efficiency is high

16. This irrigation system can be best described as
(1) drip irrigation. (2) furrow irrigation.
(3) bubbler irrigation. (4) sprinkler irrigation.
(5) centre pivot irrigation.

[*See page three*

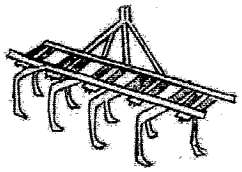
17. A volatile oil used in cosmetic industry would be
(1) olive oil. (2) sesame oil. (3) sunflower oil.
(4) black pepper oil. (5) virgin coconut oil.

18. One of the main advantages of natural drying of timber would be
(1) rapid drying. (2) less liability to insect attacks.
(3) ability to use unskilled labour. (4) less space requirement for stacking.
(5) ability to reach desired moisture content.

19. The primary purpose of withering of tea leaves in black tea processing would be to
(1) enhance the colour. (2) enhance the flavour.
(3) induce the fermentation. (4) initiate the enzyme activity.
(5) reduce the moisture content.

20. In cinnamon processing, the step immediately followed by peeling would be
(1) drying. (2) scraping. (3) grading. (4) packing. (5) rubbing.

- Use following diagram to answer question no. **21**.



21. Land preparation implement shown in above diagram could be identified as
(1) ridger. (2) cono weeder.
(3) light iron plough. (4) levelling harrow.
(5) spike tooth harrow.

22. Transmitting power from the engine to the axle that moves the wheels and allowing the wheels to move at different speeds from each other are done by
(1) clutch. (2) flywheel.
(3) crank shaft. (4) differential.
(5) transmission gears.

23. Following are two statements regarding land surveying.
A – The surveying instrument is positioned at a certain point and the angle between two surveying lines is measured.
B – A leg of the polyhedron is extended and the exterior angle formed with the extended leg is measured.

Of the above,
(1) Bearing is explained by both A and B statements.
(2) Deflection angle is explained by both A and B statements.
(3) Included angle and bearing are explained by statements A and B respectively.
(4) Deflection angle and bearing are explained by statements A and B respectively.
(5) Included angle and deflection angle are explained by statements A and B respectively.

24. Mean sea level is determined by averaging the measurements taken at various locations in
(1) hourly basis over a period of 19 years.
(2) daily basis over a period of 19 years.
(3) weekly basis over a period of 19 years.
(4) hourly basis over a period of 10 years.
(5) daily basis over a period of 10 years.

[*See page four*

25. One of the specific advantages of budding and grafting of fruit crops with compared to other vegetative propagation methods is
(1) early maturation of plants.
(2) ability to create dwarf plants.
(3) possibility to obtain true to type plants.
(4) ability to obtain different type of fruits from a single plant.
(5) ability to develop resistance to most of the common pests and diseases.

26. The most important factors to be considered in selecting a potting media would be
(1) aeration and drainage.
(2) aeration and nitrogen content.
(3) drainage and nitrogen content.
(4) water holding capacity and pH value.
(5) water holding capacity and organic matter content.

27. *Trychodina* is a
(1) fungus that promotes plant growth.
(2) fungus that inhibits soil-borne diseases.
(3) protozoan that acts as a parasite in fish.
(4) nematode that acts as a parasite in farm animals.
(5) bacterium that improves plant nutrient availability in soil.

28. The correct statement regarding poultry management would be
(1) "The feeder lines are operated at pre-set intervals in closed houses."
(2) "Nipple drinkers are used during the brooding of chicks in closed houses."
(3) "Humidity in the hatcher compartment is higher than that in the setter compartment in incubators."
(4) "Darkness is maintained during the night to increase the feed utilization efficiency in broiler pens."
(5) "Temperature in the setter compartment is lower than that in the hatcher compartment in incubators."

29. Following are three statements regarding the caramelization and Millard browning.
A – Caramelization is a reaction catalyzed by an enzyme.
B – Reducing sugar is one of the major materials required for the Millard reaction.
C – Both caramelization and Millard reaction always create undesirable conditions in foods.

