HOCHSCHULE BONN-RHEIN-SIEG

PMR, Quiz 06

SUMMER SEMESTER 2018

1. Answer the following questions:

   (a) What is the difference between exact and approximate inference?

   (b) What is the Markov blanket of a variable in a Bayesian network?

   (c) Describe the concept of factors used in variable elimination.

   (d) What is the difference between variable elimination and inference by enumeration?

   (e) Why do we say that variable elimination is a dynamic programming algorithm?

   (f) What are the two main operations associated with factors in variable elimination?

   (g) What is a consistent probability estimate?

   (h) What is the stationary distribution of a Markov chain?

   (i) What kinds of queries do we use inference for?

   (j) What is a polytree?

   (k) Assume a noisy OR-gate model for $p(A|E, B)$. Calculate the probability table assuming $p(A|E, \neg B) = 0.2$ and $p(A|\neg E, B) = 0.9$, where E and B are parents of A.