

82 E I, II

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 கல்விப் பொதுத் தராதரப் பத்திர (சாதாரண தர)ப் பரீட்சை, 2022(2023)
 General Certificate of Education (Ord. Level) Examination, 2022(2023)

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

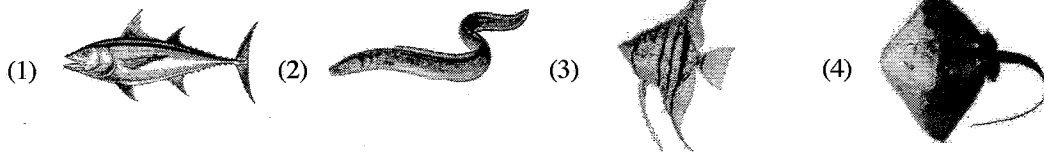
Use additional reading time to go through the question paper, select the questions you will answer and decide which of them you will prioritise.

Aquatic Bioresources Technology I

Note :

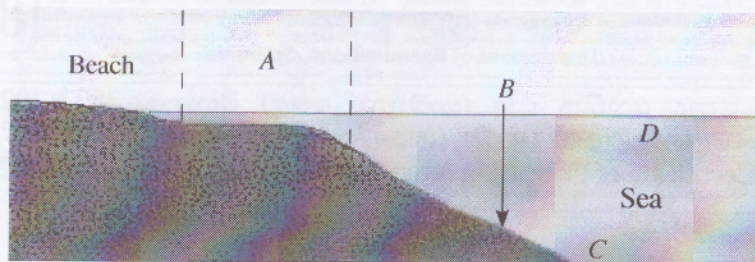
- * Answer all questions.
- * In each of the questions from 1 to 40, pick one of the alternatives (1), (2), (3), (4), which is correct or most appropriate.
- * Mark a cross (X) on the number corresponding to your choice in the answer sheet provided.
- * Further instructions are given on the back of the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

1. The largest contributor to the Gross Domestic Product (GDP) in Agricultural sector in Sri Lanka is
 (1) paddy cultivation. (2) aquaculture. (3) tea plantation. (4) fisheries.
2. The most common fish species used to produce maldive fish in Sri Lanka is
 (1) skipjack tuna. (2) tilapia. (3) red mullet. (4) Indian mackerel.
3. Which of the following aquatic ecosystem that is mainly affected by tides?
 (1) Coral reef (2) Villu (3) Mangrove (4) Rivers
4. Select the most common fish found in the bottom of the sea.

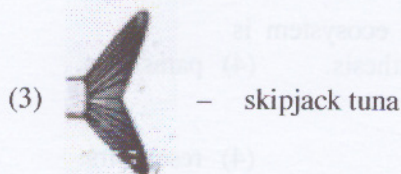


5. An example for a living-nonliving interaction of an aquatic ecosystem is
 (1) Mutualism. (2) commensalism. (3) photosynthesis. (4) parasitism.
6. Aquaculture in Sri Lanka is mainly based on
 (1) lagoon. (2) offshore. (3) rivers. (4) reservoirs.
7. The salinity of a certain water source was 12ppt. Which kind of aquatic species is suitable for culture in that water source?
 (1) Tilapia (2) Milk fish (3) White shrimp (4) Pearl oyster
8. The aquatic plant that can make a delicious drink from its fruit is
 (1) Kumbuk. (2) False pineapple (Wetakeiya).
 (3) Apple mangrove (Kerala). (4) Eve's Apple (Kaduru).
9. What is the approximate per capita fish consumption of Sri Lanka in 2021?
 (1) 8.4 kg (2) 12.2 kg (3) 14.0 kg (4) 20.7 kg

- The question number 10 and 11 are based on the following diagram.



10. A represents the
 (1) continental shelf. (2) continental slope. (3) continental rise. (4) offshore.
11. Sea urchins are commonly found in
 (1) A. (2) B. (3) C. (4) D.
12. What is the traditional fishing craft shown in the picture?
 (1) Plank craft (theppam)
 (2) Beach seine craft
 (3) Log craft
 (4) canoe
13. One of the **challenges** faced by the fishermen in engaging fisheries is
 (1) water pollution. (2) climate change.
 (3) theft of fishing boats and gear. (4) high cost of fuel.
14. What is the fish product which is preserved by reducing pH value?
 (1) Jadi (2) Dried fish (3) Smoked fish (4) Fish balls
15. Which fish species contains high fat percentage?
 (1) Anchovy (2) Tilapia (3) Trenched sardine (4) Silver belly
16. Examples for endemic, indigenous and exotic freshwater fish species are respectively,
 (1) cherry barb, black ruby barb and trout. (2) tilapia, paradise fish and cherry barb.
 (3) paradise fish, cherry barb and trout. (4) black ruby barb, giant gourami and trout.
17. Choose the correct combination regarding the shape of the caudal fin and related fish species.



