


<https://swayam.gov.in>

https://swayam.gov.in/nc_details/NPTEL

yashraj.devrat.aids.2020@vpkbiet.org ✓

 NPTEL (<https://swayam.gov.in/explorer?ncCode=NPTEL>) » Introduction To Machine Learning (course)

 Click to register
for Certification
exam

https://examform.nptel.ac.in/2023_10/exam_form/dashboard

 If already
registered, click
to check your
payment status

Course outline

 How does an
NPTEL
online
course
work? ()

Week 0 ()

Week 1 ()

Week 2 ()

Week 3 ()

Week 4 ()

Week 5 ()

Week 6 ()

Week 9 : Assignment 9

Assignment not submitted

Due date: 2023-09-27, 23:59 IST.

 1) Which of the following best describes the Markov property in a Hidden Markov Model (HMM)? **1 point**

- ☐ The future state depends on the current state and the entire past sequence of states.
- ☐ The future state depends only on the current state and is independent of the past states, given the current state.
- ☐ The future state depends on the past states and the future states, given the current state.
- ☐ The future state depends only on the past states and is independent of the current state.

 2) Statement 1: Probability distributions are valid potential functions. **1 point**
Statement 2: Probability is always strictly positive.

- ☐ Statement 1 is true. Statement 2 is true. Statement 2 is the correct reason for statement 1.
- ☐ Statement 1 is true. Statement 2 is true. Statement 2 is not the correct reason for statement 1.
- ☐ Statement 1 is true. Statement 2 is false.
- ☐ Both statements are false.

 3) In the undirected graph given below, which nodes are conditionally independent of each other given B? Select all that apply. **1 point**


Week 7 ()**Week 8 ()****Week 9 ()**

- Undirected Graphical Models - Introduction and Factorization (unit=104&lesson=105)

- Undirected Graphical Models - Potential Functions (unit=104&lesson=106)

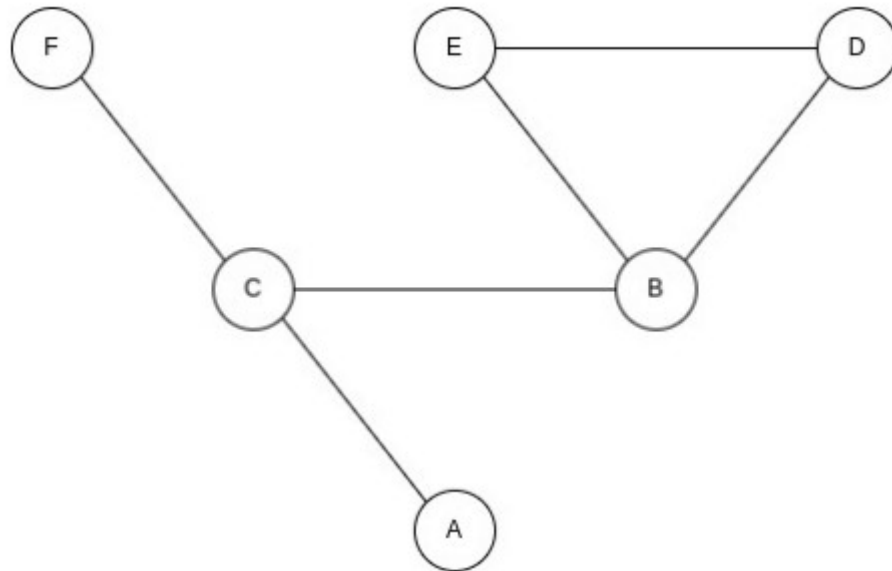
- Hidden Markov Models (unit=104&lesson=107)

- Variable Elimination (unit=104&lesson=108)

- Tree Width and Belief Propagation (unit=104&lesson=109)

- Quiz: Week 9 : Assignment 9 (assessment?name=222)

- Practice: Week 9: Assignment 9 (Non Graded) (assessment?name=184)



- ☐ C, D
- ☐ D, E
- ☐ E, C
- ☐ A, F
- ☐ None of the above

4) Given graph below:

1 point

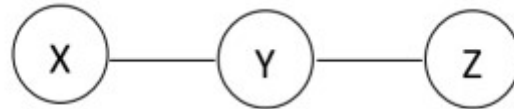
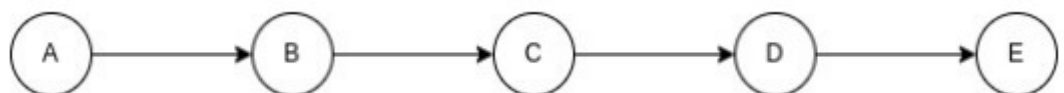


Figure 1

Factorization is:

- ☐ $p(x, y, z) = p(x)p(y|x)p(z|y)$
- ☐ $p(x, y, z) = p(y)p(x|y)p(z|y)$
- ☐ $p(x, y, z) = p(z)p(z|y)p(x|y)$
- ☐ $p(x, y, z) = p(y)p(y|x)p(y|z)$

5) For the given graphical model, what is the optimal variable elimination order when trying to calculate $P(E=e)$? 1 point



- ☐ A, B, C, D
- ☐ D, C, B, A
- ☐ A, D, B, C
- ☐ D, A, C, A



○ Week 9
Feedback
Form :
Introduction
To Machine
Learning
(unit?
unit=104&less
on=197)

**Text
Transcripts ()**

**Download
Videos ()**

Books ()

**Problem
Solving
Session -
July 2023 ()**

6) Which of the following methods are used for calculating conditional probabilities? **1 point**
(more than one may apply)

- ☐ Viterbi algorithm
- ☐ MAP inference
- ☐ Variable elimination
- ☐ Belief propagation

7) In the undirected graph given below, which nodes are conditionally independent of each other given a single other node (may be different for different pairs)? Select all that apply. **1 point**

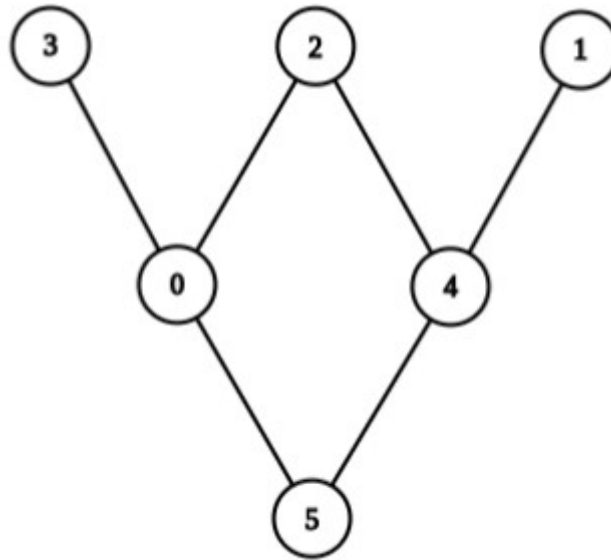


Figure 2

- ☐ 3, 2
- ☐ 0, 4
- ☐ 2, 5
- ☐ 1, 5

You may submit any number of times before the due date. The final submission will be considered for grading.

Submit Answers