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.

30. The main objective of introducing traffic light system to the food label in Sri Lanka is to
(1) indicate the availability of nutrients.
(2) improve the attractiveness of the label.
(3) indicate the availability of food additives.
(4) provide information about shelf-life of the product.
(5) improve the health consciousness among the public.

[*See page five*

31. Following are three statements on food labelling.

A – Labels help to compare products available in the market.
B – Inclusion of nutritional facts in the food label is a mandatory requirement.
C – Inclusion of common name of the product in the food label is a mandatory requirement.

Of the above, the correct statement/s would be

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

32. The two main environmental factors that are regulated in controlled environmental agriculture would be

(1) light and ventilation.
(2) humidity and O_2 level.
(3) temperature and light.
(4) humidity and CO_2 level.
(5) temperature and ventilation.

33. Nutrient Film Technique (NFT) can be best described as a system where

(1) roots of the plants are completely immersed in a nutrient solution.
(2) a thin film of nutrient solution continuously flows over the roots of the plants.
(3) plants are grown in a nutrient rich solid medium, and water is applied at regular intervals.
(4) plants are grown in a solid medium, and nutrient solution is applied at regular intervals.
(5) a thin film of nutrient solution flows over the roots of the plants at regular intervals.

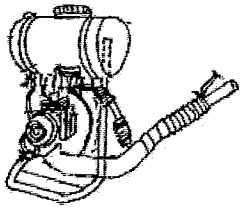
- Use the following diagram to answer question no. **34**.

1	R_1
3	2
4	R_2
6	5

34. Above diagram illustrates a gear box of

(1) a two-wheel tractor.
(2) a four-wheel tractor.
(3) a combine harvester.
(4) a caterpillar machine.
(5) a vehicle having automatic gears.

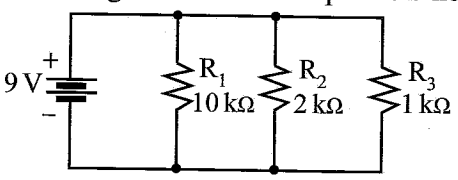
- Use the following diagram to answer question no. **35**.



35. The implement shown in above diagram is a

(1) power duster.
(2) power sprayer.
(3) knapsack sprayer.
(4) hand-operated duster.
(5) compressed type duster.

- Use the following circuit diagram to answer question no. **36**.

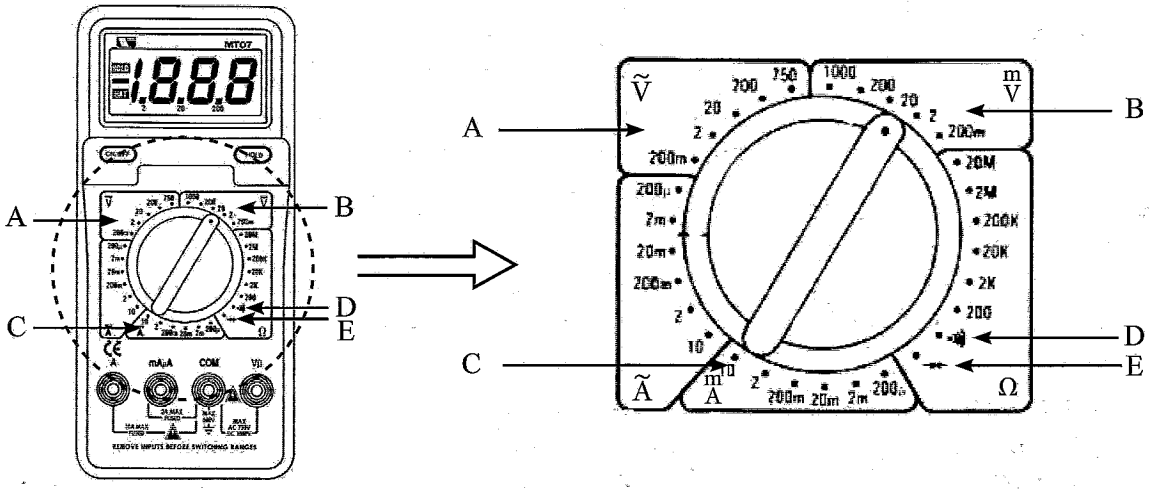


36. Of the above circuit diagram

(1) no current runs through the circuit.
(2) the highest current runs through R_1.
(3) the highest current runs through R_2.
(4) the highest current runs through R_3.
(5) equal currents run through R_1, R_2 and R_3.

[*See page six*

- Use the following diagram of a digital multi-meter to answer questions no. **37** and **38**.



37. To test the continuity of a circuit, the pointer of the digital multi-meter should be turned to the position

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

38. To measure the voltage of a battery, the pointer of the digital multi-meter should be turned to the position

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

39. If the resistance of 10 cm piece of wire is 1.2 Ω, the resistance of 30 cm piece of the same wire would be

(1) 0.12 Ω (2) 0.4 Ω (3) 3.6 Ω (4) 12.0 Ω (5) 36.0 Ω

40. Following are two statements regarding microcontrollers.

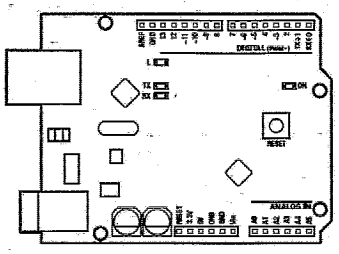
A – The size of a circuit can be significantly reduced.

B – Programming replaces physical components.

Of the above statements,

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

- Use the following diagram to answer question no. **41**.



41. The above diagram can be best described as a sketch of

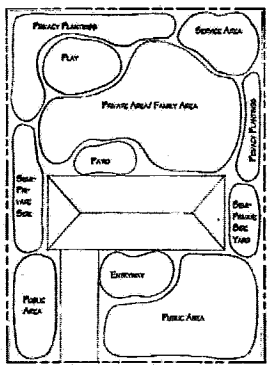
(1) Vero board. (2) Breadboard.
(3) Arduino board. (4) Microprocessor.
(5) Programmable Logic Controller.

[*See page seven*

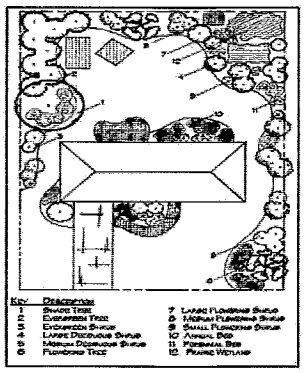
42. The quality standard which focuses on both occupational risks and opportunities to improve overall safety standards in an organization would be

(1) ISO 9000. (2) ISO 12001. (3) ISO 14001.
(4) ISO 16001. (5) ISO 45001.

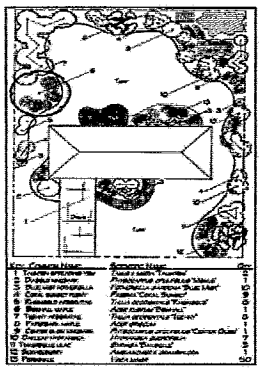
- Following are three types of sketches used in landscape designs. Use these sketches to answer question no. **43**.



A



B



C

43. A, B and C sketches shown above illustrate

(1) base plan, bubble diagram and final plan, respectively.
(2) preliminary plan, base plan and final plan, respectively.
(3) base plan, preliminary plan and final plan, respectively.
(4) bubble diagram, preliminary plan and final plan, respectively.
(5) base plan, bubble diagram and preliminary plan, respectively.

44. When establishing softscapes in a landscape, the item to be first established would be

(1) lawns. (2) hedges. (3) boarders.
(4) flower beds. (5) large trees.

45. Suitable plants for a pergola in a place where children hang out would be

(1) roses and asparagus. (2) roses and grapevines.
(3) jasmine and grapevines. (4) bougainvillea and jasmine.
(5) bougainvillea and asparagus.

