## Homeworks

1. (8.1) Let $\beta_s(n)$ be the minimum amount of transmission capacity needed to ensure a cell loss of no greater than $\epsilon_s$. Extend the definition of partially-restricted permissible in section 8.3. to the current context with dynamic-service separation. Define LLR for both the restricted and partially restricted versions.

2. Consider the four-node fully connected network, the model used is static service, dynamic route separation. The peak rate for observed service class is 0.8 Mbits/s The Link capacities are equal in all links, $C = 9$ Mbits/s. Trunk reservation parameters are $t = [3\ 2\ 1\ 1\ 3\ 2]$ and the number of directly routed VCs are $l = [5\ 4\ 3\ 3\ 3\ 2]$; the number of VC on alternative routes are following $l_{\{1,2\}} = 2$ , $l_{\{1,6\}} = 2$, $l_{\{3,4\}} = 3$.

How many new connections can be established on link 1 or on its alternative routes. Define the routes in order. Suppose no connection is shutdown and use peak rate allocation. The load on alternative route is defined as $L_R = U_h/2 + U_i/3$ where $U$ is the current consumed capacity of a link. Find the alternative route with minimum load and accept it if $L_R \leq C - t_m$ for both links $m \in \{i, h\}$.