

OL/2024(2025)/82/E-I, II

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 இலங்கைப் பரீட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம்
 Department of Examinations, Sri Lanka
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 இலங்கைப் பரීட்சைத் திணைக்களம்
 Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka

82 E I, II

අධ්‍යයන පොදු සහතික පත්‍ර (සාමාන්‍ය පෙළ) විභාගය, 2024(2025)
 கல்விப் பொதுத் தராதரப் பத்திர (சாதாரண தர)ப் பரீட்சை, 2024(2025)
 General Certificate of Education (Ord. Level) Examination, 2024(2025)

ජලජ ජීව සම්පත් තාක්ෂණවේදය I, II
 நீருயிரினவளத் தொழினுட்பவியல் I, II
 Aquatic Bioresources Technology I, II

පැය තුනයි
 மூன்று மணித்தியாலம்
 Three hours

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

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

Aquatic Bioresources Technology I

Note :

- * Answer all questions.
- * In each of the questions from 1 to 40, pick one of the alternatives (1), (2), (3), (4), which is correct or most appropriate.
- * Mark a cross (X) on the number corresponding to your choice in the answer sheet provided.
- * Further instructions are given on the back of the answer sheet. Follow them carefully.

1. An aquatic organism that can be found in villu is,

(1) milkfish.	(2) tortoise.
(3) black tiger shrimp.	(4) pearl oyster.
2. The fin which helps to maintain stability and control of a fish while swimming is,

(1) dorsal fin.	(2) caudal fin.	(3) pelvic fin.	(4) pectoral fin.
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- A map of Sri Lanka is given below. Answer the questions from 3 to 5 based on the map.
3. The character that indicates international sea is,

(1) B.	(2) C.
(3) E.	(4) F.
4. A natural harbour is located in,

(1) A.	(2) B.
(3) D.	(4) E.
5. The place where 'bar' coral reef located is,

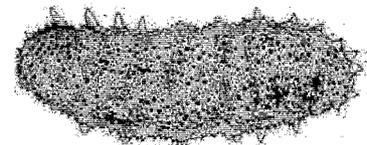
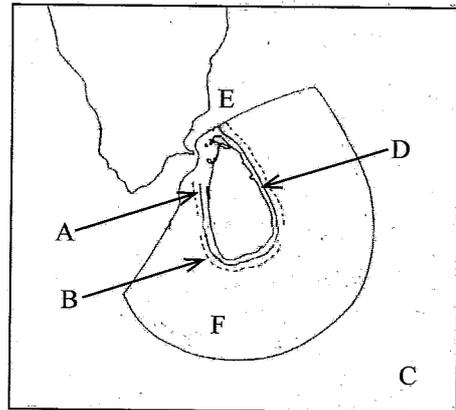
(1) A.	(2) B.
(3) C.	(4) D.
6. The EEZ stands for,

(1) Economic Environmental Zone.	(2) Exclusive Economic Zone.
(3) Exclusive Environmental Zone.	(4) Extended Economic Zone.
7. How many chambers does a typical fish heart have?

(1) one	(2) two	(3) three	(4) four
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8. The most widely cultured fish species in Sri Lanka is,

(1) catfish.	(2) eel.	(3) milkfish.	(4) tilapia.
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9. The animal shown in the picture is,

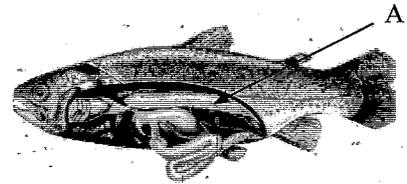
(1) a mollusc.
(2) an echinoderm.
(3) an annelid.
(4) a crustacean.



