

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- February 2023

B.Tech. CSE/IT 8th Semester

COURSE CODE: 19B1WCI832

MAX. MARKS: 15

COURSE NAME: PROBABILISTIC GRAPHICAL MODELS

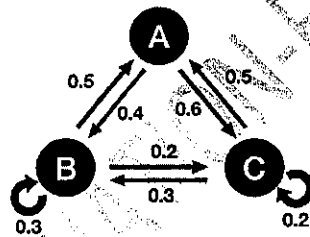
COURSE CREDITS: 03

MAX. TIME: 1 Hr

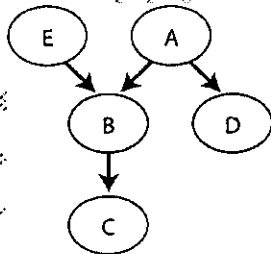
COURSE COORDINATOR: Prof. (Dr.) Vivek Kumar Sehgal

*Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.*

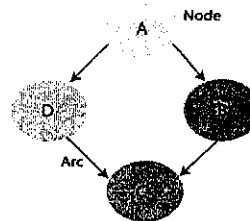
1. (a) What are probabilistic graphical models? Identify the type of following Graph whose weights are transition probabilities: CO- 1 [2.5]



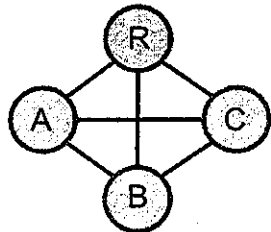
- (b) What is the difference between Bayesian network and Markov network? Identify the type of following network CO- 1 [2.5]



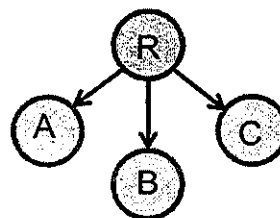
(a)



(b)



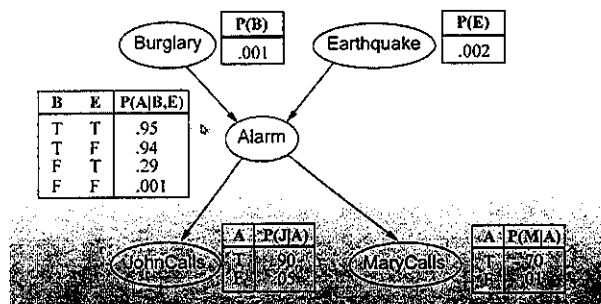
(c)



(d)

2. For following Bayesian Belief Network:

- You have a new burglar alarm installed at home.
- It is fairly reliable at detecting burglary, but also sometimes responds to minor earthquakes.
- You have two neighbors, John and Merry, who promised to call you at work when they hear the alarm.
- John always calls when he hears the alarm, but sometimes confuses the telephone ringing with the alarm and calls too.
- Merry likes loud music and sometimes misses the alarm.
- Given the evidence of who has or has not called, we would like to estimate the probability of a burglary.



- (a) What is the probability that the alarm has sounded but neither a burglary nor an earthquake has occurred, and both John and Merry call? CO-1 [2.5]
- (b) What is the probability that John call? CO-1 [2.5]
3. Find the probability distribution for: CO-2 [5]

