Aquaculture Technology - PBBT301

UNIT I - MARINE ANIMALS IN AQUACULTURE

PART A

1. Define aquaculture.
2. Write two objectives of aquaculture?
3. List the types of aquaculture.
4. What is monoculture?
5. What is polyculture?
6. What is mariculture?
7. Write about closed-pond systems?
8. What is IMTA?
9. What is the importance of cage culture techniques?
10. Write the importance of finfishes?
11. Write the importance of crustaceans?
12. Write the importance of mollusks?
13. Write the importance of seaweeds?
14. What is ornamental aquarium?
15. Define indoor ornamental aquarium.
16. Write about Shellfish culture?
17. Give some example of marine animals in aquaculture?
18. Give some example of marine plants in aquaculture?
19. What is Livestock?
20. Write about oyster culture?

PART- B

1. Write about the importance of aquaculture?
2. What is the economic importance of aquaculture in India?
3. What is the current status of aquaculture in India?
4. Explain the scopes & prospects of aquaculture?
5. Explain the objectives of aquaculture system?
6. Write a short note on mollusks & seaweeds?
7. Write a short note on marine indoor marine aquarium?
8. Write a short note on Finfish Aquaculture?
9. What are the marine plants used in aquaculture system?

10. Write a short note on Disease monitoring in Aquaculture?

PART C

1. Explain in brief the importance of aquaculture.
2. Write about the present global scenario of aquaculture?
3. What is the present status of aquaculture system in India?
4. Write about the importance of marine animal in aquaculture?
5. Explain in brief the scope & prospects of aquaculture.
6. Write a note on various classes of marine plants & animals in aquaculture.
7. Discuss in brief :
   A) Finfishes
   B) Crustaceans
   C) Molluscus
   D) Seaweeds
8. Discuss in brief on marine indoor ornamental aquarium.
9. Write the importance of the marine plants in aquaculture?
10. Discuss the advantages and disadvantages of Cage culture?

UNIT II- AQUACULTURE SYSTEM

PART A

1. Define aquaculture system.
2. What is Aquaculture Technology?
3. Write the types of aquaculture system?
4. What is coastal aquaculture?
5. What is BOD?
6. What is COD?
7. Define Hatcheries.
8. What is Oxygen demand?
9. Write down the characteristic of brackish water.
10. What is the role of phytoplankton in aquaculture?
11. What is the difference between prawn and shrimp?
12. What is inland aquaculture?

13. What is the need of inland aquaculture?
14. How to select the shrimp seeds?
15. What is brine shrimp?
16. What is post-harvest technology?
17. What is the topography of aquaculture system?
18. Why aeration is important in aquaculture system?
19. What is Aquaponics?
20. What is Fouling?

PART B

1. Discuss the environmental factors influence in aquaculture system.
2. Write a short note on costal aquaculture?
3. Give a detailed account on how to construct hatcheries?
4. How to design hatcheries?
5. Discuss the climatic factors influence in aquaculture system?
6. How to construct aquaculture farm?
7. Write a short note on Aquaponics system?
8. How to select shrimp seed?
9. How the site selection plays an important role in aquaculture?
10. Write a note on open sea aquaculture?

PART C

1. Explain in detail about the aquaculture systems.
2. Explain aquaculture system and its types.
3. Write a brief note on coastal aquaculture?
4. Write about the importance of coastal aquaculture?
5. Discuss in detail about the types of coastal aquaculture?
6. Write about the importance of hatcheries & aquaculture farms?
7. Write in detail about the design, structure & construction of hatcheries?
8. Write in detail about the design, structure & construction of aquaculture farms?
9. Write in detail about the design, structure & construction of shrimp hatcheries & shrimp seeds from wild?

10.Write in detail about site selection, topography, water availability & soil condition for aquaculture?

UNIT III- MANAGEMENT AQUACULTURE

PART-A

1. What is water quality management?
2. How to improve the quality of water in marine?
3. What is the common disease found in marine?
4. Define Probiotics?
5. What is the use of probiotics?
6. What is the importance of probiotics?
7. Name some of the fishery by-products?
8. Name some of the larval feed?
9. Give some examples of adult feed?
10. How to select the seeds from nature?
11. Explain Biomineralization?
12. Give some major bacterial diseases in aquaculture?
13. How to choose Larval & adult feed?
14. Provide two probiotics commonly used in aquaculture?
15. Define Hydroponic system.
16. What is Fish emulsion?
17. How to improve the fishery by-products?
18. List the types of probiotics?
19. What is the importance of probiotics in diet?
20. Write the Impact of post-harvest technology?

PART-B

1. Write a short note on culture system management?
2. Write a short note on how to manage water quality in aquaculture system?

3. Discuss the disease diagnosis methods in aquaculture?
4. What are the disease management measures taken in aquaculture?
5. How to select the larval & adult feed for shrimp culture?
6. Write a short note on how to maintain aquarium water quality?
7. Write a short note on post-harvest technology?
8. Explain the role of probiotics in aquaculture?
9. List out the fishery byproducts?
10. How to select seed from nature for aquaculture?

PART-C

1. Give an account on the management of aquaculture system?
2. Give a detailed account on water quality management of aquaculture system?
3. Detail note on disease diagnosis & management of aquaculture system?
4. Explain the procedures to select seeds from nature for aquaculture system?
5. Detail note on larval & adult feed for aquaculture system?
6. Discuss post-harvest technology?
7. Discuss the fishery by-products?
8. Explain the importance of probiotics in aquaculture?
9. Write a note on hatchery & post-harvest technology?
10. Discuss the measures taken on management of Aquaculture system?

UNIT IV- CHALLENGES & OPPORTUNITIES IN AQUACULTURE TECHNOLOGY

PART A

1. What is seafood?
2. Define Fisheries Science.
3. What is Vaccination?
4. Give some examples of marine vaccine?
5. What is Larviculture?

