## 第二章作业

### 2-2

Because it is a noiseless channel, the maximum data rate can achieve

The answer depends on the number of signal values V, if it is binary transmission, the answer would be 8000 bps.

We sample 1000Hz every second, thus the maximum data rate would be 1000 bps.

### 2-3

, thus .

This is a noisy channel, by Shannon criterion, the maximum bit rate =

By Nyquist theorem, the maximum data rate =, thus the maximum available data rate is 6000 bps.

### 2-36

* circuit-switched network
* delay =
* packet-switched network
* delay =

only when then the packet network has a lower delay, which means , that is when packet-switched network is lightly loaded.

### 2-37

Assume that the propagation delay is 0 because it is negligible. The total delay would be . Make the derivative over of that , we can get that the value to minimize the total delay for p is .