[see page two]

10. The optimal weight of a mud crab commonly targeted in harvesting is,
 (1) 50-100 g. (2) 150-200 g. (3) 300-500 g. (4) 600-800 g.
11. The factor that contributes the most to the growth of spoilage bacteria in fish is,
 (1) low temperature. (2) high moisture content.
 (3) high pH value. (4) low carbon dioxide concentration.
12. In Sri Lanka, fishing vessels are registered under the,
 (1) Ceylon Fisheries Corporation.
 (2) Ceylon Fishery Harbours Corporation.
 (3) Department of Fisheries and Aquatic Resources.
 (4) National Aquatic Resources Research and Development Agency.
13. The maintenance and control of Sri Lanka's lighthouses are carried out by the,
 (1) Sri Lanka Ports Authority. (2) Ceylon Electricity Board.
 (3) Sri Lanka Navy. (4) Coastal Conservation Department.
14. A characteristic of freshwater water bodies is,
 (1) high salinity. (2) high hardness.
 (3) maximum dissolved oxygen levels. (4) minimum salt concentration.
15. 'Eutrophication' is,
 (1) a process that cleans water bodies by removing pollutants.
 (2) an increase in nutrients that leads to excessive algae growth in water bodies.
 (3) a method of restoring habitats for fish population.
 (4) the natural aging process of reservoirs.

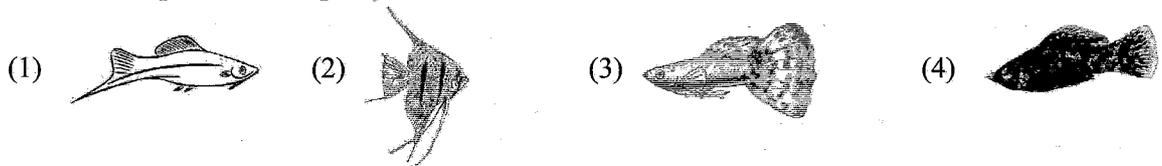
16. 'A' organ, shown in the picture helps fish to,
 (1) excrete waste.
 (2) be standstill in water.
 (3) digest food.
 (4) circulate blood.



17. Two major countries ornamental fishes exported from Sri Lanka are,
 (1) India and Malaysia. (2) Japan and USA.
 (3) Australia and Canada. (4) Maldives and New Zealand.
18. The term 'stocking density' refers in fish farming is,
 (1) the total weight of fish in a tank.
 (2) the frequency of feeding fish.
 (3) the total weight of fish per unit area or volume.
 (4) the number of fish per unit area or volume.

19. Fin rot in fish is primarily caused by,
 (1) nutritional deficiencies. (2) viral infection.
 (3) genetic factors. (4) bacterial infection.

20. Select the oviparous fish species.



- Several factors which impact the environment are given below.

- A - Temperature
- B - Water depth
- C - Soil type
- D - Light availability

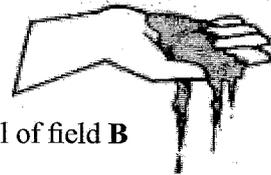
21. Of the above factors, which mainly influence biodiversity of aquatic ecosystems are,
 (1) A and B only. (2) B and D only.
 (3) A, B and D only. (4) B, C and D only.

22. The main role of carrageenan in the ice cream production industry is,
 (1) enhancing sweetness. (2) improving protein content.
 (3) acting as a colour additive. (4) acting as a stabilizer.
23. The primary reason for using pelletized feed by fish farmers for farmed fish is, pellets,
 (1) provide balanced nutrition for fish. (2) are easier to store and transport.
 (3) are more digestible than live feed. (4) help fish to grow faster.
24. What is the characteristic of bait which attracts fish in deep sea?
 (1) colour (2) texture (3) odour (4) movement
25. If a fisherman on a multiday boat raises his hands and waves up and down. What is the message this signal convey?
 (1) Fish nets are being pulled on. (2) Assistance is needed.
 (3) It is close to reach to dock. (4) A warning to other boats.
26. Which of the following is the main reasons for fish spoilage, due to improper handling during fishing or processing?
 (1) Bacterial infection (2) Autolysis
 (3) Rancidity (4) Fermentation

- A student took handful of soil, from two different fields, wet them and attempted to make small balls. Appearance of them are as follows.



