

1. Give at least three different proofs of Turán's Theorem.
2. A graph G is said to be k -sufficient if G has at least k vertices, each vertex is of even degree and the size of G is a multiple of k . Find a graph of order n with as many edges as possible such that this graph is 3-sufficient but the graph has no C_3 – decomposition.
3. Find a 4-sufficient graph with as many edges as possible such that this graph has no C_4 – decomposition.
4. Determine $z(101, 101; 2, 2)$. (The bipartite graph of maximum size which contains no 4-cycle.)
5. Find $ex(n; K_4 - e)$.
6. Find the spectrum of maximal configurations of P_7 on 50 vertices.