### Assignment 1

The due date for submitting this assignment has passed. Due on 2018-02-21, 23:59 IST.

As per our records you have not submitted this assignment.

1) CSPs are –
   - an alternative formulation for general problem solving method
   - ways of formulating problems using variables and constraints
   - problems that come in the way of satisfying constraints
   - problems that arise after constraint satisfaction
   - none of the above

   **No, the answer is incorrect.**
   **Score: 0**
   **Accepted Answers:**
   - an alternative formulation for general problem solving method
   - ways of formulating problems using variables and constraints

2) A constraint is
   - something that prevents an algorithm from solving a problem.
   - a restriction on what values the variables in the problem can take.
   - a limitation of the problem solving approach.
   - none of the above.

   **No, the answer is incorrect.**
   **Score: 0**
   **Accepted Answers:**
   - a restriction on what values the variables in the problem can take.

3) Which of the following statements are true regarding solving a CSP?

   - Values must be assigned to ALL variables such that ALL constraints are satisfied.
   - Values must be assigned to at least SOME variables such that ALL constraints are satisfied.
   - Values must be assigned to ALL variables such that at least SOME constraints are satisfied.
   - Values must be assigned to at least SOME variables such that at least SOME constraints are satisfied.

   **No, the answer is incorrect.**
   **Score: 0**
   **Accepted Answers:**
   - Values must be assigned to ALL variables such that ALL constraints are satisfied.

4) Which of the following conditions must hold for a solution to a CSP?

   - All relations in all constraints must hold.

   **Score: 0**
At least one relation in all constraints must hold.
More than one relation in all constraints must hold.
All relations in at least one constraint must hold.
It is sufficient that at least one relation in at least one constraint holds.

No, the answer is incorrect.
Score: 0

Accepted Answers:
At least one relation in all constraints must hold.

5) A Binary CSP is

- a CSP with only two variables.
- a CSP where each variable can take only two values.
- a CSP with only two constraints.
- a CSP where the size of the scope of every constraint is two.

No, the answer is incorrect.
Score: 0

Accepted Answers:
a CSP where the size of the scope of every constraint is two.

6) A CSP with only soft constraints, also called preferences,

- has only solutions with all constraints satisfied.
- may have no any solution at all.
- can have more than one solution with different associated costs.
- none of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
can have more than one solution with different associated costs.

7) Which of the following statements are true regarding soft and hard constraints?

- Every soft constraint must necessarily hold, while every hard constraint need not necessarily hold.
- Every soft constraint and hard constraint must necessarily hold.
- Every hard constraint must necessarily hold, while every soft constraint need not necessarily hold.
- It is acceptable for most hard constraints to hold, but the number of hard constraints being satisfied must be more than the number of soft constraints being satisfied.

No, the answer is incorrect.
Score: 0

Accepted Answers:
Every hard constraint must necessarily hold, while every soft constraint need not necessarily hold.

8) Consider the following constraint network R = <{x1, x2, x3}, {D1, D2, D3}, {C}> where D1 = D2 = D3 = {a, b, c} and C = <{x1, x2, x3}, {<a, a, b>, <a, b, b>, <b, a, c>, <b, b, b}>. How many solutions exist?

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 4

9) "A constraint can be viewed as a pair <S, R>, where S is the _____, and R is the relation." Fill in the blanks with a single word in lowercase.

"A constraint can be viewed as a pair <S, R>, where S is the variable, and R is the relation."
No, the answer is incorrect.
Score: 0
Accepted Answers:

(Typed: String) scope

10 The Waltz algorithm is used to solve
- N-Queens problem
- Scheduling problem
- Graph Colouring problem
- Radio Link Frequency Assignment Problem
- Crypto Arithmetic Puzzles
- Crossword Puzzles
- None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
None of the above

Based on the crypto-arithmetic puzzle given in question 11, answer the following questions up to 14

11 Given the following crypto-arithmetic puzzle.

```
E A T
+ T H A T
A P P L E
```

The value of A is
- 0
- 1
- 2
- 3

No, the answer is incorrect.
Score: 0
Accepted Answers: 3

12 The value of T must be
- 7
- 8
- 9
- more than one value is possible

No, the answer is incorrect.
Score: 0
Accepted Answers: 9

13 The value of P must be
- 0
- 1
- 2
- more than one value is possible

No, the answer is incorrect.
Score: 0
Accepted Answers: 2
14. The value of E must be

- 7
- 8
- 9
- more than one value is possible

No, the answer is incorrect.
Score: 0
Accepted Answers: 8