Extra Credit

Directions: Complete all exercises in order to receive consideration.

Consider the two networks "karate" and "kite", which are available in the package "igraphdata".
> library(igraphdata)
> data(karate)
> ?karate
> data(kite)
> ?kite

Using the hierarchical random graphs functions in "igraph" perform the following tasks:

1. Focus on the karate network. Create noisy datasets. Do this by deleting 5% of the edges randomly (track which ones they are). Perform MCMC for a random graph model (as in Clauset et al.) on this data followed by link-prediction. Are you able to predict the edges that you deleted?

2. Focus on the yeast network (or kite network). Create noisy datasets. Do this by deleting 5% of the edges randomly (track which ones they are). Perform MCMC on this data followed by link-prediction. Are you able to predict the edges that you deleted at random well?

3. Repeat the exercise in part (a) and (b) after deleting 15%, and 40% of the edges. Comment on your findings.