CS 471/571 Practice Problems
Practice Problem

An organization has a class C network 207.1.1 and wants to form subnets for five departments with hosts as follows:

A 60 hosts  
B 30 hosts  
C 25 hosts  
D 14 hosts  
E 10 hosts

Give a possible arrangement of subnet masks to make this possible.
Practice Problem

Given the forwarding table shown below what is the next hop for a packet containing the following destination addresses.

a. 138.49.196.100

b. 138.49.140.50

<table>
<thead>
<tr>
<th>SubnetNumber</th>
<th>SubnetMask</th>
<th>NextHop</th>
</tr>
</thead>
<tbody>
<tr>
<td>138.49.128.0</td>
<td>255.255.248.0</td>
<td>Interface 0</td>
</tr>
<tr>
<td>138.49.192.0</td>
<td>255.255.224.0</td>
<td>R1</td>
</tr>
<tr>
<td>138.49.128.0</td>
<td>255.255.224.0</td>
<td>R2</td>
</tr>
<tr>
<td>Default</td>
<td>255.255.255.255</td>
<td>R3</td>
</tr>
</tbody>
</table>
Practice Problem

Rewrite the forwarding table in problem 2 (shown below) using the prefix/length style entries.

<table>
<thead>
<tr>
<th>SubnetNumber</th>
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<td>Default</td>
<td>255.255.224.0</td>
<td>R3</td>
</tr>
</tbody>
</table>
a. Given the graph shown below show the state of Dijkstra's algorithm after the best distances from C to 4 other nodes are known.

b. Show the state of Dijkstra's algorithm after the best distances from C all other nodes are known.
Practice Problem

a. Given the graph shown below what are the initial values in the distance vector for C?
b. Given the graph shown below what are the values in the distance vector for C after it receives information from its neighbors?
c. Repeat parts a and b for node F