# PT-5 Optimization

**1.Which of the following is NOT a metric used for evaluating the robustness of a network?**

* . Network diameter
* . Assortativity coefficient
* . Attack tolerance
* . Network modularity

**2.How can the efficiency of a network be described?**

* . Ratio of actual to potential connections
* . inverse of the average shortest path length
* . Direct measure of the network's resilience
* . Average clustering coefficient of all nodes

**3.What is the significance of the "six degrees of separation” concept in network theory?**

* . Most pairs of nodes in large networks can be connected by a short path.
* . Allnodes in a network can connect with exactly six other nodes.
* . Nodes in a network have an average of six neighbors.
* . Ittakes six steps to traverse any network.

**4.Which of the following methods is used to detect hierarchies within network communities?**

* . Shortest path algorithm
* . Hierarchical clustering
* . Maximum flow algorithm
* . Random walk

**5.How does the "strength of weak ties" theory relate to business insights?**

* . Weak ties are inconsequential for business networks.
* . Strong ties always lead to better business outcomes.
* . Weak ties can be crucial for accessing novel information and bridging communities.
* . Business networks should aim for uniformly strong ties.

**6.What property is being measured when evaluating the "small-world-ness" of a network?**

* . The proportion of nodes in the largest community
* . The degree to which nodes cluster together
* . The balance between local clustering and short global path lengths
* . The number of nodes with a degree greater than the average degree

**7.How is the core-periphery structure in networks identified?**

* . Based on nodes with the highest degree centrality.
* . Through nodes with the highest betweenness centrality.
* . By separating densely connected nodes (core) from less connected nodes (periphery).
* . using the ratio of actual to potential connections.

**8.Which of the following concepts suggests that the total number of links in a network grows exponentially with the number of nodes?**

* . Law of the Few
* . Metcalfe's Law
* . Six Degrees of Separation
* . Power-Law Distribution

**9.Which of the following Excel functions can be used for solving linear optimization problems?**

* . viookuP
* . INDEX
* . SOLVER
* . FORECAST.LINEAR

**10.What is the primary limitation of Excel's Goal Seek tool in optimization?**

* . Cannot handle multi-variable optimization.
* . Cannot work with non-linear models.
* . Can't optimize discrete variables.
* . Does not offer sensitivity analysis.

**11.Which tool in Excel allows you to conduct optimization over integer constraints?**

* . Scenario Manager
* . Data Tables
* . what-if Analysis
* . SOLVER

**12.Which of the following is NOT a requirement for using SOLVER's LP Simplex method?**

* . Linearity
* . Non-negativity
* . Certainty
* . Exclusivity

**13.What is the maximum number of decision variables that Excel's SOLVER can handle in the premium version?**

* . 200
* . 500
* . 1000
* . unlimited

**14.How can you modify the constraints in a SOLVER problem?**

* . using "Define Name"
* . Editing directly in the formula bar
* . Through the "SOLVER Parameters" dialog box
* . Via "Data Validation"

**15.Which of the following is NOT a report type provided by SOLVER after optimization?**

* . Answer Report
* . Sensitivity Report
* . Boundary Report
* . Limits Report