Soil of field A



Soil of field B

27. According to the above observations, to construct a pond for shrimp farming,
 (1) only field A is suitable.
 (2) only field B is suitable.
 (3) both A and B fields are suitable.
 (4) both A and B fields are not suitable.
28. 'Theppama' is a,
 (1) log tied to the side of the canoe to keep it balanced.
 (2) set up of wooden sticks used to gather fish.
 (3) traditional craft made using wooden logs to catch fish.
 (4) vessel made of wooden logs used to catch fish in the shallow sea.
- Several reasons presented by a student for prohibiting monofilament nets in Sri Lanka are given below.
 A – They are too expensive for fishermen to use.
 B – They catch small juvenile fish, preventing the population from replenishing.
 C – They catch a wider variety of fish species, including those that are not targeted.
29. Of the above reasons, the correct reasons would be,
 (1) A and B only. (2) A and C only.
 (3) B and C only. (4) All A, B and C are correct.
- A few devices used in a multiday fishing boat are given below.
 A – GPS device
 B – Single Side Band (SSB) radio
 C – Echo sounder
30. Of the above, the device/devices commonly found on multiday fishing vessels to ensure safety at sea is/are,
 (1) A only. (2) A and B only. (3) A and C only. (4) B and C only.

31. The role of Community-Based Fisheries Management (CBFM) in sustainable fisheries is to,
- (1) limit community involvement in resource management.
 - (2) reduce local stakeholders involvement in decision making.
 - (3) allow external corporations to manage local fisheries.
 - (4) give local communities a role in managing and conserving their fisheries resources.
32. The key challenge in achieving sustainable management of aquatic resources is,
- (1) maximum use of water resource for economic growth.
 - (2) effective regulation and enforcement of fishing practices.
 - (3) establishing freshwater aquaculture in all regions.
 - (4) establishing institutes to educate community about aquatic resources.
33. A product produced by fermentation process is,
- (1) fish sauce. (2) fish fingers. (3) fish sausages. (4) fish oil.
- Two statements related to preservation of fish are given below.
 - A – It is more advantageous to use sea water for preservation of fish
 - B – Using chilled sea water, can increase shelf-life of fish than icing
34. Of the above statements,
- (1) A is true and B is false. (2) B is true and A is false.
 - (3) Both A and B statements are true. (4) Both A and B statements are false.
- Two characteristics of an aquatic plant are given below.
 - A – An emergent plant
 - B – Leaves are used to make ornaments
35. According to the above characteristics this aquatic plant would be
- (1) mangrove. (2) typha. (3) bacopa. (4) cabomba.
36. Which of the following is an example of chemical spoilage in fish?
- (1) Bacterial growth causing an irritating smell.
 - (2) Enzymatic breakdown of protein.
 - (3) Oxidation of fats causing rancidity.
 - (4) Fermentation of sugar in fish tissues.
37. 'Open access' is,
- (1) an exclusive fishing rights granted to specific individuals.
 - (2) an unrestricted freedom to fishing activities for all fishermen.
 - (3) a space allocation system for fishermen to catch fish based on quota.
 - (4) fisheries programme managed and controlled by the government.
38. The main reason for adding salt when drying fish is to,
- (1) improve the taste of the fish. (2) speed up the drying process.
 - (3) prevent microbial growth. (4) enhance appearance.
- Three factors important in aquaculture are given below.
 - A – Age of a fish
 - B – Size of a fish
 - C – The cost
39. Of the above factors, what are key consideration in determining the required quantity of fish pellets?
- (1) A and B only. (2) A and C only.
 - (3) B and C only. (4) All A, B and C.
40. The principle of fish preservation which helps to maintain the nutritional value of the fish over time is,
- (1) freezing to prevent enzymatic breakdown.
 - (2) drying to remove excess moisture.
 - (3) sterilizing and canning to prevent contamination.
 - * (4) salting to enhance flavour.

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82 E I, II

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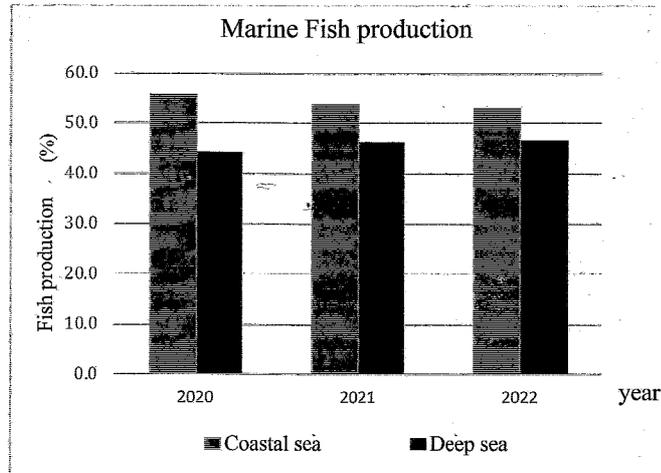
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நீருயிரினவளத் தொழினுட்பவியல்	I, II
Aquatic Bioresources Technology	I, II

Aquatic Bioresources Technology II

* Answer five questions only, selecting the first question and four others.

