RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES

B.Sc. (Special) Degree in Applied Biology
Fourth Year – Semester I Examination – September/ October 2019

FAM 4202 - AQUACULTURE ENGINEERING

Time: Two(02) hours

Answer ALL questions.

1. A fish farmer intends to construct an earthen fish pond on an irregular ground. The pond size is 400 m^2 (20 m x 20 m) with wall heights of 0.5 m at corner *A*, 0.3 m at corner *B*, 1.1 m at corner *C* and 1.5 m at corner *D*. If the crest-width is 1 m and the side-slope is 2:1 on both sides, using valid assumptions explain in detail, the design and construction procedure of above mentioned pond system and estimate the soil needed for the construction of the dyke. **(100 marks)**

2. a) Discuss the impacts of soil permeability for fish pond construction. **(40 marks)**

   b) Describe the special pond costruction methods that could be adopted to mitigate soil seepage. **(60 marks)**

3. a) Explain why "non-ideal mixing" should be avoided in closed fish production units. **(40 marks)**

   b) Justify the significance of Recirculating Aquaculture Systems (RAS). **(60 marks)**

4. Write a comprehensive report on the design and construction of a shrimp hatchery. **(100 marks)**

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