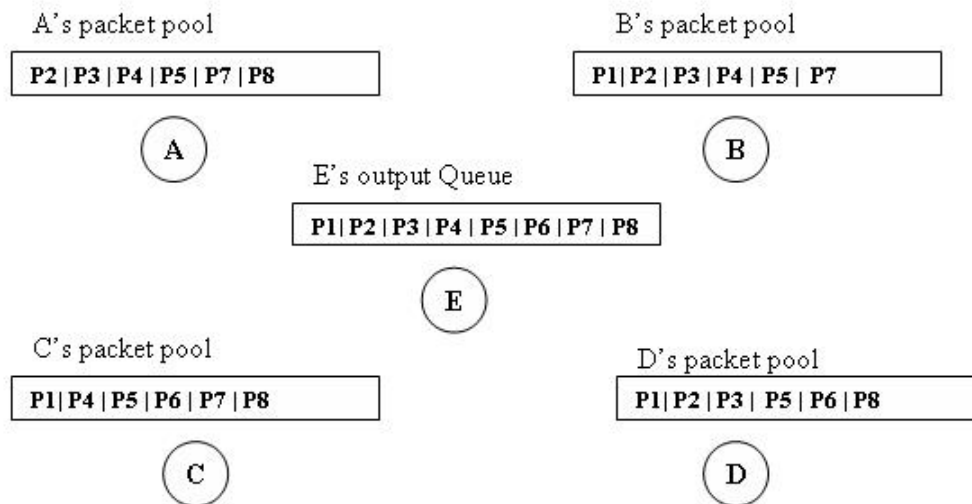


Exercises of lecture
Mobile Ad Hoc Networks
 Summer 2007
 Sheet 7

SECTION 1:

Opportunistic Coding

1. For the network shown in figure-1 assume that node E is aware of packet pools of its neighbors (i.e. node A, B, C, D) and all of them are in transmission range of node E. Using the information present in its' neighbors packet pools node Es goal is to maximize throughput using *Opportunistic coding*. What is best coding scheme for node E such that all of it neighbors can have complete set of eight packets (P1, P2,... , P8) in minimum number of transmissions by node E. (Note that in each transmission a node can receive at most one packet.)

**Solution:**

There are four possible solutions, which are given below.

- (a) Transmission 1: {P1, P2, P4, P8 }, Transmission 2: {P6, P3, P7}
- (b) Transmission 1: {P1, P3, P4, P8 }, Transmission 2: {P6, P2, P7}
- (c) Transmission 1: {P1, P3, P7, P8 }, Transmission 2: {P6, P2, P4}
- (d) Transmission 1: {P1, P2, P7, P8 }, Transmission 2: {P6, P3, P4}