Problem 1: Reading Summary

Write a summary of the previous lecture. Accompany your report by an audio file (max: 10 minutes) in which you explain in your words important topics of the lecture, particularly:

- Bayesian estimation in BNs; global parameter independence; independence of posteriors

- Local decomposition for table CPDs

- K2 prior; BDe prior; give an example for the BDe prior

- ICU Alarm network case study

- Main goals of learning BNs

- Constraint-based approaches; issues with minimal I-map approach

- I-equivalence; PDAG

- Explain three steps of the algorithm for finding a P-map in detail. Apply each step of the algorithm to the graph shown in slide 24.

- Independence tests; consequences of misleading test results; why is multiple hypothesis testing an issue for constraint-based approaches?

* Write down all formulas in your written summary and explain in detail each step of the derivation. In your audio file, only mention the main points of the derivations.

Submit your solutions to naser.elmi@ut.ac.ir and fahimehpalizban@ut.ac.ir by Ordibehesht 2, 1398.