

M.Sc. ZOOLOGY
FOURTH SEMESTER
FISH & FISHERY BIOLOGY-III
MSZ-401 C

**SET
A**

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs.

Full Marks: 70

(Objective)

Time: 30 mins.

Marks: 20

Choose the correct answer from the following:

1 × 20 = 20

- In fish preservation during Deep freezing or quick freezing requires rapid lowering of temperature reaching to.....
 - +20°C
 - 40 °C
 - 80 °C
 - All of the above
- Culture of air-breathing fish needs shallow water with a depth of about.....
 - 50-75 cm
 - 900ft
 - 1200ft
 - 300 ft
- Glazing is dipping the frozen fish in water so that finally a layer of..... surrounds the fish.
 - Hard ice
 - Soft ice
 - Hard smoke
 - Soft smoke
- Ideal site in pen culture is in shallow, marginal areas of wetlands with a depth of about:
 - 1.5 -2.5 m
 - 30m-49m
 - 5m-10m
 - 61m-90m
- The carbon and nitrogen ratio in sewage fed fisheries is.....
 - 3:1
 - 9:1
 - 8: 8
 - 6:0
- The best example of mountain valley rice fish culture in the region is in the.....
 - Burma Border
 - Nagaland hills
 - The Apatani plateau of Arunachal Pradesh
 - Tibet
- A Pen is defined as "a fixed enclosure in which the bottom is theof the water body.
 - Roof
 - Hood
 - Bed
 - All of the above
- Marine cages are often called.....
 - Pentamer
 - Cage bed
 - Fish mouse
 - Net pens
- Fish culture in rice fields may attempted in two ways, viz.
 - Simultaneous culture and rotation culture
 - Alternate and raceway culture
 - Daylight culture and nocturnal
 - None of the above

10. In waste water treatment in sewage fed fish culture Primary treatment is done by:
 - a. Screening, skimming, sedimentation
 - b. Filtering and skimming
 - c. Skimming only
 - d. None of the above
11. The innermost layer of a ripe egg is known as:
 - a. Zona radiata
 - b. Zona maculata
 - c. Zona theca
 - d. Zona granulosa
12. The process of metamorphosis of spermatids into sperms is called:
 - a. Spermatogenesis
 - b. Spermiogenesis
 - c. Spermatocytes
 - d. None of the above
13. The major source of enzymes like trypsin, amylase, lipase, maltase in teleost is:
 - a. Bile duct
 - b. Hepatopancreas
 - c. Intestine
 - d. Gall bladder
14. Which among these groups of fishes have the tubular type of testis?
 - a. Cypriniformes
 - b. Osteoglossiformes
 - c. Atheriniformes
 - d. Elasmobranchs
15. During the early maturing phase of the ovary, the increase in size and occupancy of the ovaries is about.....
 - a. $\frac{1}{2}$ of the body cavity
 - b. $\frac{3}{4}$ of the body cavity
 - c. $\frac{1}{4}$ of the body cavity
 - d. All of the body cavity
16. The chromosomes in a fish may undergo mutations by the following various methods except for:
 - a. Displacement
 - b. Duplication
 - c. Deletion
 - d. Inversion
17. During which phase the gonadal development is initiated by the pineal gland?
 - a. Short photoperiod
 - b. Long photoperiod
 - c. Intense photoperiod
 - d. Light photoperiod
18. Exotic fishes can be:
 - a. Invasive
 - b. Disease infected
 - c. Mutative
 - d. All of the above
19. Which among these is not a part of the pituitary gland in Elasmobranchs specifically?
 - a. Pars intermedia
 - b. Pars distalis
 - c. Pars rostrala
 - d. Neurohypophysis
20. How many different forms of cells are found in the epithelium of thyroid gland in teleost?
 - a. 2
 - b. 3
 - c. 4
 - d. 5

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(Descriptive)

Time : 2 hr. 30 mins.

Marks : 50

[Answer question no.1 & any four (4) from the rest]

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| 1. What is composite fish culture? Outline some of the objectives and principles of composite fish culture and highlight some important aspects of composite fish culture in India. | 2+8=10 |
| 2. Discuss the physiology and structure of pituitary gland in modern day teleost. | 10 |
| 3. Explain in detail about the thyroid gland in teleost with structural differentiation & functions with diagrams. | 10 |
| 4. What are transgenic fishes? Discuss all the merits of demerits of transgenesis in fishes. | 3+7=10 |
| 5. Discuss the various forms of fishing crafts and gears of North East India with diagrams. | 10 |
| 6. What is air breathing fish? Discuss briefly about air breathing fish culture & its importance in fishery. | 2+8=10 |
| 7. What do you mean by sewage fed fisheries? Highlight in detail about sewage-fed fisheries in India citing suitable examples. | 2+8=10 |
| 8. Elucidate in detail about some of the fish diseases present in India with suitable examples. Draw suitable sketches wherever necessary. | 10 |

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