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

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. □

Subject: Recitation 10

Year: Month: Date:

	# switches	Switch size	d	mc
5-Path	5	3 2 × 2 3	6	5
4-cycle	4	3 × 3	4	2 3