

Part II only



UNIVERSITY OF RUHUNA  
FACULTY OF FISHERIES AND MARINE SCIENCES & TECHNOLOGY

Academic Year 2023/2024

Bachelor of Science Honours in Marine and Freshwater Sciences Degree

Level IV Semester I Examinations – April/May 2025

LIM 4131: Water Economics

Time: 1 hour and 15 minutes

INDEX NUMBER: .....

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**Part II (50 Marks)**

**Answer only one (01) question.**

1. Farmers in an arid region of Mexico draw their irrigation water from an underground aquifer. The total product schedule for well operations is given in the table below, and the cost of operating a well is 600 \$ per day, while the value of water to the farmer is 0.1 \$ per gallon.

Number of tube Wells (Q)	10	20	30	40	50	60	70	80	90
Total Water Output (Thousand gal/Day)	100	200	280	340	380	400	400	380	340

- a. Calculate the marginal cost of operating tube-wells  
**(05 Marks)**
  - b. Calculate the marginal revenue of operating tube wells  
**(15 Marks)**
  - c. What would be the economically efficient number of tube wells for this region? Provide reasons for your answer.  
**(20 Marks)**
  - d. To maximize the social benefits, propose two management strategies to manage this ground water resource.  
**(10 Marks)**
2. Compare the following pairs and provide suitable examples, considering aquatic resources whenever necessary.
- a. GDP and green GDP
  - b. Net savings and adjusted net savings
  - c. Sustainable Yield and Maximum Economic Yield
  - d. Consumer surplus and producer surplus
  - e. Positive externality and negative externality

**(10 x 5 = 50 Marks)**

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