Solution to Problem 1:

```
if  k=i → skip
[] k!=i → m:=0;
          do m<n → net[m,k], net[k,m], m := vp[m], vp[m], m+1
          od;
          if r=0 → skip
           [] r>0 → r, h := r-1; NEXT(N, g);
                    do h!= g→
                          if up[h] → send st(k, vp, r) to p[h]
                          [] ~up[h] → skip
                          fi;
                          h:=NEXT(N,h)
                    od
           fi
fi
```

Solution to Problem 2:

rmax = length of longest simple path between two distinct nodes in the network topology = 5

Solution to Problem 3: