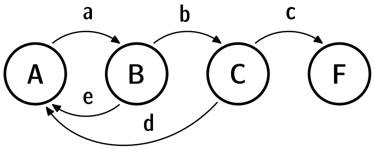
CSE 102 **Assignment**
W.A. Burkhard **Due: (in class) March 13, 2001**

---

1. What is the purpose of disk array declustering?
2. Specify one complete period of the Datum data layout for $n = 5$ disks and stripe width $k = 3$.
3. Which stripe s contains user data stripe 345 in the previous layout. What is the disk and offset for user data stripe 345? Which disk and offset contain the parity stripe unit for stripe s?
4. What is the *MTTDL* for a five disk RAID level 5 configuration with 90 minute mean repair time and 500,000 hour mean disk failure time?
5. What is the mean time to reach state **F** in the following model? The rates all have hour^{-1} units and $P_A(0)$ is 1.0.



6. You are to compare *MTTDL* for the following two RAID level 5 configurations. In both configurations, there are eight data disks; in the single group configuration, the total redundant data could reside on a single disk and in the pair of groups, the total could reside on a pair of disks. For the single RAID level 5 configuration, all you need is the formula we derived in class as in problem 4 above. You will have to derive a similar formula for the pair of groups. If you wish to calculate explicit MTTDLs rather than compare formulae, you may use the repair and failure time parameters of problem 4.