46. The most suitable raw materials for successful compost production would be all types of

(1) municipal wastes and garden wastes.
(2) municipal wastes and clinical wastes.
(3) biodegradable domestic wastes and garden wastes.
(4) clinical wastes and biodegradable domestic wastes.
(5) domestic wastes and bio-degradable clinical wastes.

47. Group of students were given neem seeds, garlic and tobacco for a particular school laboratory practical. The most probable product that they may prepare would be

(1) liquid composts. (2) herbal beverage.
(3) biodegradable fuel. (4) biodegradable pesticides.
(5) non-biodegradable antibiotics.

[*See page eight*

48. Following are two statements regarding solid wastes.

A – Solid wastes that are nonrecyclable or nonreusable must be incinerated.

B – Incineration combusts waste using high temperature furnaces.

Of the above statements,

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

49. Following are three statements related to Photovoltaic (PV) systems.

A – The amount of electrical energy produced by PV systems decreases in cooler weather.

B – The amount of electrical energy produced by PV systems depends on the intensity of sunlight.

C – PV systems generate electric power by converting heat from the sun into energy using solar cells.

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.

50. The Fair Trading Commission Act is important for

(1) enforcing labour laws.
(2) quality assurance of a product.
(3) controlling the price of a product.
(4) introducing a product for export market.
(5) providing finance assistance for new entrepreneurs.

***

සියලු ම හිමිකම් ඇවිරිණි /முழுப் பதிப்புரிமையுடையது /All Rights Reserved]

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

අධ්‍යයන පොදු සහතික පත්‍ර (උසස් පෙළ) විභාගය, 2024
கல்விப் பொதுத் தராதரப் பத்திர (உயர் தர)ப் பரீட்சை, 2024
General Certificate of Education (Adv. Level) Examination, 2024

ජෛවපද්ධති තාක්ෂණවේදය II
உயிர்முறைமைகள் தொழினுட்பவியல் II
Biosystems Technology II

66 E II

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 you will answer and decide which of them you will prioritise.

Index No. : .....

Instructions :

* *This question paper comprises of **two** parts, Part **A** and Part **B**. The time allotted for **both parts** is **three hours**.*
* ***Use of non-programmable calculators is allowed.***

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

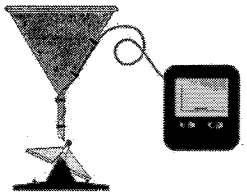
PART A — Structured Essay

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

(Each question carries 75 marks.)

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1. (A) Following diagram shows an instrument used in weather stations. Use this diagram to answer question (i) and (ii).



(i) Name the instrument shown in the above diagram.

.....

(ii) State **two** important points to be considered in installing this instrument.

(1) .....

(2) .....

(B) Soil physical properties are highly important for various functions in soil.

(i) State **two** main soil physical properties that influence the rate of water movement in soil.

(1) .....

(2) .....

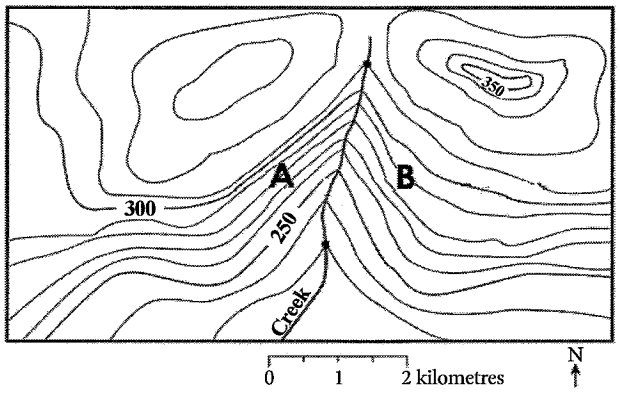
(ii) State **three** processes in soil that are influenced by temperature.

(1) .....

(2) .....

(3) .....

(C) Use the following contour map to answer questions (i) to (vi). Note that the elevation of the contour lines is given in meters.



