Number of printed pages 2

Semester IV (B.Tech)

Er. No. 20183098

Academic Year:2021-22

Jaypee University of Engineering &Technology, Guna

T-2(Even Semester 2022)

14B11CI711–Artificial Intelligence & Applications

Maximum Duration: 1 Hour 30 Minutes

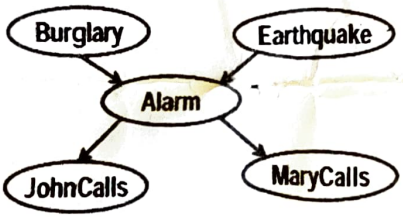
Maximum Marks: 25

Notes:

1. This question paper has four questions.
2. Use of calculator is permitted.
3. Do not write anything on question paper (Except your Er. No.).
4. Answer the questions in serial order.

Marks

Q1. A Bayesian Belief Network for the Burglary-Earthquake-Alarm belief system is shown below. Also the conditional probability tables for the Burglary-Earthquake-Alarm belief system for John and Mary giving/not giving a call on various states of alarm has been provided: **[10]** 5



B	E	P(A)
T	T	0.95
T	F	0.95
F	T	0.29
F	F	0.001

A	P(J)
T	0.90
F	0.05

A	P(M)
T	0.70
F	0.01

P(E)
0.002

P(B)
0.001

Compute the joint probability distribution of the event that the alarm has sounded but neither a burglary nor an earthquake has occurred, and both Mary and John call. For the remaining probabilities of other variables and/or their combinations (as mentioned in the table below) show and solve every step and fill the table below:

P(A)	P(J)	P(AB)	P(A'B)	P(AE)	P(AE')	P(A'E')	P(JB)	P(J/B)	Solution of the Question Above

Q2. Consider the following Knowledge Base: **[05]**

1. John likes all kinds of food.
2. Apples are food.
3. Chicken is food.
4. Anything anyone eats and isn't killed by is food.
5. Bill eats peanuts and is still alive.
6. Sue eats everything Bill eats.

i. Translate these sentences into formulas in FOPL.
ii. Convert the formulas into clause form.
iii. Use resolution to prove that John likes peanuts.

Q3. Deduce the information given below using propositional logic by showing every step: **[05]**
"If I am the President then I am well known. I am not the President. So I am not well known."

Q4. Explain Deduction, Induction, Abduction, and Analogy using examples. **[05]**