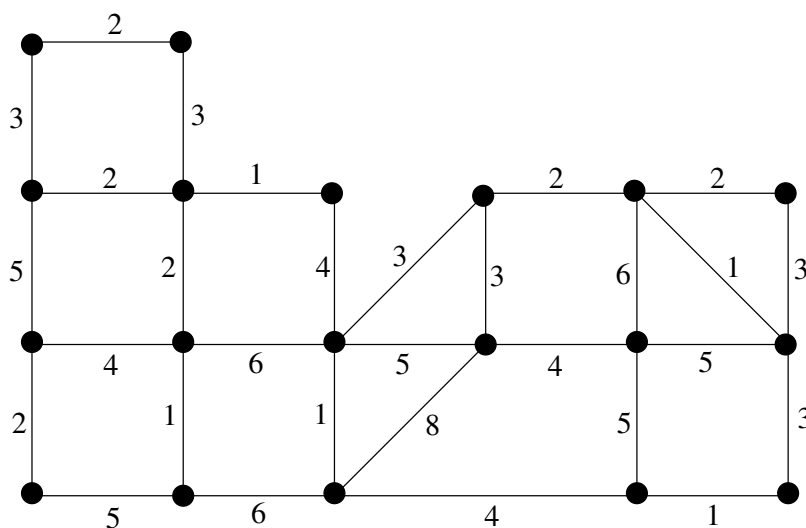


**Quiz 3**  
Friday, Feb. 9.

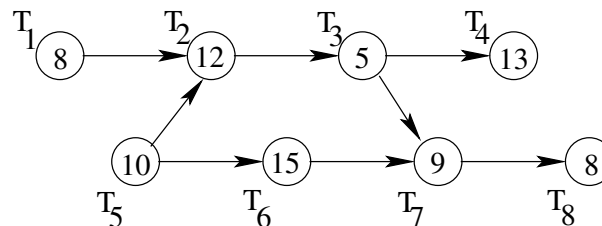
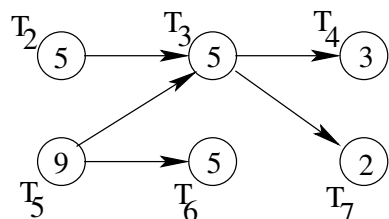
NAME \_\_\_\_\_

1. Apply Kruskal's algorithm to find a minimal-cost spanning tree of the following graph :

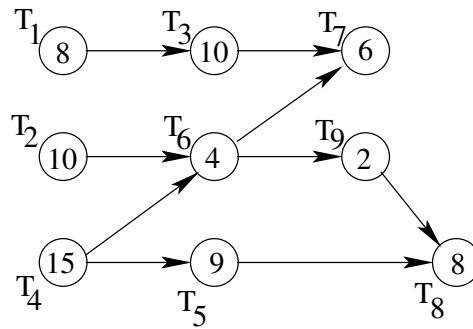


2. A college student has six pairs of pants, eight tee shirts, three sweatshirts and two pairs of tennis shoes. If an outfit consists of pants, a tee shirt, a sweatshirt and a pair of tennis shoes, how many different outfits can the student wear before repeating one?

3. For each of the order-requirement digraphs below (with time given in minutes), determine the earliest completion time for the associated job.



4. Given the order-requirement digraph below (with time given in minutes) and the priority list  $T_1T_2T_3T_4T_5T_6T_7T_8T_9$  apply the list-processing algorithm to construct a schedule using two processors. How much time is required to finished the associated job if one follows the schedule you obtained?



5. For each of the following statements, say whether it is true or false.

- (a) A digraph is a graph with exactly two vertices.
- (b) Kruskal's algorithm for finding minimum-cost spanning trees always gives optimal results.
- (c) A spanning tree of a graph must contain every edge of a graph.
- (d) The sorted-edges algorithm for solving the traveling salesman problem always gives optimal results.
- (e) The following digraph cannot be an order-requirement digraph.

