

M. Sc. ZOOLOGY
THIRD SEMESTER
FISH AND FISHERY BIOLOGY
(MSZ-303C)

Duration: 3 Hrs.

Marks: 70

{ PART : A (OBJECTIVE) = 20 }
{ PART : B (DESCRIPTIVE) = 50 }

[PART B - Descriptive]

Duration: 2 Hrs. 40 Mins.

Marks: 50

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

1. Discuss the effects of dams on fish migration suggesting suitable remedies and add a note on the effect of dams on Hilsa migration. 10
2. Answer any two from the following. 5x2=10
 - (a) Describe briefly on the adaptive features of coldwater fishes.
 - (b) Write a brief note on the buccopharynx of *Chitala chitala*.
 - (c) Write a brief note on the air breathing adaptation in *Anabas testudineus* and *Clarias magur*.
3. What are hill stream fishes? Describe the pristine conditions prevailing in the hill streams. Explain briefly about the modifications and adaptations of hillstream fishes. 10
4. What are the possible factors for rich diversity of fishes in the Northeast India? What are the characteristic features of the fishes under the order Siluriformes and order Cypriniformes? 4+6=10
5. Describe briefly on the factors influencing and controlling migration of fishes. What are the roles of hormones in fish migration? 5+5=10
6. Highlight some salient aspects on the biochemical composition of fish. 10

7. Discuss in brief the different type of scales found in a teleost with suitable sketches 10
8. Elucidate in detail about colouration and pigmentation in fishes and add a note on its significance. 10



M SC ZOOLOGY
Third Semester
Fish and Fishery Biology
(MSZ- 303C)

Duration: 20 minutes

Marks – 20

(PART A - Objective Type)

I. Choose the correct answer:

1×20=20

1. Weberian ossicles in fish help

(A) to detect the light source.

(B) to notice the hydrostatic pressure.

(C) to recognize their predators.

(D) to notice food source.

2. Stomach is absent in

(A) Rainbow trout

(B) Catfishes

(C) Carps

(D) Loaches.

3. Presence of pointed sharp gill rakers is the characteristic features of

(A) Planktivores.

(B) Omnivores.

(C) Herbivores.

(D) Carnivores.

4. Which of the following is not the characteristic of Coldwater bodies?

(A) Coldwater fishes have a specific regulatory system that keep their body warm in cold water.

(B) Coldwater fishes have anti-freezing proteins for sustaining life.

(C) Temperature range for coldwater bodies is 0°C to 20°C.

(D) Coldwater bodies are at above 914 m above asl.

5. The development of numerous close-set, and elongated gill rakers are the characteristic features of

(A) Predators

(B) Strainers

(C) Suckers

(D) Grasers.

6. Ram ventilation in fishes
- (A) require energy (B) do not require energy
(C) require enzymes (D) have both active and passive process.
7. The importance of pond manuring in the nursery ponds is
- (A) to feed the fingerlings directly with manure.
(B) to increase zooplankton and phytoplankton population.
(C) to increase aquatic macrophytes.
(D) to make a fertile pond.
8. Which of the following male species of fish carries fertilized eggs in the brood pouch till the time hatching?
- (A) Hippocampus (B) Oreochromis
(C) Platystacus (D) Kurtus indicus.
9. Which of the following is a carnivore fish
- (A) Ctenopharyngodon idella (B) Cirrhinus cirrhosus
(C) Wallago attu (D) Hypophthalmichthys nobilis.
10. A group of fish with the following characteristics,
- (A) Fins usually with spines. (B) Presence of two dorsal fins.
(C) They are physoclistic. (D) Weberian ossicles are absent.
11. Select the possible group of fish from the following.
- (A) Perciformes (B) Synbranchiformes
(C) Siluriformes (D) Cypriniformes.
12. The reflecting cells are called
- (A) Guanine (B) Irridocytes (C) Pteridine (D) None
13. Fish provides vitamin/vitamins
- (A) A, B and D (C) Vitamin A₁
(C) B only (D) None of the above

14. When a dam is constructed
- (A) It helps in the movement of fish
 - (B) It acts as a barrier in the movement of fish
 - (C) None of the above
 - (D) Both of these
15. In hill stream fishes the air- bladder is considerably
- (A) reduced or degenerate
 - (B) Expanded vertically
 - (C) contracted
 - (D) Expanded and contracted
16. Black and yellow chromatophores in fishes develop
- (A) Orange colour
 - (B) Black colouration
 - (C) Green colouration
 - (D) Yellow colouration
17. *Macrobrachium rosenbergii* is also known as the
- (A) Gaint fresh water prawn
 - (B) Giant River Prawn
 - (C) Aquatic prawn
 - (D) fish food organism
18. Marine fishes show
- (A) Reduction in number and size of glomerulii
 - (B) Increase in glomerulii
 - (C) Both reduction and increase in the number of glomerulii
 - (D) Vascularized glomerulii
19. The pigment material of xanthophores include
- (A) Carotenoids and pterins
 - (B) Melanophores
 - (C) Vescicles
 - (D) Retinon
20. The hill stream fishes generally possess
- (A) long narrow, band shaped **caudal** peduncle
 - (B) arrow shaped caudal peduncle
 - (C) bow shaped peduncle
 - (D) All of the above
