

සියලු ම හිමිකම් ඇවිරිණි / முழுப் பதிப்புரிமையுடையது / All Rights Reserved

**නව නිර්දේශය / புதிய பாடத்திட்டம் / New Syllabus**

**NEW**

இலங்கைப் பரீட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம்

Department of Examinations, Sri Lanka

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

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 (x) in accordance with the instructions given at the back of the answer sheet.
- \* Non programmable calculators are allowed to use.

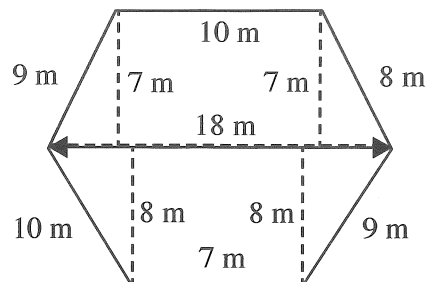
- In most of the instances, winds that travel to a region blowing on a large water body make the region's climate more  
(1) warmer.                (2) cleaner.                (3) wetter.                (4) cooler.                (5) drier.
- In the process of making desiccated coconut, removal of germinated kernels is done during  
(1) paring.                (2) seasoning.                (3) dehusking.                (4) hatchetting.                (5) sterilization.
- In the cinnamon industry, cinnamon leaves are mainly used  
(1) as a soil mulch.  
(2) to prepare compost.  
(3) as an organic pesticide.  
(4) to extract essential oils.  
(5) to prepare livestock feed.
- In surveying, planimeter is generally used to measure,  
(1) angles.                (2) horizontal distance.  
(3) area.                (4) vertical height.  
(5) altitude.
- In order to obtain disease free plants, the most suitable plant part to be used in micro-propagation is  
(1) anther.                (2) embryo.                (3) leaf tissue.                (4) root tissue.                (5) meristem tissue.
- Bacopa* is a  
(1) salt water aquatic plant.  
(2) fresh water aquatic plant.  
(3) live feed form for fingerlings.  
(4) brackish water food fish species.  
(5) brackish water ornamental fish species.
- In general, saline soils have  
(1) lower EC than sodic soils.  
(2) higher pH than sodic soils.  
(3) higher ESP than sodic soils.  
(4) lower ESP and lower pH than sodic soils.  
(5) lower ESP and higher pH than sodic soils.

8. The best parameter to test wastewater for its capacity to deplete oxygen level in water is
- (1) Dissolved Oxygen. (2) Total Suspended Solids.  
 (3) Total Coliform Counts. (4) Biological Oxygen Demand.  
 (5) Chemical Oxygen Demand.

9. Coarse textured soils are low in,
- A - Soil microbial activity.  
 B - Water holding capacity.  
 C - Cation exchange capacity.

Of the above, the correct statement/s would be,

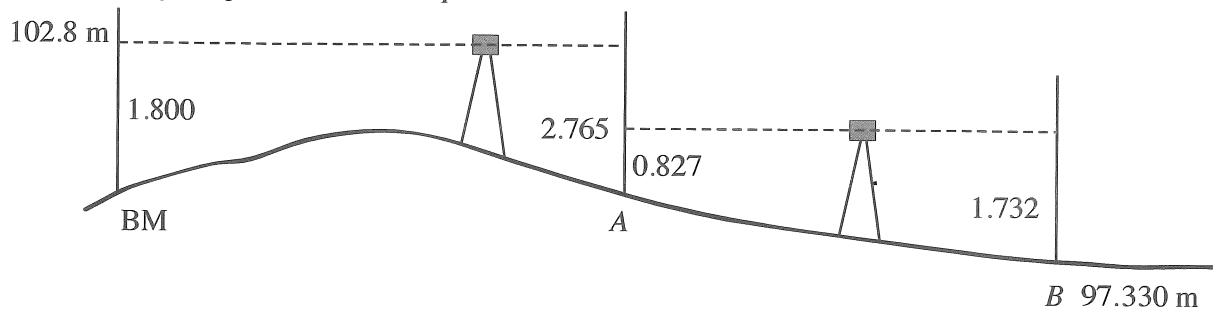
- (1) A only. (2) B only. (3) C only. (4) A and B only. (5) B and C only.
- Use the following sketch obtained from a plain table surveying using radiation method to answer question 10.



