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RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES

B.Sc. (General) Degree in Applied Sciences
Third Year - Semester II Examination – February/ March 2019

ZOO 3205 - BREEDING TECHNIQUES IN AQUACULTURE

Time: Two (02) hours

Answer FOUR (04) questions only.

1. A small scale aquaculture farmer plans to conduct a breeding programme for Indian carps in his farm. As an aquaculturist explain the following aspects to him.

   a) Different spawning methods that can be adopted by the farmer. **(20 marks)**

   b) How to induce spawning in Indian carps using a graph illustrating the female reproductive cycle with gonadal maturity against time. **(30 marks)**

   c) Selection of appropriate spawning method for a breeding programme. **(50 marks)**

2. Explain the process of sea cucumber breeding with special reference on following aspects.

   a) Collection of brooders **(10 marks)**

   b) Preparation for spawning **(10 marks)**

   c) *In vitro* fertilization of gametes **(20 marks)**

   d) Different methods of induced breeding **(30 marks)**

   e) Prespawning and spawning behaviors **(30 marks)**

3. a) Discuss the important factors that should be considered when transporting live fish and causes of mortality during transportation. **(40 marks)**

   b) Describe the steps to be followed during transporting fish eggs and brooders. **(60 marks)**

4. Write a concise account on how to design an oyster breeding and culture programme in the coastal region of Batticaloa. **(100 marks)**

5. a) Explain how to assess the maturity stage of brooders of fish. **(25 marks)**

b) For a fish breeding programme, the females need two injections (2mg/fish and 1mg/fish) and males need a single injection (1mg/fish). If the farmer intends to use 50 females with an average weight of 5 kg and 20 males with an average weight of 3kg, calculate the total number of pituitary glands needed for the preparation of the injections (weight of a pituitary gland = 2.5 mg). **(35 marks)**

c) Calculate the required amount of saline to be used in the preparation of each injection, considering that the desired dosages of first injection for female is 1ml/fish, second injection of female is 1.5ml/fish and for male is 1.5ml/fish.

(40 marks)

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