

Domain Subject: BIOTECHNOLOGY III year

B. Sc., – Semester – V **Course 7C Pearl Culture**

(Skill Enhancement Course (Elective), 05 Credits) Max Marks: Theory: 100 +  
Practical: 50

### **Learning Outcomes**

Students after successful completion of the course will be able to

1. Understand the basic concept of pearl culture.
2. Obtain elementary knowledge regarding the Anatomical and Physiological aspects of freshwater oysters.
3. Acquaint with the various types of implantation methods and pearl culture surgery techniques.
4. Acquire skill on the production of pearl and its marketing for economic gain

#### **Unit 1: Overview of Pearl oyster (10h)**

Biology of Pearl oyster: Pearl-producing molluscs. Morphology and anatomy of Pearl oyster, the Life cycle of pearl oyster.

#### **Unit 2: Process of Pearl formation (10h)**

Structure and Histology of mantle. Natural Process of Pearl formation. Chemical composition of Pearls. Economic importance of pearls.

#### **Unit 3: Pearl oyster culture (10h)**

**Pearl oyster culture** Techniques of pearl oyster culture (Fresh water and Marine water) for artificial production of pearls. Pearl culture techniques -Rafts, long lines, Pearls oyster baskets, under water platforms, mother oyster culture/Collection of oysters, rearing of oysters, Environmental parameters.

#### **Unit 4: Pearl Oyster surgery (10h)**

Selection of Oyster, Graft tissue preparation, Nucleus insertion, Conditioning for surgery, Post- operative culture, harvesting of pearl, clearing of pearl.

#### **Unit 5: Pearl culture Economy (10h)**

Diseases and Predators of Pearl oysters' Present status, prospects and problems of pearl industry in India.

## **Practical Syllabus: Course 7C Pearl Culture**

### **Skills Outcomes:**

On successful completion of this practical course, student shall be able to:

1. Execute pre- pearl culture activities
2. **Learn the technique of** surgical operation
3. **Develop skill of** Post operation activities
4. Implement culture activities
5. Perform pearl harvesting

### **Practical syllabus**

1. Technique for measurement of soil and water
2. Culture technique of microorganism for pond maintenance. Surgical techniques
3. Graft tissue preparation, implantation techniques, post operation care
4. Designed pearl culture techniques, bleaching, collection of pearls, cleaning of pearls
5. Sorting of pearls, marketing of pearls.

### **References:**

1. Haws Maria (2002). The basics of pearl farming: a Layman's manual: (U.S.A). C.T.S.A publications.
2. Alexander E .Farn (1986) pearls :(U.S.A.).Butterworth Heinemann publications.
3. Le Jia Li (2014) new technologies to promote freshwater pearl culture (China) Ocean Press publications.
4. Bardach, J.E.W (1972) Aquaculture farming and husbandry of freshwater and Sorting of Pearl. Marketing and economics concerned with Pearl Culture. Generation marine organisms
5. David Dobilet (1995) Pearl farming (Australia) Nat Geographic Mag publication
6. Yuan Cha Da (2014) Environmental effects Pearl farming (China) Jiangxi People publishing house.

**Suggested Question Paper Model for Practical  
Examination Semester – V/ Biotechnology Course – 7C  
(Skill Enhancement Course) Pearl Culture**

Max. Time: 3 Hrs.

Max.Marks: 50

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| 1. Identify pearl-producing oyster, preparation of nuclei 'A'      | 8 M          |     |
| 2. Prepare graft tissue, and perform surgical implantations. 'B'   |              | 8 M |
| 3. Implantation of live graft pieces into the mantle of mussel 'C' | 12 M         |     |
|  |              |     |
| 4. Scientific observation and data analysis                        | 4 x 3 = 12 M |     |
| A. Pearl culture surgical instruments /photograph                  |              |     |
| B. Identification of Pearl/ photograph                             |              |     |
| C. Classification of pearls/photograph                             |              |     |
| D. Biomineralisation of pearls /photograph                         |              |     |
| 5. Record + Viva-voce  | 6+4 = 10 M   |     |

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