10. The area of the sketch shown in the above diagram is
- (1) 192.5 m<sup>2</sup>. (2) 198.0 m<sup>2</sup>. (3) 270.0 m<sup>2</sup>. (4) 306.0 m<sup>2</sup>. (5) 396.0 m<sup>2</sup>.
11. Microbial spoilage of foods is mostly taken place when the pH range of food is within
- (1) 4.5 to 5.5. (2) 5.5 to 6.5. (3) 6.5 to 7.5.  
 (4) 7.5 to 8.5. (5) 8.5 to 9.5.
12. Before freezing vegetables, blanching is done mainly to
- (1) reduce the fiber content in the vegetables.  
 (2) inactivate enzymes found in the vegetables.  
 (3) denature the protein found in the vegetables.  
 (4) wash the dirt found on the surface of the vegetables.  
 (5) inactivate microorganisms found in the vegetables.
13. In a commercial plant nursery, freshly potted plants are kept under shade for 5-10 days. This is done to
- (1) increase transpiration. (2) maintain high humidity.  
 (3) control pests and diseases. (4) reduce evapotranspiration.  
 (5) avoid drying of potting media.
14. Egg shape index is the percentage of the ratio of
- (1) width to length of the egg, and it is important in packaging of eggs.  
 (2) weight to length of the egg, and it is important in packaging of eggs.  
 (3) width to length of the egg, and it is important in determining the cooking quality.  
 (4) weight to length of the egg, and it is important in determining the cooking quality.  
 (5) weight to width of the egg, and it is important in determining the crushing strength.
15. The farm equipment that can be used for both pulverizing the soil and intercultivation of crop fields is
- (1) spike tooth harrow. (2) disc harrow. (3) rotavator.  
 (4) level board. (5) rotary weeder.

16. In the power transmission system of a four wheel tractor, the torque is altered by
- (1) gear box.
  - (2) fly wheel.
  - (3) differential.
  - (4) crank shaft.
  - (5) power take off shaft.

● Use following diagram to answer question 17.



17. According to the sketch given in the above diagram, the altitude at 'A' should be
- (1) 96.503 m.
  - (2) 98.235 m.
  - (3) 99.889 m.
  - (4) 103.765 m.
  - (5) 105.565 m.

18. Propagation structures are generally considered as
- (1) top vent structures.
  - (2) temporary structures.
  - (3) permanent structures.
  - (4) full protected structures.
  - (5) semi-permanent structures.

19. Two statements on offsets are given below.

A - Perpendicular offsets are drawn from main survey line to an object in the field.

B - At least two oblique offsets are necessary when perpendicular offsets **cannot** be obtained.

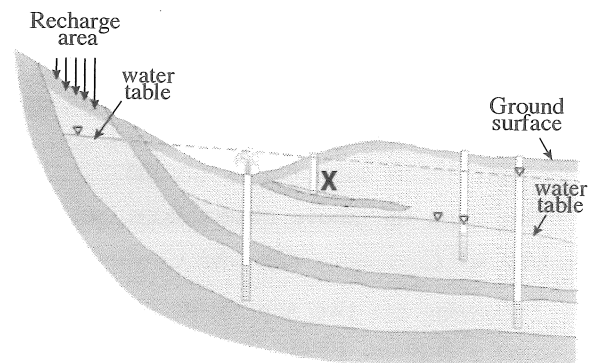
Of the above two statements,

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

● Different types of aquifers are shown in the diagram given below. Use this diagram to answer question 20.

20. In this diagram, 'X' can be identified as,

- (1) perched aquifer.
- (2) artesian aquifer.
- (3) non-artesian aquifer.
- (4) semi-artesian aquifer.
- (5) semi-confined aquifer.



21. Compared to raw rice, parboiled rice

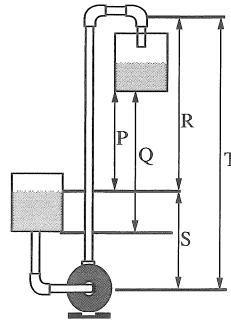
- (1) has low nutritive value.
- (2) contains more impurities.
- (3) has higher head rice recovery rate.
- (4) contains less proteins and minerals.
- (5) needs more polishing during the processing.