6. What is innate immunity?
7. List the methods to control pathogens in Aquaculture?
8. Define offshore aquaculture?
9. What is offshore aquaculture technology?
10. What is wild caught feed?
11. What is FAO?
12. What is Fresh water aquaculture?
13. How to develop vaccine?
14. Define vaccine?
15. Give some examples of Marine pathogens?
16. Write the impact on larviculture?
17. Write about the nutritional developments in aquaculture?
18. List out the disease diagnosis methods?
19. How to control marine pathogens?
20. What is WSSV?

PART B

1. Discuss the carrier opportunities in aquaculture field?
2. Write a brief note on larviculture?
3. How to design aquaculture system?
4. What is off shore aquaculture technology?
5. What is the development seen in off shore aquaculture technology?
6. Write a short note on vaccine development?
7. What are the challenges faced in aquaculture technology?
8. Discuss the disease diagnosis measures seen in aquaculture technology?
9. Write some new developments seen in sea food nutrition?
10. Discuss the modern aquaculture techniques.

PART C

1. Discuss in brief about the challenges & opportunities in aquaculture technology?
2. Explain in detail the modern aquaculture techniques.

3. Explain about the vaccine development in aquaculture?
4. Discuss the emerging methods to control pathogens in aquaculture?
5. Write about the development of offshore aquaculture technology?
6. What is the new nutritional development in aquaculture technology?
7. Explain the larviculture development in aquaculture technology?
8. Write about the aquaculture system design?
9. Write about the vaccine development & water quality management?
10. Write about the larviculture & aquaculture system design?

UNIT V- BIOSTATICS

PART A

1. Write the impact of biostatics in aquaculture?
2. What do you mean by measures of central tendency?
3. What is mean?
4. What is mode?
5. What is standard deviation?
6. What is standard error?
7. What is the co-efficient of variation?
8. What is skewness?
9. What is student ‘t’ test?
10. What is kurtosis?
11. What is the need of chi-square?
12. What is quartile range?
13. What is the use of correlation?
14. What is regression?
15. What is the use of regression in biological science?
16. What is inter-quartile range?
17. What is median?
18. Define biological data?
19. How to analysis the biological data?
20. How to measure central tendency?

PART B

1. Two separate tests are designed to measure a student's ability to solve problems. Several students are randomly selected to take both tests and the results are:

   Test A(x) 43 65 73 34 99 78 65
   Test B(y) 39 60 62 20 85 70 54

   Calculate r, the linear correlation coefficient.

2. Discuss the measures of central tendencies of aquaculture technology?
3. The duration of time from first exposure to HIV infection to AIDS diagnosis is called the incubation period. The incubation periods of a random sample of 7 HIV infected individuals is given below (in years):

   12.0 10.5
   9.5 6.3
   13.5 12.5
   7.2

   a. Calculate the sample mean.
   b. Calculate the sample median.
   c. Calculate the sample standard deviation.
4. Assume blood-glucose levels in a population of adult women are normally distributed with mean 90 mg/dL and standard deviation 38 mg/dL.

   a. Suppose the "abnormal range" were defined to be glucose levels outside of 1 standard deviation of the mean (i.e., either at least 1 standard deviation above the mean, or at least 1 standard deviation below mean). Individuals with abnormal levels will be retested. What percentage of individuals would be called "abnormal" and need to be retested? What is the normal range of glucose levels in units of mg/dL?

   b. Suppose the abnormal range were defined to be glucose levels outside of 2 standard deviations of the mean. What percentage of individuals would now be called "abnormal"? What is the normal range of glucose levels (mg/dL)?
5. Calculate the relative variability (coefficient of variance) for the samples 60.25, 62.38, 65.32, 61.41, and 63.23 of a population.

6. Find the coefficient of variation of 5, 10, 15, 20?
7. What is Biostatistics? Mention its aims and applications in Biology. Write an account of the use of statistical methods in Biological Sciences.
8. Explain the role of biostatistics in modern research.
9. Discuss various types of statistics used in biology.
10. How biologists make use of biostatistical procedures?

PART C

1. Describe aim of biostatistics. Discuss the limitations of statistical methods.
2. Explain the terms sample and sampling. Why sampling is essential in biostatistics?
3. Describe different sampling methods used in biostatistics.
4. Describe objectives of random sampling. Why sampling is essential in biological studies?
5. The following table gives the weight of 31 persons in a sample enquiry. Calculate the mean weight using Geometric and Harmonic Means.

Weight(X)	130	135	140	145	146	148	149	150	157
No. of persons (f)	3	4	6	6	3	5	2	1	1

6. Calculate the quartile deviation and its coefficient from the following data:

Height (in inches):	58	59	60	61	62	63	64	65	66
No. of students (f)	21	25	28	18	20	22	24	23	18

7. Ten replicas of the plant of *Ipomea* were taken for their nitrogen content. Find out variance, standard deviation, standard error and confidence limits to see the variability in the data and the reliability of mean.

Sample replicas	1	2	3	4	5	6	7	8	9	10
Nitrogen%	3.52	3.54	3.34	3.58	3.46	3.39	3.59	3.62	3.57	3.51

8. Calculate the standard deviation of the following observations on a certain variable:

240.12	240.13	240.15	240.12	240.17
240.15	240.17	240.16	240.22	240.21

9. Calculate the mean and standard deviation from the following data:

Fish in length	90-99	80-89	70-79	60-69	50-59	40-49	30-39
In cms Frequency	2	12	22	20	14	4	1

10. Find the coefficient of correlation between the variables X and Y using karl Pearson's method:

X	1	3	4	6	8	9	11	14
Y	1	2	4	4	5	7	8	9