

Mini-Assignment: Bayesian Network & HMM

Due Mar 4 at 11:59pm **Points** 5 **Questions** 5
Available until Mar 5 at 2:59am **Time Limit** None
Allowed Attempts 2

Instructions

Unit 5: Bayesian Network & HMM

This quiz was locked Mar 5 at 2:59am.

Attempt History

	Attempt	Time	Score
LATEST	<u>Attempt 1</u>	2 minutes	5 out of 5

Score for this attempt: **5** out of 5

Submitted Mar 2 at 2:06pm

This attempt took 2 minutes.

Question 1

1 / 1 pts

In HMM, to find out what is the most probable path of the states, given an observation sequence O, which algorithm should be used?

- ☐ Baum-Welch
- ☐ EM
- ☐ Forward-Backward
- ☒ Viterbi Decoding

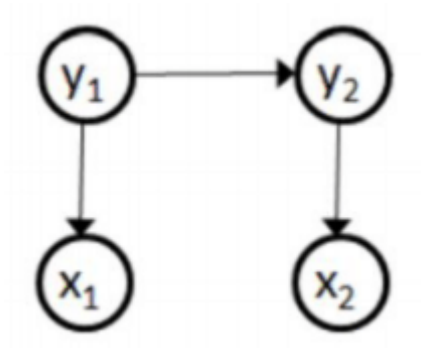
Correct!

Question 2**1 / 1 pts**

Given an HMM $\Lambda = \{\Theta, \Omega, A, B, \pi\}$, which matrix represents the initial state?

☐ A☐ Θ ☐ B☒ π **Correct!****Question 3****1 / 1 pts**

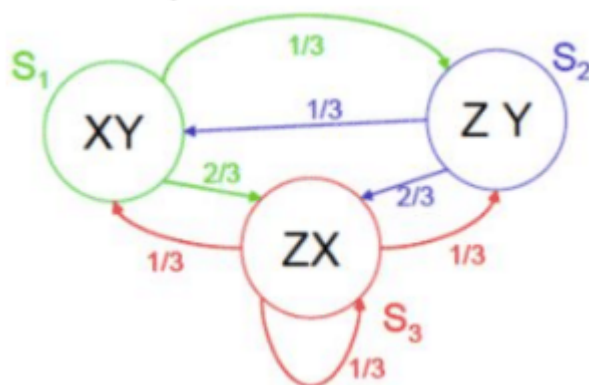
Consider the following hidden Markov model which consists of two observations (x_1, x_2) and two hidden states (y_1, y_2). What is the joint probability distribution $P(x_1, x_2, y_1, y_2)$?

☐ $P(y_1)P(x_1|y_1) P(x_2|y_2)$ ☐ $P(x_1|y_1) P(x_2|y_2)$ ☐ $P(x_1|y_1)P(y_2|y_1)P(x_2|y_2)$ ☒ $P(y_1)P(x_1|y_1)P(y_2|y_1)P(x_2|y_2)$ **Correct!**

Question 4

1 / 1 pts

Given the following HMM model, where symbols X, Y and Z represent the possible observations in the states. In a circle representing a state, the symbols are equally possible observations in that state. If the system can only start equally likely from state 1 or state 2, what is the π ?

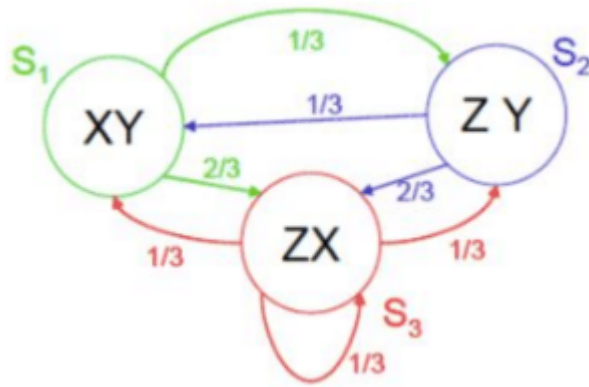

☐ $\pi_1=1/3, \pi_2=1/3, \pi_3=1/3$
☒ $\pi_1=1/2, \pi_2=1/2, \pi_3=0$
☐ $\pi_1=1, \pi_2=0, \pi_3=0$
☐ $\pi_1=0, \pi_2=1, \pi_3=0$

Correct!

Question 5

1 / 1 pts

Given the following HMM model, where symbols X, Y and Z represent the possible observations in the states. In a circle representing a state, the symbols are equally possible observations in that state. What is the value of a_{33} in the state transition probability matrix?

☐ 2/3☒ 1/3☐ 1☐ 0**Correct!**Quiz Score: **5** out of 5