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| **GE 2318 Homework #4 2024**  **Name: Student ID:**  **Q1:** Based on the “degree principle”, identify the first-level community structure of the following network:    **Q2:** Consider the 4-node power network shown below:    Here, assume that the collapsing thresholds are:  , , ,  Initial loading: All nodes have same load  Now: an extra load is added to Node A  (a) Calculate the load spreading through Node B, Node C, Node D  (b) Determine the collapsing sequence: A 🡪 \_\_\_\_\_ 🡪 \_\_\_\_\_ 🡪 \_\_\_\_\_  **Q3:** Consider a special epidemic infection model of a very large population:    where is the proportion (number) of infected people, is the infective rate, is the recovery rate, and is the reproduction number.  Now, the solution of this SI model is given: , where is the initial condition (a given constant).  (a) If , then as .  (b) If , then as .  (c) If , then as . |

This HW-4 is due by 11:59pm @ Tuesday 27 February 2024 to Canvas