(i) What is the contour interval in this map?

.....

(ii) What is the highest elevation shown in this map?

.....

(iii) What could be the highest possible elevation in this map in meters?

.....

(iv) Which side (A or B) of the creek has a steeper slope?

.....

[*See page three*

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(v) State the reason to your answer in (iv).

.....

(vi) What is the elevation of the lowest contour line shown in the above map?

.....

(D) State the reason for each of the following steps in levelling an auto leveller.

	Step	Reason
(i)	Rotate the telescope (upper part) of the instrument	
(ii)	Rotate the two foot screws which are parallel to the telescope either inward or outward	
(iii)	Rotate the telescope of the instrument by 90°	
(iv)	Rotate the third foot screw either inward or outward	
(v)	Repeat step (ii), (iii) and (iv)	
(vi)	Bring the telescope back to its original position and then turn by 180° to place the telescope parallel to first two foot screws in reverse order	

(E) Rainwater is one of the best renewable resources that can easily be harvested. State the **three** main components of any rainwater harvesting system.

(i) .....

(ii) .....

(iii) .....

(F) Water pollution is the contamination of water bodies.

(i) State an example for a point-source pollution of surface water bodies.

.....

(ii) State an example for a nonpoint-source pollution of surface water bodies.

.....

(iii) Out of these two sources of pollution, which one is difficult to control?

.....

Q. 1

75

2. (A) Layering is a vegetative propagation technique where the stem or branch of a plant is manipulated to promote root development while still attached to the parent plant. State an example of crop plants for each of following layering methods.

(i) Compound layering : .....

(ii) Air layering : .....

(iii) Mound layering : .....

(B) Aquatic plants are plants that have adapted to living in aquatic environments. Name **three** types of ornamental aquatic plants based on the habitat they are living.

(i) .....

(ii) .....

(iii) .....

[*See page four*

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(C) Animal identification is important in livestock farms.

(i) State **three** conventional identification techniques used in livestock management.

(1) .....

(2) .....

(3) .....

(ii) State the main advantage of using RFID technique over conventional identification techniques.

.....

(iii) Why RFID is **not** commonly used in poultry farming.

.....

(D) Packaging of foods is done to protect foods from damage, contamination, spoilage and pest attacks while labelling provides required information to the consumer.

(i) Following three accessories are used in intelligent packaging to communicate the status of foods to the consumer. State the importance of each accessory.

(1) RFID : .....

.....

(2) Indicators : .....

.....

(3) Sensors : .....

.....

(ii) Food packaging symbols are commonly used to convey important information to the consumers. Following are three symbols that can be seen on food packages.



A



B



C

State the message carried to the consumer by above symbols A, B and C.

(1) A : .....

(2) B : .....

(3) C : .....

(E) State **three** main **disadvantages** in using new trends in food processing.

(i) .....

(ii) .....

(iii) .....

(F) In general, it is recommended to store paddy rather than milled rice as the husk provides some protection against insects. State the maximum storage period for paddy with following moisture contents.

	Moisture content (%)	Maximum period of storage (weeks)
(i)	13	.....
(ii)	9	.....

[*See page five*

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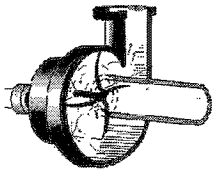
(G) Controlled Environment Agriculture is used to achieve higher crop yield with good quality. State a technique to be used to regulate each of the following Environmental factors in Controlled Environment Agriculture.

(i) High temperature : .....

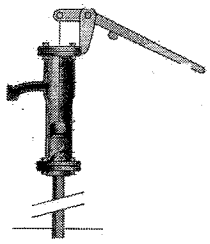
(ii) Low temperature : .....

(iii) Low humidity : .....

3. (A) Two type of water pumps are shown in following diagrams. Use these diagrams to answer questions (i) to (iv).



A



B

(i) Name the type of pumps A and B.

(1) A : .....

(2) B : .....

(ii) State which pump continuously discharges water.

.....

(iii) State which pump **does not** require priming.

