United International University



Department of Computer Science and Engineering

CSI 341 Artificial Intelligence,

Class Test 3, Spring 2020

Answer the following questions for the given Bayesian network with all Boolean random variables.

P(+a)

|  |
| --- |
| 0.6 |

A P(+c|A)

|  |  |
| --- | --- |
| T | 0.8 |
| F | 0.6 |

A P(+b|A)

|  |  |
| --- | --- |
| T | 0.75 |
| F | 0.15 |

B C P(+d|B,C)

|  |  |  |
| --- | --- | --- |
| T | T | 0.6 |
| T | F | 0.35 |
| F | T | 0.7 |
| F | F | 0.1 |

A B P(+e|A,B)

|  |  |  |
| --- | --- | --- |
| T | T | 0.4 |
| T | F | 0.7 |
| F | T | 0.25 |
| F | F | 0.15 |

1. Write down true/false against the following statements:[4]
2. P(D|A, B,C)=P(D|B,C)
3. P(B,C|A)=P(B|A)P(C|A)
4. P(C|A,B)=P(C|B)
5. P(E|A,B,D)=P(E|A,D)
6. Determine the following probability information. At each query, +x denotes X = true, and -x denotes X = false. [4+4+8=16]
7. P(+a, -b, -c, +d, -e)
8. P(-b);

iii. P(+a | -b, -d, +e)