22. In livestock farms, Radio Frequency Identification (RFID) tags are used to
- (1) identify the animals in a dairy herd.
  - (2) predict the heat period of the heifers.
  - (3) detect sick broiler birds in a closed poultry house.
  - (4) count the number of animals in a farm accurately.
  - (5) obtain information of each animal in a farm individually.
23. A forest plant commonly used to extract resins is,
- (1) Mee (*Madhuca longifolia*).
  - (2) Palu (*Manilkara hexandra*).
  - (3) Rubber (*Hevea brasiliensis*).
  - (4) Kothalahimbutu (*Salacia reticulata*).
  - (5) Pinus (*Pinus caribaea*).
24. Following are three statements on biological wastewater treatment process.
- A - Both floating and suspended coarse particles are removed during preliminary treatment through screening.
- B - After the sedimentation of suspended particles, a suitable chemical is added to enhance the secondary treatment.
- C - Aeration is done to facilitate decomposition.
- 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.
25. In the cut flower industry, Anthurium flowers are graded mainly on the basis of the,
- (1) size of the spathe.
  - (2) age of the flower.
  - (3) length of the stalk.
  - (4) colour of the stalk.
  - (5) length of the spadix.

● Use the following diagram of water lifting by a centrifugal pump to answer question 26.

26. In this diagram, the total head is

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



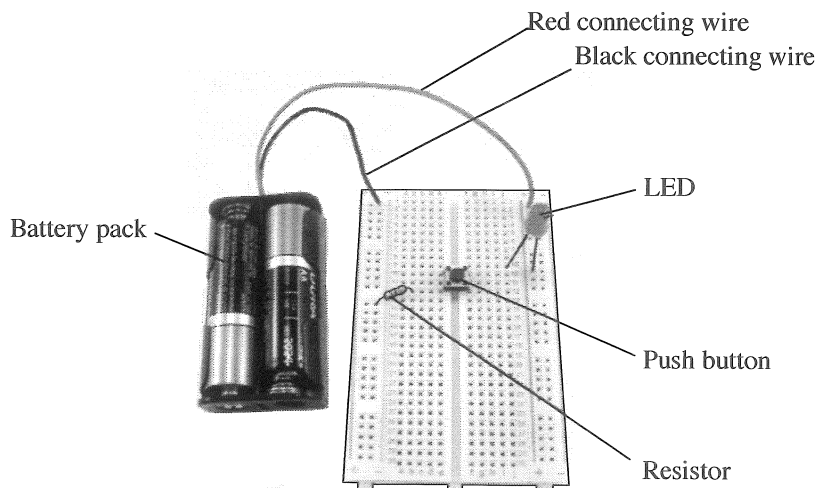
27. A quality controller in a broiler meat factory, after inspecting the defeathered carcasses, made following observations.
- \* Few residual feathers are there on the back, wings and tail
  - \* partially removed cuticle
  - \* breast meat colour normal.

Based on the above observations, scalding temperature used must be

- (1) 30° C.
  - (2) 40° C.
  - (3) 50° C.
  - (4) 60° C.
  - (5) 70° C.
28. Following are two statements regarding the aquatic ornamental plants.
- A - Aquatic plants reduce algae growth in aquariums.
- B - Aquatic plants compete with algae for nutrients.
- Of above statements,
- (1) Both A and B are incorrect.
  - (2) A is correct but B is incorrect.
  - (3) A is incorrect but B is correct.
  - (4) both A and B are correct and A further explains B.
  - (5) both A and B are correct and B further explains A.

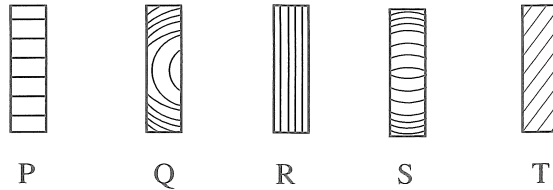
29. Pulse electric field technology in food preservation is used for preserving,
- (1) solids only.
  - (2) liquids only.
  - (3) liquids and solids only.
  - (4) solids and semi-liquids only.
  - (5) liquids and semi-liquids only.
30. Before introducing a new product to the market, the most suitable method to find out the market demand would be,
- (1) the use of a questionnaire.
  - (2) conduct of face to face interviews.
  - (3) conduct of focused group discussions.
  - (4) distribution of free samples to the community.
  - (5) pre advertisement of the product using mass media.
31. In a hydroponic system, the most essential components for a plant to grow are
- (1) solvent, sunlight, space to grow, heat and soil.
  - (2) water, sunlight, place to grow, heat and nutrients.
  - (3) solvent, sunlight, place to grow, heat and nutrients.
  - (4) water, light, space to grow, temperature and soil.
  - (5) water, light, space to grow, temperature and nutrients.

- Use the following diagram of a circuit to answer question numbers 32.

