CS302 : PRINCIPLES OF PROGRAMMING LANGUAGES (TUTORIAL - QUIZ)

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* Required

TUTORIAL QUIZ

*

Which one of below is true?
(A) g(a) = X
(B) g(X) = g(b)
(C) g(a, b, c(a,b)) = g(a, A, c(a, A))
(D) None of above
(E) All of above

- ○ A
- ○ B
- ○ C
- ○ D
- ◉ E

*

Consider the following Prolog program:
abc([H | T], Z) :- pqr(T, H, Z).
pqr([ ], Z, Z).
pqr([H | T], _, Z) :- pqr(T, H, Z).
Mark all the true statements.

1. "abc([1,2,3], Z)" returns the last element in the list.
2. "abc" returns the indices of all the elements equal to Z from a list.
3. "abc" removes all the elements equal to Z from the input list.
4. Every invocation of "bar" receives a smaller list than what its caller received.

(A) 1 (B) 2,3 (C) 1,3 (D) 2,4 (E)1,4

- ○ A
- ○ B
- ○ C
- ○ D
- ◉ E

*

Which of the following is true about the ***cut*** operator in Prolog?
(1) It is an operator used to avoid useless backtracking and search.
(2) When tested it commits to the clause in which it is present.
(3) It terminates the search when tested.
(4) It returns false for the goal in whose body it occurs.
(5) It is a mechanism for the user to exercise control over flow.

(A) 1,2,5 (B) 1,3,5 (C) 3,4,5 (D) 4 (E) 3,4

- ◉ A
- ○ B
- ○ C
- ○ D
- ○ E

*

What formal system provides the semantic foundation for Prolog?

(A) Predicate calculus
(B) Lambda calculus
(C) Hoare logic
(D) Propositional logic

- ○ A
- ○ B
- ○ C
- ◉ D

*

What does the query woFriend(john) return for the following Prolog program?

```
woFriend(X) :- not(friend(X,Y)).
friend(dev,bob).
friend(bob,johny).
friend(dev,johny).
```

(A) true (B) false (C) Infinite loop (D) can't say (E) None of above

- ◉ A
- ○ B
- ○ C
- ○ D
- ○ E

*

The Prolog query: [P,Q | L] = [a,b,c]
(A) Succeeds once with P=a, Q=b, L=c
(B) Succeeds once with P=a, Q=b, L=[c]
(C) Succeeds once with P=[a], Q=[b], L=[c]
(D) Succeeds many times: First with P=[ ], Q=[ ], L=[a,b,c]; next, on backtracking with P=[ ], Q=[a], L=[b,c]; and so on through the various divisions of the list [a,b,c]
(E) Fails

- ○ A
- ○ B
- ○ C
- ◉ D
- ○ E

*

For below prolog program what will be the solution of query: at(Y)
ur(coby).
ur(toby).
orn(toby).
at(Y) :- not(orn(Y)), ur(Y).
(A) coby
(B) toby
(C) false
(D) true
(E) None of above

- ◉ A
- ○ B
- ○ C
- ○ D
- ○ E

*

For below prolog program what will be the solution of query: rog([1,2],R)
rog([],[]).
rog([X|T], [X,X,X|T1]):- rog(T, T1).

(A)R= [1,1,1] (B) R=[2,2,2] (C) R=[1,2,1,2,1,2] (D) R = [1, 1, 1, 2, 2, 2] (E) None of above

- ○ A
- ○ B
- ○ C
- ◉ D
- ○ E

*

Which of the following is true about the ***cut*** operator in Prolog?
(1) It is an operator used to avoid useless backtracking and search.
(2) When tested it commits to the clause in which it is present.
(3) It terminates the search when tested.
(4) It returns false for the goal in whose body it occurs.
(5) It is a mechanism for the user to exercise control over flow.
(A) 1,2,5 (B) 1,3,5 (C) 3,4,5 (D) 4 (E) 3,4

- ◉ A
- ○ B
- ○ C
- ○ D
- ○ E

*

Suppose that the following facts and rules have been entered into Prolog:
f(a, [a,a,a]).
f(a, [a,b]).
f(b, [b,a]).
f(b, [a,b]).
f(c, [a,c]).
q(X,M) :- f(X, [X,Y|L]), !, f(Y, M).
q(X,M) :- f(X, [M,X]).
List all the answers that Prolog will for the query: q(c,Z).
(A) Succeeds with Z = b then fails (B) Fails with Z = b (C) Succeeds with Z = a then fails (D) Fails with Z = a (E) Succeeds with Z = c then fails

- ○ A
- ○ B
- ◉ C
- ○ D
- ○ E

*

The Prolog query: [P,Q | L] = [a,b,c]
(A) Succeeds once with P=a, Q=b, L=c
(B) Succeeds once with P=a, Q=b, L=[c]
(C) Succeeds once with P=[a], Q=[b], L=[c]
(D) Succeeds many times: First with P=[], Q=[], L=[a,b,c]; next, on backtracking with P=[], Q=[a], L=[b,c]; and so on through the various divisions of the list [a,b,c]
(E) Fails

- ○ A
- ○ B
- ○ C
- ◉ D
- ○ E

*

Which search method takes less memory?

