|  |
| --- |
| **GE 2318 Homework #2 2024**  **Name: Student ID:**  **Q1:** Consider a connected undirected tree graph of 100 nodes.  (i) The total number of edges in the graph is equal to \_\_\_\_ 99\_\_\_\_\_\_  (ii) The total node degree of the graph is equal to: \_\_\_\_ 198 \_\_\_\_\_  (iii) The average degree of the graph is equal to: \_\_\_\_ 1.98 \_\_\_\_\_\_  (iv) The total number of bridges in the graph is equal to: \_\_\_\_\_ 99 \_\_\_\_\_  **Q2:**  The adjacency matrix A and incidence matrix M are:    **Q3:** Solve the Chinese postman problem for the following seven-bridge map, where the edge lengths are: a = 6, b = 8, c = 3, d = 5, e = 9, f = 12, g = 10    (i) Show your optimal solution.  (i) Optimal Solution: Repeat c and f. Total extra length = 3 + 12 = 15    (ii) There are several other possible choices. Show any other choice and compare it to your answer, so as to verify that your answer is better than another one.  (ii) There are several other choices, but all other choices have longer total path-length. *For example*, one possible choice is to repeat e, f and g, as shown below. But this choice has a total extra length = 9 + 12 + 10 = 31, which is longer than the above optimal choice. |