Subject: Recitation 9

Year: Month: Date:

1. a tour is a cycle corresponding to and if we delete an edge it's a spanning tree. MST ≤ cycle ≤ Tour ≤ OPT

2. Total sum is even. Sum of evens is even.

   → sum of odds is even. → size of S is even.

3. the TSP with only S is ≤ OPT. Now since the size is even, alternating will give us $w(M_1) + w(M_2) \leq OPT$ so

   $w(M_1) \vee w(M_2) \leq \frac{OPT}{2}$

4. S is nodes with odd degree and M adds one edge to each node, so ∀ nodes even degree

   → ∃ euler circuit, $Cost(T) + Cost(M)$

   ≤ $OPT + \frac{OPT}{2}$

5. TSP ≤ euler ≤ $\frac{3OPT}{2}$.

6. □