.....

(iv) State which pump uses impellor to transfer energy to water.

.....

(B) Various machinery and implements are used to prepare the lands for crop cultivation.

(i) What is the primary function of a tractor in land preparation process?

.....

(ii) What is the most suitable land preparation implement to plough a stony land having thick growth of weeds.

.....

(iii) What are the primary purposes of using following implements in land preparation?

(1) Plough : .....

(2) Rotavator : .....

(C) A farmer having a 16 *l* knapsack sprayer wants to calibrate his sprayer. He put 1 litre of water to the empty sprayer and spray the water of the sprayer whilst continuously walking forwards in a straight line. He kept walking and spraying until the sprayer is completely empty. Then he measured the area covered and found that he has covered 20 m^2.

(i) Calculate the area he could cover with one tank load of his knapsack sprayer.

.....

.....

.....

[*See page six*

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(ii) How many tanks he should spray to cover one hectare of his crop field?

.....

.....

.....

(iii) If the recommendation is to apply 5 litres of a particular pesticide to one hectare of crop field, calculate how much pesticide should be added to one tank of the sprayer.

.....

.....

.....

(D) Our ancestors used the forest to collect following materials.

Round wood, bamboo, rattan, fruits, mushrooms, fuel wood and sticks

(i) Of the above, list

(1) **Two** non-timber forest products

(a) .....

(b) .....

(2) **Two** timber forest products

(a) .....

(b) .....

(ii) State a non-timber medicinal product which is **not** listed above but usually collected from forest.

.....

(E) When coconut shells are subjected to high temperatures (150-650 °C), they undergo a series of physical changes (dehydration and degassing, such as CO, CO_2, H_2S etc.) and chemical changes (polycondensation and pyrolysis) to finally form a carbonized material with a primary pore structure.

(i) Name the finally formed carbonized material of above process.

.....

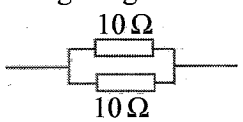
(ii) State **two** uses of this product.

(1) .....

(2) .....

(F) In circuits, resistors are used to reduce the current flow and to lower the voltage in any particular portion of the circuit.

Use the following diagrams to answer question (i) and (ii).



A



B

(i) (1) What is the equivalent resistance of two resistors in diagram A?

.....

.....

[See page seven

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(2) What is the equivalent resistance of three resistors in diagram B?

.....

.....

(ii) A 90 Ω resistor is connected in series with a bulb of 70 Ω resistance. The resistance of connecting wires is 8 Ω. What is the total resistance of this circuit?

.....

.....

(G) A circuit is a complete circular path that electricity flows through.

(i) What is the power of an electric circuit that is running on 1.2 A and 5 V?

.....

.....

.....

(ii) In a circuit, if a resistor consumes 5 W, when a current of 5 A flows through it, what is its voltage?

.....

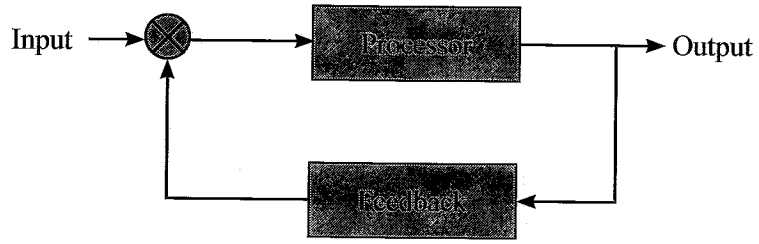
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Q. 3

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4. (A) Control systems are used in electronics to produce specified output. Use the following diagram of a control system to answer questions (i) to (iii).



(i) State the type of the control system shown in above diagram.

.....

(ii) Can this control system be considered as a fully automatic control system?

.....

(iii) State the reason for your answer in above question (ii).

.....

(iv) State **two** common household electric equipment with above control system.

(1) .....

(2) .....

(B) Occupational safety and health deals with all aspects of safety in the workplace. State **two** legislative enactments available in Sri Lanka to safeguard the occupational safety and health.

