

**P.G. 3rd Semester-2018**  
**ZOOLOGY**  
**(Elective-Fisheries and Aquaculture)**  
**Paper : MZOOMET303B**  
**(Elective)**

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.*1. Answer any **five** questions from the following: $1 \times 5 = 5$ 

- a) What is inverse thermal stratification?
- b) What is monimolimnion?
- c) Define ecological efficiency.
- d) Mention the advantages of liming.
- e) What is upwelling?
- f) Mention Zonation of a reservoir.
- g) What do you mean by Tropical lake?

2. Answer any **five** questions from the following: $2 \times 5 = 10$ 

- a) Define nitrification and denitrification.
- b) Mention the relationship of oxygen content and phosphorus in the microzone.
- c) Which form of ammonia is toxic? State how excess ammonia problem could be solved in a fish culture pond?
- d) Comment on the vertical distribution of phosphorus in the oligotrophic stratified lake.
- e) What is clinograde oxygen profile?
- f) What is River Continuum concept?
- g) State the significance of drainage basin concept.

3. Answer any **five** questions from the following: $5 \times 5 = 25$ 

- a) Draw and explain hypsographic curve in eutrophic and oligotrophic lake.
- b) Draw and discuss vertical zones of sea with a brief note on Continental shelves and Abyssal planes.

c) Mention optimum levels of DO, alkalinity in a freshwater fish culture pond. Write notes on the following water parameters– Turbidity, Hardness. 2+3

d) i) Initial fertility is replaced by Trophic depression in reservoir productivity – Justify.

ii) State the characteristic features of oligotrophic and eutrophic lake.

2+3

e) i) Discuss thermal stratification during summer in a dimictic lake.

ii) Comment on particulate and dissolved organic carbon dynamics in lakes.

3+2

f) i) Discuss the problems associated with hypereutrophic lake for fish culture.

ii) Discuss the effects of salinity on marine fish production.

2+3

g) i) What is maximum sustainable yield (MSY) for fishery production?

ii) Elucidate the importance of mangrove in fish production.

2+3

h) How high and low pH value of the culture pond can be controlled? Explain vertical distribution of nitrate in oligotrophic and eutrophic lake. 2+3

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