Artificial Intelligence 2
Quiz #03 (Probabilistic reasoning over time)

What is a partially observable environment?

Describe a core model for modeling evolution of states in partially observable environments.

What is a transition model? What assumption do we use to compactly represent the state transition model?

Can a second-order Markov chain be represented as a first-order Markov chain?

What is the difference between stationary and static processes?

What is a sensor model? What assumption do we use to compactly represent the sensor model?

What are the four basic inference tasks for temporal models?

Describe and explain the recursive formula for the filtering task.

What is the difference between prediction and filtering?

What is the difference between filtering and smoothing? Give some practical examples where filtering and smoothing can be used.

Describe and explain the recursive formula for the smoothing task.

What is a full smoothing? How can we do it efficiently?

What is a smoothing with fixed time lag? How can we do it efficiently?

Which task is solved by the Viterbi algorithm? Describe the algorithm and give some practical examples of usage.

Can the most likely state sequence be obtained via full smoothing?

What is Hidden Markov Model? How does it differ from the dynamic Bayesian network?