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| **GE 2318 Homework #5 2024**  **Name: Student ID:**  **Q1:** In the following figures, compare wave signal (a) to (b), (c), (d), respectively:   * Wave signal (a) has anti-phase synchronization with wave \_\_(c)\_\_ * Wave signal (a) has shifted-phase synchronization with wave \_\_(b)\_\_ * Wave signal (a) has non-synchronization with wave \_\_(d)\_\_   C:\Users\eegchen\Desktop\HW5.JPG  **Q2:** Compare which option of the networks has the (1) best, (2) second best and (3) worst synchronizability. Explain why you think so:    **Answer:** (1) Option \_\_ 2 \_\_ (2) Option \_\_ 5 \_\_ (3) Option \_ 6 \_\_  **Explain:** Option 2 has most symmetrical, homogeneous, with many loops  **Q3:** Suppose that you have only one controller to use for controlling a connected network. For the following types of networks with the same large number of nodes, which network would be easiest to control and which would be most difficult to control? Explain why you think so.  (1) A chain network  (2) A ring network  (3) A fully-connected network  (4) A bipartite network  (5) A lattice network  **Answer:** Easiest: \_\_ Fully connected network \_\_ Most difficult: \_\_\_ Chain network \_\_\_  **Explain:**  A fully-connected network is easiest to control because the controller can affect all nodes directly and simultaneously within a very short distance.  A chain network is the most difficult to control because the controller can hardly affect the nodes near one end, or even both ends, of the chain due to relatively long distances. |