

# PALGO-2024: Quiz-2

Full Marks: 10

September 19, 2024

**Problem:** The CLUSTER EDITING problem is defined as follows.

- **Input:** An undirected graph  $G = (V, E)$  and an integer  $k$ .
- **Parameter:**  $k$ .
- **Question:** Can  $G$  be converted into a disjoint union of cliques using at most  $k$  edit operations? Here each edit operation corresponds to adding or deleting one edge.

Design an FPT algorithm for CLUSTER EDITING problem. Give clear explanation of the running time of your algorithm. For example, if your algorithm runs in  $O(3^k \text{poly}(n))$ -time, then mention  $3^k$  part precisely and explain why that is the case.