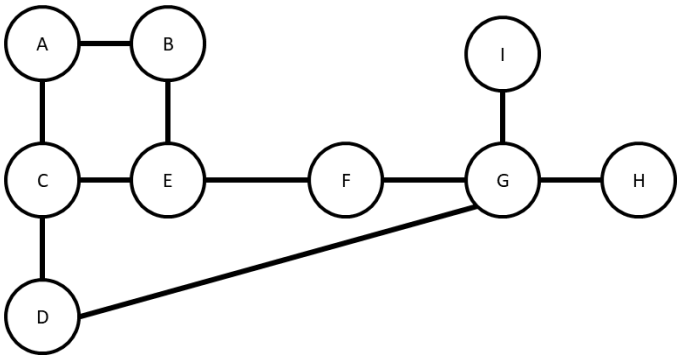
IS8055556: Data and Computer Communications	**Recitation 11**
Semester 2 5786	**30 June 2026**
Lecturer: Michael J. May	**Tel Hai**

RIP Steps and Protocol and Subnet Division Review

1 Routing Information Protocol Steps

Consider the RIP network shown below:



The network is initialized with the default RIP data and then the following events occur:

(1) C sends it distance vector to E

(2) E sends its distance vector to C.

(3) C and E process the received distance vectors.

(4) E sends its distance vector to F

(5) F sends it distance vector to E

(6) E and F process the received distance vectors.

(7) G sends its distance vector to F

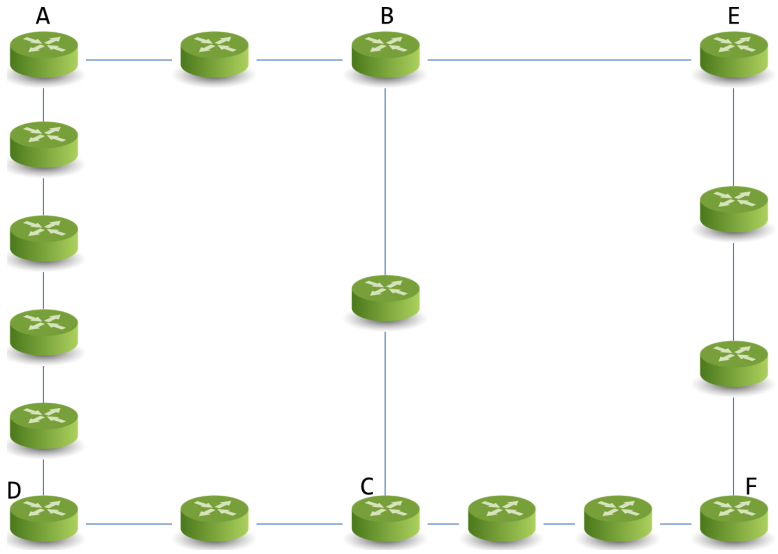
(8) F sends it distance vector to G

(9) F and G process the received distance vectors.

Show the state of the routing tables for C, E, F, and G after the above events using the following table format. Show just the final routing table contents, there is no need to to show intermediate steps or the tables for the other nodes.

C's Table			E's Table			F's Table			G's Table		
Dest	Distance	Next Hop	Dest	Distance	Next Hop	Dest	Distance	Next Hop	Dest	Distance	Next Hop
A			A			A			A		
B			B			B			B		
C			C			C			C		
D			D			D			D		
E			E			E			E		
F			F			F			F		
G			G			G			G		
H			H			H			H		
I			I			I			I		

2 Routing Information Protocol Steps



In the above network there are routers in a network that uses RIP for determining routing distances. For the purposes of this question, we will focus on just the six routers labeled in the picture (nodes A, B, C, D, E, F). The labeled routers begin with some initial information about specific other labeled nodes and then use RIP to exchange more information about other labeled nodes in the network. We will calculate routing tables for the named routers and treat them as if they are directly connected (*e.g.* A is a neighbor of B, D is a neighbor of C).

(a) Each node begins with limited information about a few other labeled nodes:

1. A: distances to B, D
2. B: distances to A, C, E
3. C: distances to B, D, F
4. D: distances to A, C
5. E: distances to B, F
6. F: distances to C, E

Write the routing tables for each of the labeled nodes based on this initial information using the format below.

(b) The following labeled nodes have exchanged routing information (via flooding):

1. A exchanged with B, D
2. B exchanged with A, C, E
3. C exchanged with B, D, F
4. D exchanged with A, C
5. E exchanged with B, F
6. F exchanged with C, E

(c) Step (b) happens a second time.

Use the following format for your answers:

Information Stored at Node	(Distance, Next Hop) to Reach Node A	B	C	D	E	F
A						
B						
C						
D						
E						
F						

3 Subnet Assignments

Consider a company with the following Class C network 100.100.100.X which it wishes to divide up among the following departments:

- Department A: 20 computers
- Department B: 60 computers
- Department C: 10 computers
- Department D: 12 computers
- Department E: 50 computers

Give a subnet division which is sufficient for the departments. Write your answer in the following format:

Name	Subnet #	Subnet Mask	Address Range
A	...	...	...
B	...	...	...
C	...	...	...
D	...	...	...
E	...	...	...

4 Subnet Assignments

Consider an organization with the class C subnet 193.225.178.X and the following subnetting requirements:

- Department A: 118 computers
- Department B: 59 computers
- Department C: 29 computers
- Department D: 12 computers
- Department E: 12 computers

Write down a correct and sufficient subnetting assignment for the organization. Use the following format for your answer:

Name	Subnet #	Subnet Mask	Address Range
A	...	...	...
B	...	...	...
C	...	...	...
D	...	...	...
E	...	...	...

5 Subnet Assignments

An organization has the address range 140.32.X.X and wants to create a subnet allocation for subnets of the following size:

- Subnet A: 25,000 computers
- Subnet B: 1,350 computers
- Subnet C: 3,900 computers
- Subnet D: 5,000 computers
- Subnet E: 10,360 computers

Write down a correct and sufficient subnetting assignment for the organization. Create a table similar to the one below for your answer. Write the table in the answer booklet.

Name	Subnet #	Subnet Mask	Address Range
A	...	...	...
B			
C			
D			
E			