2024

ZOOLOGY — HONOURS

Paper : SEC-2

(Aquaculture)

Full Marks : 75

Time : 2 hours

The figures in the margin indicate full marks.
Candidates are required to write the correct option.

Section - A

Attempt ***any twenty-five*** questions (no negative marks for wrong answer). 1×25

1. Which of the following practices is considered a major threat to sustainable fisheries?
   (A) Deep-sea fishing (B) Catch and release
   (C) Overfishing (D) Aquaponics.

2. Which of the following fish is preferred most for cultivation?
   (A) Herbivore (B) Omnivore
   (C) Carnivore (D) Detritivore.

3. What is the main advantage of polyculture in aquaculture?
   (A) It requires only one species to be farmed (B) It reduces the risk of total crop failure
   (C) It simplifies management practices (D) It requires less management.

4. An important consideration in site selection for an aquaculture facility is
   (A) Proximity to urban areas (B) Water quality and availability
   (C) Proximity to heavy industries (D) Landscape aesthetics.

5. Full form of CIFA is—
   (A) Central Institute for Fisheries Advancement (B) Central Institute of Fish Aquaculture
   (C) Central Institute for Freshwater Aquaculture (D) Centre for Inland Fisheries Advancement.

6. Mariculture refers to aquaculture practiced in which environment?
   (A) Freshwater lakes (B) Rivers
   (C) Marine environments (D) Artificial tanks.

7. What role does pH play in aquaculture?
   (A) It is critical in maintaining fish health and metabolism
   (B) No impact
   (C) It affects only the water colour
   (D) It reduces the need for water filtration.

8. Extensive culture is characterised by :
   (A) High inputs of feed and fertilizers
   (B) Low stocking densities and minimal management
   (C) Use of advanced technology
   (D) None of the above.

9. An example of integrated fish farming is
   (A) Cultivating fish with rice in paddies
   (B) Growing only carp species together
   (C) Using intensive system to grow shrimps
   (D) Rearing fish in isolation.

10. What is the primary source of nutrients for fish in sewage-fed fish culture systems?
   (A) Commercial feeds
   (B) Natural aquatic plants
   (C) Organic waste
   (D) Chemical fertilizers.

11. What is the primary reason for introducing exotic fish species into aquaculture?
   (A) To increase biodiversity
   (B) To enhance genetic diversity
   (C) To improve yield and economic profitability
   (D) To restore endangered native species.

12. Which of the following is considered as an open system fish farming?
   (A) Intensive fish farming
   (B) Extensive fish farming
   (C) Semi-intensive fish farming
   (D) All of the above.

13. Which of the following is the most common nitrogen fertiliser in India?
   (A) Sodium nitrate
   (B) Urea
   (C) Ammonium nitrate
   (D) Liquid ammonia.

14. *Ctenopharyngodon idella* is commonly known as
   (A) Mud Carp
   (B) Silver Carp
   (C) Grass Carp
   (D) Black Carp.

15. Leptobasic pituitary means
   (A) Stalked
   (B) Stalkless
   (C) Dorsally located
   (D) Laterally located.

16. For 'induced breeding' after dissection the collected pituitary gland is preserved in

(A) Absolute alcohol (B) Acetone

(C) Freezing temperature (D) All of the above.

17. Intraperitoneal injection of pituitary extract is given in—

(A) Base of pelvic fin (B) Base of caudal fin

(C) Base of dorsal fin (D) Base of anal fin.

18. Which international body often provides guidelines and support for fisheries export standards?

(A) IMF (B) WHO

(C) FAO (D) UNSC.

19. Which of the following is a traditional method that combines drying and smoking?

(A) Salting (B) Sun drying

(C) Canning (D) Kippering.

20. Which of the following craft is used mostly in West Bengal?

(A) Canoe (B) Tuticorin boat

(C) Catamaran (D) Nauka.

21. Which method applies severe cold to preserve fish without large ice crystals forming?

(A) Blast freezing (B) Sun drying

(C) Smoking (D) Canning.

22. Which nutritional component is crucial for the growth and development of goldfish fry in commercial hatcheries?

(A) Lipids (B) Fibres

(C) Proteins (D) Sugars.

