Learning Probabilistic Graphical Models: Write Up for Assignment 1

Question 1:

To generate a random bayesian network, we just need to generate a Random DAG
Generating a Random DAG:

The main idea* is that any triangular matrix is acyclic. So I have taken a matrix and filled edges randomly but only in the lower triangle with max edges of k and printed it according to the format.

Now, in the second question, I have used the method discussed in class.
There are 4 possibilities:

1. a -> b <- c then b should be known else end
2. a -> b -> c then b should be unknown else end
3. a <- b <- c then b should be unknown else end
4. a <- b -> c then b should be unknown else end

This method takes O(n+m)
I have also included if b+ descendants(b) is in Z
*http://mathematica.stackexchange.com/questions/608/how-to-generate-random-directed-acyclic-graphs