(A) Depth-First Search
(B) Breadth-First search
(C) Both (A) and (B)
(D) Linear Search
(E) Optimal search

- (●) A
- ( ) B
- ( ) C
- ( ) D
- ( ) E

*

```
secret([],L2,L2).
secret(L1,[],L1) :- L1 = [_|_].
secret([H1|T1],[H2|T2],[H1|T3]) :- secret(T1,[H2|T2],T3).
secret([H1|T1],[H2|T2],[H2|T3]) :- secret([H1|T1],T2,T3).
```

The query secret([1,2],[3,4],R) produces ___solutions.
(A) 2 (B) 5 (C) 6 (D) 4 (E) 0

- ( ) A
- ( ) B
- ( ) C
- (●) D
- ( ) E

*

Consider the following program:
prefers(aby,X) :- ladoo(X), ! , fail.
prefers(aby,X) :- sweet(X).
sweet(X) :- gulabjamun(X).
sweet(X) :- ladoo(X).
sweet(X) :- peda(X).
gulabjamun(g).
ladoo(l).
peda(p).
What will the queries prefers(aby, p) and prefers(aby, l) return?
(A) prefers(aby, p) returns false, prefers(aby, l) returns false
(B) prefers(aby, p) returns true, prefers(aby, l) returns false
(C) prefers(aby, p) returns true, prefers(aby, l) returns true
(D) prefers(aby, p) returns false, prefers(aby, l) returns true
(E) None of above

- ○ A
- ◉ B
- ○ C
- ○ D
- ○ E

*

For following program what will be the solution of query: lucky(X)
man(jan).
woman(tina).
healthy(tina).
healthy(jan).
wealthy(jan).
lucky(X): - healthy(X), wealthy(X).
(A) X = tina , jan
(B) X = tina
(C) false
(D) X = jan
(E) None of above

- ○ A
- ○ B
- ○ C
- ◉ D
- ○ E

*

The lack of explicit memory allocation and deallocation functions in Prolog is evidence that it performs automatic memory management, e.g. using garbage collection.

(A) true
(B) false
(C) can't say

- ◉ A
- ○ B
- ○ C

*

A heuristic is a way of trying
(A) To discover something or an idea embedded in a program
(B) To search and measure how far a node in a search tree seems to be from a goal
(C) To compare two nodes in a search tree to see if one is better than the other
(D) Only (a), (b) and (c)
(E) Only (a) and (b)

- ○ A
- ◉ B
- ○ C
- ○ D
- ○ E

*

Prolog associates variables & values using a process known as _____and variable that receive a value are said to be_____.
(A) Resolution and Resolvent
(B) Resolution and Unified
(C) Unification and Instantiated
(D) None of above

- ○ A
- ○ B
- ◉ C
- ○ D

*

"Unification is transitive (i.e., assuming that t1, t2 and t3 are arbitrary Prolog terms, if t1 unifies with t2 and t2 unifies with t3 then t1 must unify with t3. "
(A) true
(B) false
(C) can't say
(D) None of above

- ○ A
- ◉ B
- ○ C
- ○ D

*

For the PROLOG goal: a(f(X),g(b,Y))=a(f(g(c)), g(X,a)).
Which binding applies?
(A) X=g(c) Y=a
(B) X=b Y=a (C) either answer A or answer B (D)none, because the goal fail

- ○ A
- ○ B
- ○ C
- ◉ D

*

For below prolog program what will be the solution of query(assume *member* predicate and *is_list* predicate (to check the argument as a list) are available):

```
test1([1, [[2, [5]] 3]])
test1([]).
test1([H|T]):- not(is_list(H)),
 member(H,[1,2,3,4]),
 test1(T).
test1([H|T]):- is_list(H), test1(H), test1(T).
```

(A) Yes (B) No (C) none of above

- ○ A
- ◉ B
- ○ C

*

What are the two subfields of natural language processing?
(A) symbolic and numeric
(B) algorithmic and heuristic
(C) time and motion
(D) understanding and generation

- ○ A
- ○ B
- ○ C
- ◉ D

*

What Is a Meta-program?
(A) Meta-program is a program metadata information.
(B) Meta-program is a program that uses other program as its data.
(C) Meta-program is program information.
(D) None of above

- ○ A
- ◉ B
- ○ C
- ○ D

Untitled Question *

p(b, c, d(a)). and p(X, Y, Z). - Do these terms unify?
(A) true (B) false (C) none above

- ◉ A
- ○ B
- ○ C

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