23. Fish liver oil is mostly collected from—

(A) Cod (B) Halibut

(C) Tuna (D) All of the above.

24. In context to livebearers what is the benefit of adding plants to breeding tanks?

(A) To increase oxygen level (B) To provide hiding spots for fry

(C) To reduce nitrate levels (D) To beautify the environment.

25. Which hormone is primarily responsible for regulating maturation in fish?

(A) Cortisol (B) Insulin

(C) GnRH (D) Thyroxin.

26. Which system is essential in a hatchery to ensure optimum water quality for seed production?

(A) High capacity feeders (B) Automated lighting system

(C) Biofiltration system (D) Solar heating system.

27. Isinglass is made up of

(A) Liver (B) Swim bladder

(C) Fins (D) Eyes.

28. Full form of GIS is—

(A) Geological Information System (B) Geomagnetic Information System

(C) Geographic Information System (D) Geographic Involvement System.

29. *Gyrodactylus* and *Dactylogyrus* are examples of—

(A) Lice (B) Nematoda

(C) Trematoda (D) Polychaeta.

30. To prevent predation in a stocked pond you should

(A) Remove all the hiding places (B) Increase the number of small fishes

(C) Install protective netting (D) Use mahua oil cake.

Section - B

Attempt ***any twenty-five*** questions (no negative marks for wrong answer). 2×25

31. Which of the following factors is responsible for depletion of capture fisheries resources in India?

(A) Introduction of exotic species (B) Thinning of EEZ

(C) IUU fishing (D) Loss of diversity.

32. What defines a fish as being 'pelagic'?

(A) Living near the ocean floor (B) Swimming freely in open ocean

(C) Remaining immobile (D) Living in freshwater only.

33. Which aquaculture system is most likely to be affected by diseases due to high density of stock?

(A) Extensive culture (B) Semi-intensive culture

(C) Intensive culture (D) Monoculture.

34. Which of the following statements is true regarding monoculture?

(A) It increases biodiversity within the system

(B) It is easier to manage because of the homogeneity of the species

(C) It reduces the possibility of inter-species disease transmission

(D) It requires less specialized knowledge.

35. Which fish species is least likely to be found in a sewage-fed aquaculture system due to its sensitivity to pollutants?

(A) Common carp (B) Channel catfish

(C) Rainbow trout (D) Nile tilapia.

36. Pre-stocking addition of lime is necessary because—

(A) Helps in pond manuring (B) It balances the acidity of the pond water

(C) It counteracts the effects of fish poison (D) All of the above.

37. 'MAP' – is a method of packaging of fish and shirimp. What is the full form?

(A) Modified atmosphere packing (B) Modified aesthetic packing

(C) Multipurpose activated packing (D) Mastered atmosphere packing.

38. What is the role of exotic fish species in integrated multitrophic aquaculture (IMTA)?

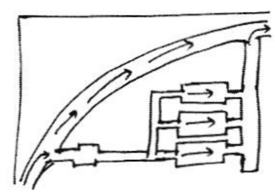
(A) They break down organic waste more efficiently than native species

(B) They provide additional economic value and efficient resource cycling

(C) They exclusively consume phytoplankton and zooplankton

(D) They increase the structural complexity of aquaculture system.

39. Which type of culture system is depicted in the diagram?



(A) Pen culture (B) Cage culture

(C) Raceway culture (D) Bio floc.

40. Which of the following is true for jeol fish?

(A) They have less nutritive value (B) They are herbivorous

(C) They have high fecundity (D) They are air breathing.

41. Which of the following is not true regarding sexual dimorphism in sword tail?

(A) Males are larger, size up to 6.3 inches where females are smaller of 5.5 inches

(B) As male fish matures, the middle rays of anal fin modify into gonopodium

(C) Males have a 'Sword' on the caudal fin while female has a fan-shaped anal fin

(D) Males have also been developed with exaggerated finnage.

42. National Fisheries Policy (NFP) has been drafted in—

(A) 2020 (B) 2002

(C) 2012 (D) 2021.

43. Why are sex reversal techniques sometimes used in fish breeding?

(A) To produce monosex population for traits like faster growth in male

(B) To comply with international trade laws

(C) To enhance the flavours of the fish

(D) To increase the reproduction of the fish.

