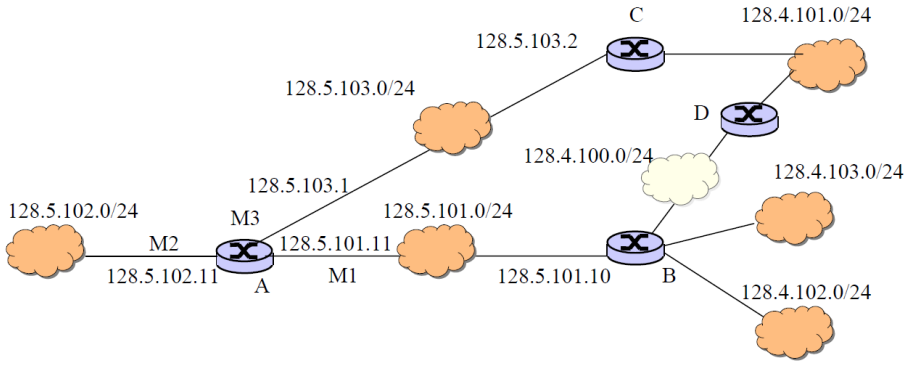
2. IP and Routing

(1) In the following figure, fill out the forwarding table at router A. Choose the shortest path in this problem. The cost is the hop count (note, each network, labelled by cloud, is one hop).



Routing table at Router A

Destination Address	**Cost**	**Interface**	**Next hop IP address**
128.4.100.0/24	2	M1	128.5.101.10

(2) Is it possible to aggregate these addresses to have a smaller routing table? If so, to what? If not, why not?

(3) Now assume that the whole network 128.4.100.0/24 breaks down, and assume that the routers are using Routing Information Protocol (RIP) with Poison Reverse. How many cycles of routing table updates does it take for A to find out that the network 128.4.100.0/24 is unreachable? Show all the steps in the following table. Show each entry as the pair (next router, cost).

iterations	Router A	Router B	Router C	Router D
Before the break	(B , 2)	(— , 1)	(D , 2)	(— , 1)
1				
2				
3				
4				
5				
6				
7				
…				

(4) If RIP without Poison Reverse is used, how many cycles does it take for A to learn that the network 128.4.100.0/24 is unreachable? Show all the steps in the following table.

iterations	Router A	Router B	Router C	Router D
Before the break				
1				
2				
3				
4				
5				
6				
7				
…				