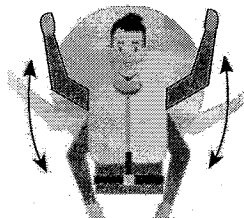
18. Due to El-Nino process in the seawater, it increases the
 (1) salinity. (2) turbidity.
 (3) temperature. (4) dissolved oxygen concentration.
19. A few aquatic plants found in Sri Lanka are given below.
 A - Salvinia
 B - Pistia
 C - Bacopa
- Of the above, invasive plants would be
 (1) A and B only. (2) A and C only. (3) B and C only. (4) all A, B and C.

20. Which fish species can change its body colour according to the aquatic environment they live in?
 (1) Goldfish (2) Angelfish (3) Flounder fish (4) Zebra fish

21. The most suitable place to store artificial fish feeds is a
 (1) cool and dry place. (2) hot and dry place.
 (3) cool and moist place. (4) hot and moist place.

22. Curraheen, used in ice cream production is extracted from the planet
 (1) Sargassum. (2) Bacopa. (3) Cabomba. (4) Cryptocoryne.

23. The diagram shows a fishing vessel is
 (1) in distress.
 (2) ready for navigation.
 (3) full of fish.
 (4) ready to unload fish.



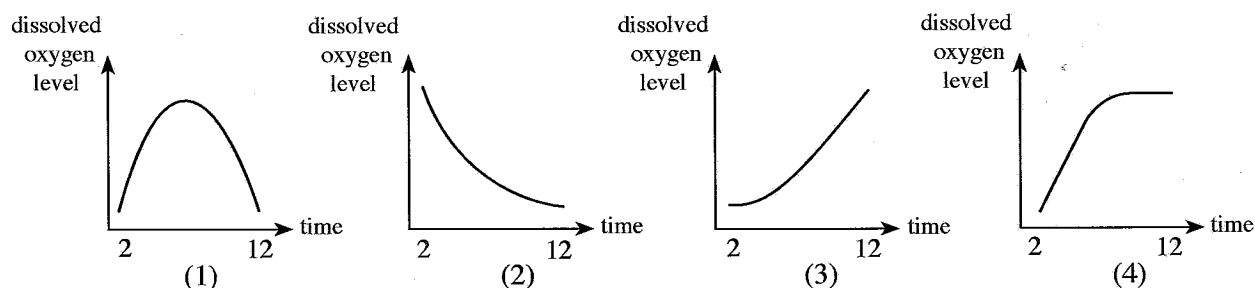
24. Which is the fatty acid type contains in fish flesh, that can reduce the risk of forming high cholesterol level in humans?

- (1) unsaturated fatty acid with long chain (2) unsaturated fatty acid with short chain
 (3) saturated fatty acid with long chain (4) saturated fatty acid with short chain

25. A student observed fish in a fish stall and said that the fish were spoiled. The basis of that statement would be

- (1) physical tests. (2) chemical tests.
 (3) organoleptic tests. (4) biological tests.

26. Which graph correctly shows the change in dissolved oxygen level in the fish pond during 2pm to midnight?

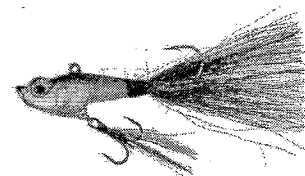


27. When preparing a pond for shrimp farming, the main purpose of applying lime to the pond is to

- (1) enhance the growth of algae in the pond water.
 (2) increase the pH value of the pond water.
 (3) destroy organisms in the pond water.
 (4) decrease the turbidity of pond water.

28. The picture shows

- (1) a bait used to catch fish.
 (2) a non-fish aquatic organism.
 (3) an aerator used to aerate ponds.
 (4) an aquatic plant suitable for an ornamental fish aquarium.



29. Few devices used in preparing fish feed are given below.

- A - Oven
 B - Steamer
 C - Air stones

Of the above, devices needed to prepare fish pellets would be

- (1) A and B only. (2) A and C only. (3) B and C only. (4) all A, B and C.

30. The main purpose of adding wheat flour when preparing fish balls is as

- (1) a colouring agent. (2) an antioxidant. (3) a binding agent. (4) a flavouring agent.