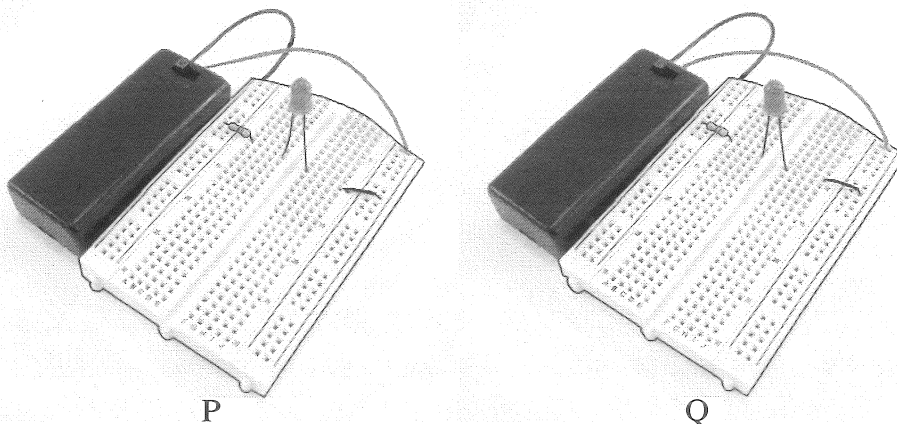


32. Of the above diagram, when battery pack is connected to the breadboard, The LED will illuminate
- (1) when the resistor is removed.
  - (2) when the push button switch is on.
  - (3) when the resistor and LED are interchanged their locations.
  - (4) when the red and black connecting wires are interchanged.
  - (5) when the black colour connecting wire is connected to the outer line of the power rail.
33. In automobile engines, lubricants are mainly used to
- (1) reduce the friction between moving parts.
  - (2) control the temperature inside the engine.
  - (3) reduce the blue smoke coming from exhaust.
  - (4) ignite the fuel inside the combustion chamber.
  - (5) prevent freezing the engine in cooler climates.
34. A farmer wanted to find out the time he has to spend to apply weedicide to his 1 ha field. The spray width of his knapsack sprayer is 1 meter. If he can walk 50 meters per minute carrying the sprayer, the time he needs to spray his land is approximately
- (1) 2 hours
  - (2) 2 hours and 30 minutes
  - (3) 3 hours
  - (4) 3 hours and 30 minutes
  - (5) 4 hours

- Use the following diagrams showing the grain direction of different timbers to answer question 35.



35. Of the timbers shown in the above diagrams, the most suitable timber for construction purposes would be  
 (1) P.                      (2) Q.                      (3) R.                      (4) S.                      (5) T.
36. A person who is **not** eligible to claim for compensation under the Workmen Compensation Ordinance 19 of 1934 would be  
 (1) army soldier.                      (2) farm labourer.  
 (3) security guard in a bank.                      (4) hospital sanitary worker.  
 (5) machine operator in a garment factory.
37. As a hedge plant, *Ixora* is the most suitable to establish hedgerow,  
 (1) to cover unwanted places.  
 (2) to divide the nursery of a land.  
 (3) along the boundaries of a land.  
 (4) on the sides of the walking path.  
 (5) to prevent entering humans to a restricted area.
38. In electronic circuits, resistors are mainly used to  
 (1) divide voltage and measure the voltage.  
 (2) divide voltage and measure the resistance.  
 (3) reduce current flow and adjust signal levels.  
 (4) reduce current flow and measure the current.  
 (5) terminate transmission lines and measure the current.
- Use the following two circuit diagrams to answer question 39.

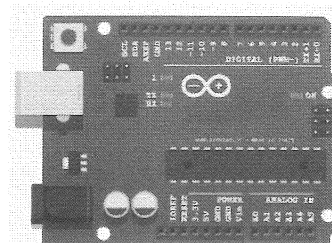


39. When the circuits shown in the above diagram are switched on,  
 (1) only LED in P will illuminate.  
 (2) only LED in Q will illuminate.  
 (3) both LEDs in P and Q will illuminate.  
 (4) both LEDs in P and Q will not illuminate.  
 (5) LED in P will emit more light than LED in Q.

