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**BRAINWARE UNIVERSITY****Term End Examination 2025-2026****Programme – B.Sc.(BT)-Hons-2024****Course Name – Aquaculture****Course Code - BBT40206****(Semester IV)****LIBRARY**
Brainware University
Barasat, Kolkata -700125**Full Marks : 60****Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A**(Multiple Choice Type Question)****1 x 15=15****1. Choose the correct alternative from the following :**

- (i) Aquaculture primarily refers to
 - a) Only fishing in natural waters
 - b) Culture of aquatic organisms under controlled conditions
 - c) Culture of terrestrial crops
 - d) Capture fisheries
- (ii) Composite fish culture in India mainly involves
 - a) Only marine fishes
 - b) Only exotic species
 - c) Combination of Indian major and exotic carps
 - d) Only ornamental fish
- (iii) Which of the following is a major goal of aquaculture?
 - a) Reduce biodiversity
 - b) Increase aquatic pollution
 - c) Increase fish production under controlled conditions
 - d) Stop fish consumption
- (iv) Which is a key constraint in aquaculture development?
 - a) Unlimited water availability
 - b) Disease outbreaks
 - c) No market demand
 - d) No role of feed
- (v) The best soil type for earthen pond construction is:
 - a) Sandy soil
 - b) Rocky soil
 - c) Clay soil
 - d) Gravel soil
- (vi) Biological control of water quality relies mainly on
 - a) Use of beneficial microbes
 - b) Chemical disinfection
 - c) Water exchange
 - d) Aeration
- (vii) Quarantine procedures in hatcheries are aimed at
 - a) Improve nutrition
 - b) Enhance fertilization
 - c) Increase seed growth
 - d) Prevent disease spread

- (viii) When ammonia suddenly increases in culture tanks, managers should
- Increase feeding
 - Stop aeration
 - Add fertilizer
 - Partial water exchange
- (ix) For long-distance seed transport, hatcheries generally use
- Open buckets
 - Concrete tanks
 - Dry containers
 - Oxygen-packed plastic bags
- (x) Traits controlled by one or few genes are classified as
- Hormones
 - Environment only
 - Single or few genes
 - Many genes
- (xi) Traits showing continuous variation are influenced mainly by
- Mitochondria
 - Single gene
 - Many genes
 - Chromosomes only
- (xii) Androgenesis is applied mainly to generate offspring from
- Polyploidy
 - Producing male-derived offspring
 - Hybridization
 - Producing females
- (xiii) Producing monosex male populations requires the use of
- Gynogenesis
 - Triploidy only
 - Inbreeding
 - Androgenesis or super-male breeding
- (xiv) Diallel mating designs are useful for identifying
- Disease diagnosis
 - Producing triploids
 - Identifying best parental combinations
 - Cryopreservation
- (xv) Reliable assessment of effluent toxicity is performed using
- Visual observation
 - Temperature monitoring
 - Toxicity bioassay
 - pH testing only

Group-B

(Short Answer Type Questions)

3 x 5=15

(Answer any Five from the following)

- Briefly describe the present status of aquaculture in India. (3)
- Explain the role of environmental factors in fish reproduction. (3)
- Explain the need for disease control strategies in hatcheries. (3)
- What is mass selection? (3)
- Analyze the importance of raw water sources in aquaculture. (3)

OR

Assess physical characteristics of water affecting aquaculture productivity. (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

(Answer any Six from the following)

- Describe the present status and future prospects of aquaculture. (5)
- Explain formulation of artificial diets used in hatcheries. (5)
- Assess the role of seed transportation in hatchery-farm linkage. (5)
- Explain inheritance of qualitative and quantitative traits in fishes. (5)
- Evaluate physical and chemical characteristics of water influencing aquaculture productivity. (5)
- Explain diallelic crossing and its importance in fish breeding. (5)

OR

Discuss genetic improvement of disease resistance in fishes. (5)