31. What has taken place in the location shown by the given picture?

- (1) sand dredge
- (2) beach erosion
- (3) land sinking
- (4) gem mining



32. It was observed that the fish in a fish tank come to the surface of the water and make air bubbles. The main reason for this would be

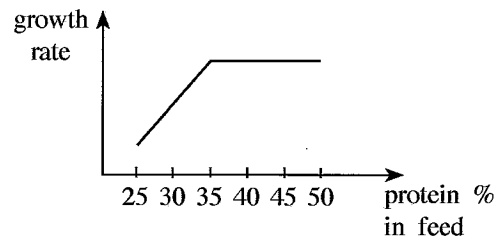
- (1) not having sufficient feeds in the tank.
- (2) occurring of an infectious disease to the fish.
- (3) not having sufficient dissolved oxygen in the tank.
- (4) not having sufficient sunlight to the tank.

33. Of the following, what is the most eco-friendly and efficient fishing gear that can be used to harvest fish in marine water, brackishwater as well as fresh water?

- (1) gill net
- (2) purse seine
- (3) trammel net
- (4) trawl net

34. According to the graph shown, the optimum protein percentage required for the growth of a fish is

- (1) 25.
- (2) 30.
- (3) 35.
- (4) 50.



35. A few statements regarding the maintenance of multi-day fishing vessels are given below.

A - The engine should be cleaned and applied oil and grease.

B - Mussel, oyster attached outside the hull of the vessel should be removed.

C - The used ice in the ice store should be removed.

Of the above, the statements regarding maintenance that should be made after each fishing trip are

- (1) A and B only.
- (2) A and C only.
- (3) B and C only.
- (4) all A, B and C.

36. Of the following, what is the use of the Global Positioning System (GPS) device on a multi-day fishing vessel?

- (1) To identify the risk situation in the area where the fishing vessel is located.
- (2) To know the depth of water where the fishing vessel is located.
- (3) To identify the abundant fishing grounds.
- (4) To identify the distance and time to travel to a fishing ground.

37. A few types of ice used in fish preservation are given below.

A - ice flake

B - ice block

C - ice powder

Among the above types of ice, which one/ones can keep the longest time without melting?

- (1) A only
- (2) B only
- (3) C only
- (4) A and C only

38. A silica gel packet was observed inside a packet of preserved fish product. The direct purpose of having it inside the pack would be,

- (1) to increase the shelf-life of the food.
- (2) to increase the weight.
- (3) to keep the colour as it is.
- (4) to enhance the customer attraction.

39. Select the most correct statement on breeding behaviour of ornamental fish.

- (1) Carp is a livebearer.
- (2) Fighter is a bubble nest builder.
- (3) Angel fish is an egg scatter.
- (4) Sword tail is an egg depositor.

40. In Sri Lanka, specialized area management is implemented around

- (1) the coral reef in Hikkaduwa.
- (2) Jaffna lagoon in Jaffna.
- (3) Gregory lake in Nuwaraeliya.
- (4) Mahaweli river in Kandy.

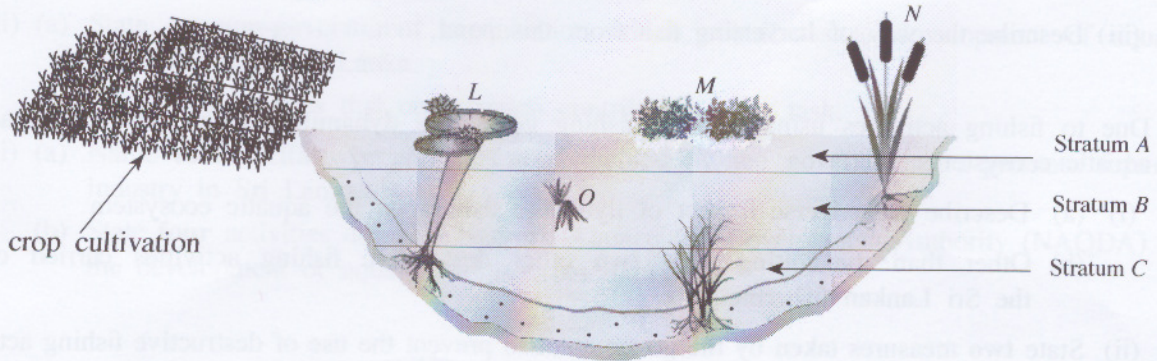
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நீருயிரினவளத் தொழினுட்பவியல்	I, II
Aquatic Bioresources Technology	I, II

Aquatic Bioresources Technology II

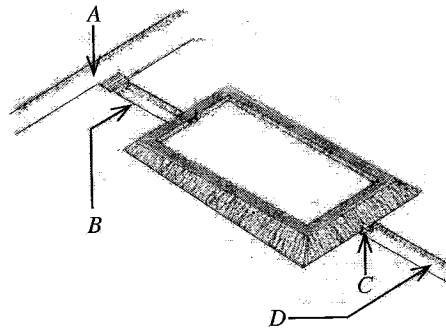
* Answer five questions only, selecting the first question and four others.