40. In arc welding works, step-down transformers are used to produce,
- (1) low current and low voltage to minimize the cost of electricity.
  - (2) low voltage to reduce the risk of electric shocks to the operator.
  - (3) low current to reduce the risk of electric shocks to the operator.
  - (4) high voltage to generate high temperature at the point of welding.
  - (5) high current to generate high temperature at the point of welding.
41. A micro-controller is a
- (1) small chip made of silver.
  - (2) portable circuit capable of making other circuits.
  - (3) small Central Processor Unit (CPU) made of transistors and conductors.
  - (4) computer processor that incorporates the functions of a central processing unit on a single integrated circuit (IC).
  - (5) small computer on a single integrated circuit containing a processor core, memory, and programmable input/output peripherals.

● Use the following diagrams to answer question 42.

42. This diagram shows a
- (1) Vero board.
  - (2) Arduino board.
  - (3) Microprocessor.
  - (4) Step-up transformer.
  - (5) Programmable Logic Controller.



43. When a sample of about a tea spoonful of chilli powder taken from a packet of chilli powder bought from the open market was sprinkled on the water surface in a glass of water, following observations were made.

- \* Some particles of chilli powder descended in the water making red coloured streaks.
- \* Grittiness was felt when rubbing the sediment accumulated at the bottom of the glass.

Based on the above observations, one can guess that, this chilli powder is

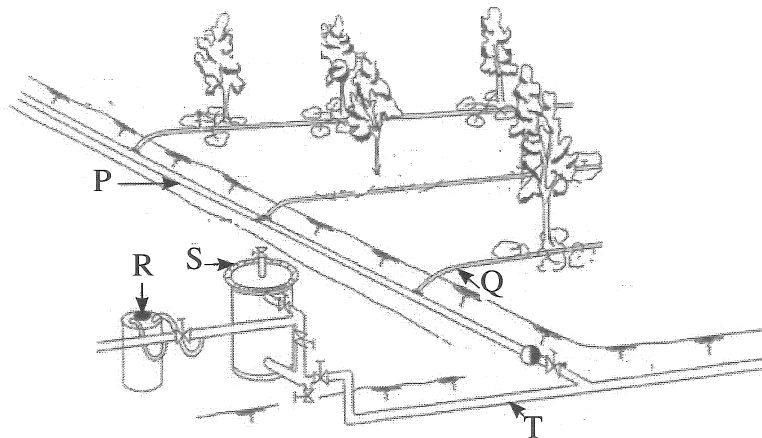
- (1) not adulterated.
  - (2) adulterated with brick powder.
  - (3) adulterated with artificial colorants.
  - (4) adulterated with brick powder and artificial colorants.
  - (5) adulterated with paddy husk powder and artificial colorants.
44. Postharvest longevity of cut flowers depends on preharvest agronomic practices. One of the important preharvest practices to maintain longevity of harvested cut flowers is
- (1) exposing to direct sunlight to reduce fungal infections.
  - (2) subjecting to slight water stress to protect from pest attacks.
  - (3) washing the flowers with adequate water to remove dirt from flowers.
  - (4) removing of insect pests from the plants to minimize postharvest damages.
  - (5) watering the plants before cutting the flowers to maintain the turgidity of the cells.
45. High moisture percentage in solid waste increases
- A - energy requirement in incineration.
  - B - the transportation cost due to increased weight.
  - C - microbial activity during composting.

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.

46. An environmental benefit of cleaner production process is
- (1) reduction of production cost.
  - (2) reduction of gaseous emissions.
  - (3) use of alternative power for production.
  - (4) efficient use of energy and raw materials.
  - (5) improvement of the quality of the product.
47. A solar cell is an electrical device that converts the energy of light directly into electricity. This is done using
- (1) physical effect.
  - (2) thermal effect.
  - (3) chemical effect.
  - (4) photovoltaic effect.
  - (5) atmospheric effect.

- Use the following diagram of drip irrigation system to answer question 48.



48. On the above diagram, fertigation unit, filter, main line, sub-line and lateral line is labelled as
- (1) P, Q, R, S and T respectively.
  - (2) S, R, Q, T and P respectively.
  - (3) R, S, T, P and Q respectively.
  - (4) S, T, P, Q and R respectively.
  - (5) R, P, Q, T and S respectively.
49. One of the most appropriate short-term solutions to face the food security problems created by recent COVID - 19 pandemic would be the establishment of more
- (1) fruit crops.
  - (2) model farms.
  - (3) livestock farms.
  - (4) home gardens.
  - (5) protected agriculture structures.
50. Among the following, the biggest **mistake** one can make when preparing a business plan would be
- (1) misrepresenting facts.
  - (2) not including at least one appendix.
  - (3) not mentioning the technology to be used.
  - (4) forgetting to include the executive summary.
  - (5) failing to mention a clear vision of the business.