

**M.Sc. 3rd Semester Examination, 2022**

**FISHERIES SCIENCE**

*( Fish Pathology and Disease Management/Fish  
Parasitology and Immunology )*

**PAPER – FSC-301(U1&U2)**

*Full Marks : 40*

*Time : 2 hours*

*The figures in the right hand margin indicate marks*

*Candidates are required to give their answers in their  
own words as far as practicable*

**PAPER – FSC-301(U1)**

*( Fish Pathology and Disease Management )*

**A. Answer any two questions from the following : 2 × 2**

- 1. Mention two bacterial diseases commonly occurring in carps.**

2. Write on the direct transmission process of fish disease.
3. Name two Gram + Ve bacterial and two Gram -Ve bacterial fish diseases.
4. What is immunostimulant ? Name two immunostimulant with active component commercially used in aquaculture.

B. Answer any *two* questions from the following :  $4 \times 2$

5. Discuss white faecal syndrome in *Penaeus vannamei*.
6. Write a note on different diagnostic approaches of fish disease identification.
7. Briefly mention the commonly occurring fungal diseases in fish.
8. Discuss different methods of disease treatment.

C. Answer any *one* question from the following :  $8 \times 1$

9. Give an account on gross sign and clinical sign observed in fish for disease identification. Discuss best shrimp health management practices observed in West Bengal. 3 + 5
10. Make a list of different types of chemicals and drugs used in fish health management and add a note on banned antibiotics for aquaculture. 5 + 3

**PAPER—FSC-301(U2)**

( *Fish Parasitology and Immunology* )

- D. Write short notes on any *two* of the following :  $2 \times 2$
11. Ich disease
12. Natural killer cells
13. Monogenean trematode parasites in fish
14. Memory B cells.
- E. Answer any *two* of the following : 4 × 2

15. Give an overview of anti-microbial proteins in innate immunity.
16. Classify antibodies. Describe the structure and function of antibody.
17. What is parasitism ? Briefly discuss different types of host in fish parasitism.
18. Briefly explain first line of defence in fresh-water fish.

E. Answer any *one* of the following : 8 × 1

19. (i) What are phagocytes ? Briefly describe the mechanism of phagocytosis.  
  
(ii) Describe the structure and function of secondary lymphoid organs in fish.  
(1 + 3) + 4
20. (i) Briefly discuss on flagellated protozoan infestation in fish and their treatment methods.

(ii) Write a note on parasitic crustaceans in freshwater cultured fish and their control measures.

4 + 4