1. (A) The diagram shown below is an aquatic ecosystem.



- (a) Name the aquatic ecosystem shown in the diagram.
 - (b) State **two** uses of this aquatic ecosystem.
 - (ii) State an example each for the aquatic plants L, M, N and O in this aquatic ecosystem.
 - (iii) (a) State an adverse impact on this aquatic ecosystem due to the crop cultivation, located near the aquatic ecosystem.
 - (b) State **two** measures that can be taken to prevent adverse impact mentioned in (iii) (a).
 - (iv) State **two** environment friendly fishing gears that can be used to harvest fish in this aquatic ecosystem.
 - (v) (a) Of the stratum A, B and C which stratum has the highest fish population?
 - (b) Explain the reason.
 - (vi) State **two** measures that can be taken to conserve this aquatic ecosystem.
- (B) A student wanted to establish an ornamental fish tank in his house.
- (a) State **two** factors to be considered when selecting a suitable place for establishing a fish tank.
 - (b) State **two** factors to be considered when selecting fish for the aquarium.
 - (ii) State the steps to be followed in sequence from selecting a glass tank to rearing ornamental fish tank to introducing fish to the tank.
 - (iii) State **two** measures to be taken to maintain the water quality in the ornamental fish tank.
 - (iv) Show with a labelled diagram, the way of packing ornamental fish in a polythene bag for sale.

2. The diagram below, shows a rough layout of a fish pond.



- (i) (a) Name the components A, B, C and D and state the importance of each component.
 (b) State **four** factors to be considered before preparing the fish pond.
 - (ii) (a) State **two** objectives of aerating the pond.
 (b) State **two** measures to be followed in aerating the pond.
 - (iii) Describe the way of harvesting fish from this pond.
3. Due to fishing activities using harmful fishing gears like dynamiting cause adverse impacts on aquatic ecosystems.
- (i) (a) Describe the adverse impact of dynamite fishing on the aquatic ecosystem.
 (b) Other than dynamiting state **two** other destructive fishing activities carried out by the Sri Lankan fishermen.
 - (ii) State **two** measures taken by the government to prevent the use of destructive fishing activities.
 - (iii) Name **one** ecofriendly fishing gear and describe the function of it.
4. In the intensive aquatic farming industry, the required nutrition to the aquatic animals have to be provided externally.
- (i) (a) Describe the importance of lipid in a fish feed.
 (b) State **two** low cost feed ingredients that can be used to provide lipids in feed ration.
 - (ii) State **two** issues of overfeeding fish.
 - (iii) (a) Mention **four** types of live feed given to fish fry.
 (b) Describe the importance of feeding live feed for them.
5. Value added fish products prepared using different types of preservation techniques are commonly available in the market.
- (i) (a) State **four** types of value added fish products available in the market.
 (b) State a principle of preservation for each product.
 - (ii) (a) State **four** reasons for the value added fish products to be popular.
 (b) State **two** issues faced in producing value added fish products for the market.
 - (iii) Show how you would prepare one value added fish product mentioned in (i) (a) using a flowchart.

6. Different types of aquatic bioresources are found in marine water, brackishwater as well as freshwater ecosystems.
- (i) (a) Define aquatic bioresources.
 - (b) State a water source each, for marine water, brackishwater and freshwater, in which aquatic bioresources are found.
 - (c) State **two non-fish** aquatic bioresources available in each water source.
 - (ii) Describe the importance of developing aquatic bioresources industry.
 - (iii) Describe the potential to develop aquatic bioresources industry in Sri Lanka.
7. Various institutions and organisations have been established to keep sustainability of aquatic bioresources in Sri Lanka.
- (i) State **four** human activities that cause adverse effects on the sustainability of aquatic bioresources.
 - (ii) (a) State an **non-government** organization which contributes to development of aquatic bioresources in Sri Lanka.
 - (b) Describe how does that organization contribute to that task.
 - (iii) (a) Name **four** welfare programmes implemented by the government to promote fisheries industry in Sri Lanka.
 - (b) State **four** activities done by National Aquaculture Development Authority (NAQDA) for the development of aquatic bioresources industry.