1. (A) Aquaculture has become one of the fastest growing sector in the world.
- What is aquaculture?
 - State **four** main objectives of aquaculture.
 - State **four** factors to be considered when selecting a suitable location for aquaculture.
 - Name **four** conditions needed for successful aquaculture.
 - (a) State **two** aquaculture systems.
(b) State **two** differences between them.
 - State **two** environmental impacts that occur due to aquaculture.
- (B) A student established an ornamental fish tank at his home. The steps he followed are given below and are not listed in correct order.
- Installation of decorative materials
 - Installation of aquatic plants
 - Fixing the roof of the tank
 - Filling the tank with water
 - Inserting water filter
 - Keeping the tank on stand
 - Placing a layer of pebbles and stones
 - Introducing fish to the tank
- Write the above steps in its sequential order, followed by the student.
 - (a) State **two** water quality parameters to be maintained in his tank.
(b) Name equipment used to measure each of those parameters.
 - State **one** type of water filter he can use.
 - He introduced oscar and guppy fish to this fish tank. Write your opinion on keeping those fish together.

2. The production of marine fish in Sri Lanka is shown in the graph in percentages given below. Most of the contribution comes from the shallow sea area, which is about 6% of the Sri Lanka's sea area.



- (i) Describe **two** reasons for getting high yield from the coastal sea.
- (ii) (a) Name **two** species each of which are mainly caught in deep and coastal sea areas respectively.
- (b) Name **two** fishing vessels/crafts used to catch fish in deep and coastal sea areas respectively.
- (iii) (a) Name **two** fishing gears used in shallow sea fishing industry.
- (b) Describe the operation of one of those gears.
3. Fish feed management is very important for successful aquaculture.
- (i) Describe the negative impact of overfeeding fish in aquaculture.
- (ii) 1000 fingerlings were cultured in a pond and the average body weight of one fingerling is 10 g. Feed should be provided 10% of body weight per day. Calculate the weight of feed should be provided to the pond per day.
- (iii) Name **four** nutrient components should be in a fish feed and name **one** food each used to provide those nutrient components.
4. The most popular commercial method to preserve fish soon after catching is icing.
- (i) State **two** processing activities that should be applied before icing.
- (ii) Describe the principle which explains the preservation of fish by icing.
- (iii) (a) Name a traditional method used in preserving fish.
- (b) Show the steps of the method you named above using a flowchart.
5. In fish processing industry, a large quantity of waste is generated. This waste can be used to produce different productions.
- (i) (a) State **two** types of non edible fish parts which are disgarded in the fish processing industry.
- (b) State **two** value added fish products made using the edible fish parts.
- (c) Describe the importance of producing value added fish products.
- (ii) Describe the conditions that should be in a fish processing plant.
- (iii) Describe the environmental and economical benefits of producing products using fish wastes.

6. Fish show unique morphological features and behaviours that help them to adapt to aquatic environments.
- (i) Draw a diagram of a typical fish and label its external body parts.
 - (ii) (a) Name **two** sensory organs of a fish.
(b) Describe how these sensory organs help for the existence of fish.
 - (iii) Describe **two** types of behavioural pattern with examples that fish exhibit during breeding.
7. Maintaining the sustainability of aquatic bioresources in Sri Lanka is a challenge and thus the proper management is very important.
- (i) (a) State **four** major challenges that fishermen face in aquatic bioresources conservation.
(b) Describe **two** measures that can be taken to overcome those challenges.
 - (ii) Explain why maintaining aquatic bioresources sustainably is important for Sri Lanka.
 - (iii) Describe the role of enforced management in sustaining aquatic bioresources.