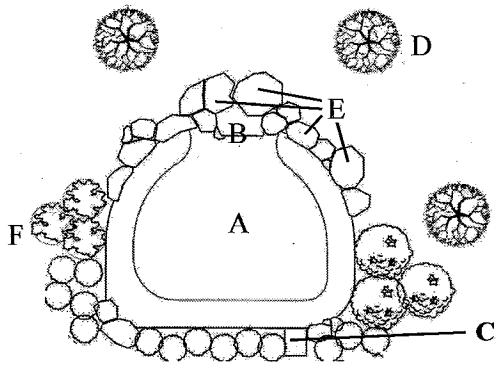
(i) .....

(ii) .....

[*See page eight*

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(C) Ponds are included in landscape designs to provide aesthetic beauty and support the existence of aquatic plants and animals. Use following sketch to answer questions (i) to (v).



(i) What is the most suitable material to be used to prepare the bed (A) of the pond?

.....

(ii) What is the most suitable position to allow the water to enter to the pond?

.....

(iii) What is symbolized by "D"?

.....

(iv) What is symbolized by "E"?

.....

(v) Name a suitable plant for "F"?

.....

(D) Collecting, treating and disposing of solid wastes is called solid waste management.

(i) Separation of solid wastes is an important step in recycling of wastes. State the colour codes of waste bins for the following types of wastes.

(1) Papers : .....

(2) Plastic : .....

(3) Organic wastes : .....

(ii) Landfill is one of the methods that can be used to store non-degradable wastes. State **two** advantages and **two** disadvantages of landfills.

(1) **Advantages**

(a) .....

(b) .....

(2) **Disadvantages**

(a) .....

(b) .....

(E) Certain businessmen use various unethical methods to maximize their profit in a short run.

(i) State **two** such unethical acts commonly done by some businessmen.

(1) .....

(2) .....

(ii) State **two** Acts enacted to protect consumers from such unethical acts.

(1) .....

(2) .....

Q. 4

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[*See page nine*

* *

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Department of Examinations, Sri Lanka

අධ්‍යයන පොදු සහතික පත්‍ර (උසස් පෙළ) විභාගය, 2024
கல்விப் பொதுத் தராதரப் பத்திர (உயர் தர)ப் பரீட்சை, 2024
General Certificate of Education (Adv. Level) Examination, 2024

ජෛවපද්ධති තාක්ෂණවේදය II
உயிர்முறைமைகள் தொழினுட்பவியல் II
Biosystems Technology II

66 E II

Part B - Essay

Instructions:

* *Answer **four** questions only.*
* *Each question carries **100** marks.*
* *Give clearly labelled diagrams where necessary.*
* ***Use of non-programmable calculators is allowed.***

5. (a) Describe the advantages and disadvantages of a wind energy system.

(b) Describe the importance of soil density and porosity for bio-systems.

(c) Describe the main steps of chain surveying.

6. (a) State physical parameters of water and describe their impacts on bio-systems.

(b) Describe the basic components of an ornamental fish breeding station.

(c) Explain the preparation of a single plant solar propagator and its importance.

7. (a) Describe how the land preparation implements should be maintained.

(b) With the help of a suitable diagram, explain the role of each part of a barn milking machine.

(c) Describe the techniques used to regulate the temperature in protected houses.

8. (a) Describe the various bio-masses that could be used in generation of power.

(b) Explain the role of lubrication system in farm machineries.

(c) Explain the methods of determination of shelf life of a food material.

9. (a) Explain the necessity of food regulations for consumer protection.

(b) Describe the advantages of drying of timber.

(c) Describe the function of a step-down transformer with diagrams and state an example for the use of step-down transformer.

10. (a) Describe the strategies to be used by an entrepreneur to manage the risk in introducing a new product to the market.

(b) Describe the facts to be considered in harvesting cut flowers to minimize the postharvest losses.

(c) Explain the role of sensors, processors and actuators in a control system.

* * *