1. **Shortest path distance problem (unweighted/ weighted graphs)**
    a. Given two nodes, compute the shortest-path length for the pair of node.
    b. Average shortest path for all nodes in graphs.
    c. Writing pseudo code
2. **Node degree problem & pseudo code**

Question 1: Given a graph with 6 nodes and several edges

a. Compute: average degree of nodes in graphs
b. Gieven a degree ‘d’, writing pseudo function finding nodes that have degree ‘d’
c. Writing pseudo code to compute the degree of nodes and its neighbours

Question 2: If a graph has nine nodes of degree 4 and six nodes of degree 3. How many edges does it have?

3. **Centrality measures for undirected/directed graphs & pseudo code**

Question: Given a graph with 6 nodes, compute:

a. Degree Centrality, Histogram
b. Closeness Centrality
c. Betweenness Centrality
d. Writing pseudo code for above centrality measures

4. **Link prediction & pseudo code**

Question: Given a graph with 6 nodes, compute:

a. Graph distance
b. Common neighbors
c. Jaccard’s coefficient
d. Adamic-Adar (AA)
e. Preferential attachment (PA)
f. SimRank
g. Writing pseudo code for above measurements

5. **Community Detection & pseudo code**

Question: Given a graph with 6 nodes, find:

a. Find k-clique communities
b. Maximum clique
c. Writing pseudo code for k-clique communities and maximum clique