



**WEST BENGAL STATE UNIVERSITY**  
B.Sc. Honours 5th Semester Examination, 2021-22

**IFFACOR11T-INDUSTRIAL FISH AND FISHERIES (CC11)**

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate marks of question.  
Candidates should answer in their own words and adhere to the word limit as practicable.*

1. Answer any **seven** questions from the following: 2×7 = 14
- (a) Differentiate between lag phase and log phase of bacterial growth curve.
  - (b) Specify the importance of probiotics in fish immunity.
  - (c) Mention the reasons of judicious application of antibiotics in aquaculture.
  - (d) Describe the difference between atrichous and monotrichous bacteria.
  - (e) Describe the role of *Nitrosomonas* and *Nitrobacter* in nitrogen cycle.
  - (f) Specify the difference of cell wall composition in gram positive and gram negative bacteria.
  - (g) Mention the significance of sub-culture in culture of bacteria.
  - (h) Comment on the treatment measures of argulosis.
  - (i) State the difference between pure culture and mixed culture.
2. Write short notes on any **two** of the following: 3×2 = 6
- (a) Lernaecosis
  - (b) Role of microorganisms in carbon cycle
  - (c) White Spot Syndrome
  - (d) Branchiomycosis.
3. Answer any **four** questions from the following: 5×4 = 20
- (a) Describe the symptoms and treatment measures for fin and tail rot disease. What kind of prophylactic measures should be taken to avoid this particular disease? 3+2
  - (b) Mention the steps of fish vaccine development with suitable illustration. What are the different kinds of vaccine delivery system applicable to fish? 3+2
  - (c) Specify the importance of CFU in bacterial culture. Describe the role of environmental factors on microbial growth. 2+3
  - (d) Describe the different types of techniques used for culture of bacteria. Describe the role of extrinsic factors in spoilage. 3+2
  - (e) Describe the structure of bacteriophage with a labeled diagram. 3+2
  - (f) Describe the diagnosis methods for bacterial fish diseases. Specify the role of mucus in fish immunity. 3+2

**N.B. :** *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within 1 hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.*

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