44. Which one of the following diseases is caused by bacteria?

(A) White-spot disease (B) Velvet disease

(C) Fish tuberculosis (D) Fish lice.

45. 'Red pest' or 'Red disease' is caused by which of the following pathogen?

(A) *Pseudomonas fluorescens* (B) *Aeromonas hydrophila*

(C) *Flavobacterium columnare* (D) *Vibrio cholerae.*

46. Food conversion ratio is calculated as follows :

(A) Feed given/total no. of animal (B) Feed given/animal weight gain

(C) Feed given/total weight of food (D) Animal body weight/feed given.

47. Which treatment is NOT suitable for fungal infection in aquaculture?

(A) Malachite green (B) Formalin

(C) Antibacterial drugs (D) Methanol.

48. Which fish is known for its ability to change gender under certain conditions?

(A) Clown fish (B) Koi carp

(C) Neon tetra (D) Angelfish.

49. What is the primary material used in the construction of frameless aquarium?

(A) Metal (B) Acrylic

(C) Glass (D) Plastic.

50. One end of net is kept fixed to shore and other end is spread into water with the help of a boat. When the net is filled up with fishes, the two ends are slowly dragged by fishermen. The particular gear is called—

(A) Boat sein (B) Trap net

(C) Shore sein (D) Drop net.

51. Transgenic fish is—

(A) One species containing genes of other (B) Crossbreed species

(C) Both A and B (D) Hermaphrodite species.

52. What does a UV sterilizer primarily combat in an aquarium?

(A) Ammonia (B) Turbidity

(C) Pathogens and algae (D) Nitrites.

53. What type of feed is formulated to float on the water surface to allow fish to eat at the top layers?

(A) Sinking pellets (B) Floating pellets

(C) Flake food (D) Gel food.

54. Type of compound MS-222 is—

(A) Analgesics (B) Antibiotics

(C) Anasthesia (D) Digestive.

55. CRZ aims to strike a balance between economic growth and environmental conservation 'CRZ' stands for—

(A) Coastline Resistance Zone (B) Coastal Regulation Zone

(C) Coastline Resilient Zone (D) Coastal Resistance Zone.

56. What method is used to preserve the nutritional quality of fish-feed during manufacturing?

(A) High-temperature cooking (B) Freeze-drying

(C) Fermentation (D) Chemical preservation.

57. What would be the final product if we mince and then mix the fish with tapioca and then spiced with salt, chillies and tamarind and the paste is then extruded and dried.

(A) Fish ham (B) Fish macaroni

(C) Fish glue (D) Fish sausage.

58. Accumulation of fluid inside the body cavity, withering away of fins, scale protrusion are the symptoms for the fish disease—

(A) Knot disease (B) Fin and tail rot

(C) Furunculosis (D) Dropsy.

59. In a culture pond fishes found covered with 'Cotton wool-like' hyphae, infected fishes trying to swim apathetically. Which disease is this?

(A) White spot disease (B) Saprolegniosis

(C) Dropsy (D) Dactylogyrosis.

60. GIS is not applicable in case of—

(A) Riverine system (B) Estuarine system

(C) Reservoirs (D) Marine system.

61. The culture of which fish in bheris helps in controlling mosquito larvae?

(A) Grey mullet
(B) Milkfish
(C) Pearl spot
(D) All of the above.

62. To reduce the implantation shock, pearl oysters are kept in—

(A) 2-3m deep freshwater for 6-7 days
(B) 2-3m deep seawater for 6-7 days
(C) Shallow freshwater for 6-7 days
(D) Shallow seawater for 6-7 days.

63. Why is proper fish preservation crucial for public health?

(A) It solely increases the fish's market value
(B) It ensures that fish remains free of harmful bacteria and toxins
(C) It simplifies international trade regulations
(D) It solely focuses on improving the taste of fish.

64. In artificial pearl culture, the period is generally about—

(A) 3 months
(B) 9 months
(C) 6-12 months
(D) 12-18 months.

65. A circular hatching tank where water is in a continuous state of flow in a circular direction is popularly known as—

(A) Glass jar hatchery
(B) Chinese hatchery
(C) Fin fish hatchery
(D) Earthen pot hatchery.