

Unit 10 - Week 7: Reasoning under Uncertainty

Course outline

How to access the portal

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Week 1: AI and AI Problem Solving

Week 2: Problem Solving by Search - I

Week 3: Problem Solving by Search - II

Week 4: Knowledge Representation and Reasoning - I

Week 5: Knowledge Representation and Reasoning - II

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Week 6: Knowledge Representation and Reasoning - III

Week 7: Reasoning under Uncertainty

Lec 1: Reasoning under Uncertainty

Lec 2: Bayesian Network

Lec 3: Decision Network

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Assignment 7

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2019-09-18, 23:59 IST.

1) _____ provides ways and means of weighing up the desirability of goals and the likelihood of achieving them. 1 point

- A. Decision Theory
 B. Utility Theory
 C. Probability Theory
 D. Bayesian Networks

No, the answer is incorrect.
Score: 0

Accepted Answers:
B. Utility Theory

2) Probability provides a way of summarizing the _____ that comes from our laziness and ignorance. 1 point

- A. Joint probability distributions
 B. Randomness
 C. Belief
 D. Uncertainty

No, the answer is incorrect.
Score: 0

Accepted Answers:
D. Uncertainty

3) Causal chains (For example: Smoking causes cancer, which causes dyspnea) give rise to _____. 1 point

- A. Conditionally dependence
 B. Conditionally independence
 C. Both of above
 D. None of above

No, the answer is incorrect.
Score: 0

Accepted Answers:
B. Conditionally independence

4) If every undirected path from a node in X to a node in Y is d-separated by E, then X and Y are _____ given E. 1 point

- A. Dependent
 B. Conditionally dependent
 C. Conditionally independent
 D. Independent

No, the answer is incorrect.
Score: 0

Accepted Answers:
C. Conditionally independent

5) Bayesian networks allow compact specification of _____. 1 point

- A. Joint probability distributions
 B. Propositional Logic statements
 C. Belief
 D. Conditional independence

No, the answer is incorrect.
Score: 0

Accepted Answers:
A. Joint probability distributions

6) Bayes rule can be used to _____ conditioned on one piece of evidence. 1 point

- A. Solve queries
 B. Increase complexity of a query
 C. Decrease complexity of a query
 D. Answer probabilistic queries

No, the answer is incorrect.
Score: 0

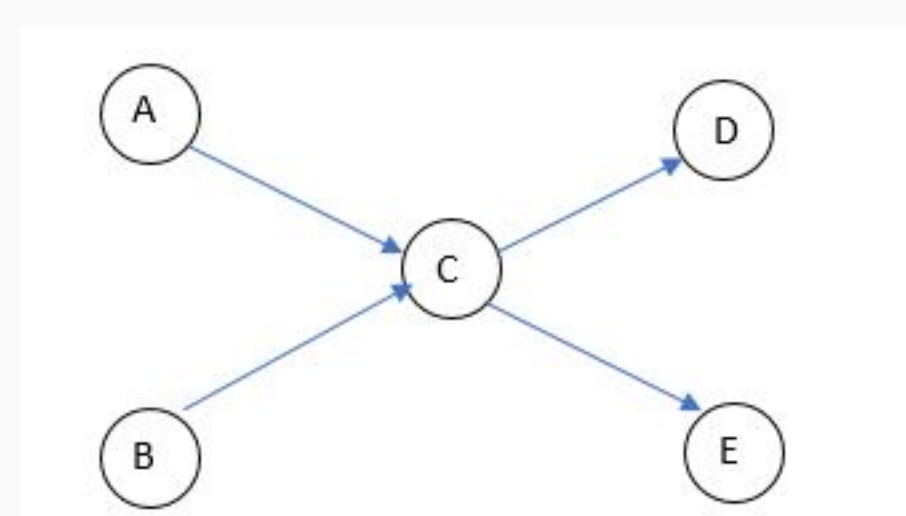
Accepted Answers:
D. Answer probabilistic queries

For Q7. – Q10. Imagine you have a party on Sunday and an exam on Monday. Too much food on Sunday could lead to lack of concentration on Monday, which would reduce the probability that you pass the exam. Another consequence of reduced concentration could be stress with your roommate as you forgot to clear the room after dinner! Lack of concentration could also be due to allergy you have after some type of food.

Consider the following random variable that can be either True or False.

A: Too much food on Sunday; B: Allergy strikes; C: Reduced concentration on Monday; D: You pass the exam; and E: Stress with your roommate.

The corresponding Bayesian Network is shown below



Given the above network, state whether the following statements are True or False

7) A and B are conditionally dependent if C or any of its descendants i.e., D or E, have received evidence. 1 point

- True
 False

No, the answer is incorrect.
Score: 0

Accepted Answers:
True

8) E is conditionally independent of A, B and D if C is not instantiated. 1 point

- True
 False

No, the answer is incorrect.
Score: 0

Accepted Answers:
False

9) D is conditionally independent of A, B and E if C is instantiated 1 point

- True
 False

No, the answer is incorrect.
Score: 0

Accepted Answers:
True

10) D and E are conditionally dependent if C is not instantiated. 1 point

- True
 False

No, the answer is incorrect.
Score: 0

Accepted Answers:
True