

## Chapter 11 Exercises

**Exercise 1:** A system fails when the main computer system A, the basic computer backup system B, and the manual backup system all fail. System A fails if either the hard disk, CPU or power fails. The power only fails if 2 out of its 3 power supply units fail. Systems B can fail in the same way as system A but it only has a single power supply unit. The manual backup system only fails if manual override is on or if both of two manual operators are not available.

Construct a BN model to represent a fault tree of system failure. How reliable do the components need to be for the probability of overall system failure to be less than  $1/100,000$ ?

**Exercise 2:** Open the model “11.4 Fault tree with common cause and diversity nodes”. Suppose a system failure has occurred and suppose that you are also certain that there is no common power supply fault. By running the model with suitable observations what can you conclude about the most likely ‘cause’ of failure?