Unit 14 - Week 12

Course outline

How to access the portal

Pre-requisite Assignment

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Week 12

- Non-linear planning
- Plan Space Planning
- GraphPlan
- Quiz : Assignment 12
- Week 12 Feedback : Artificial Intelligence Search Methods for problem Solving

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Assignment 12

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

Due on 2019-10-23, 23:59 IST.

1) The space explored in Plan Space Planning (PSP) *1 point*

- contains both states and actions
- contains only actions
- contains only states
- contains plans

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

2) A search node in Plan Space Planning (PSP) consists of *1 point*

- a list of states explored
- the current state
- the goal state
- a partial plan

No, the answer is incorrect.
Score: 0
Accepted Answers:
a partial plan

3) A partial plan is represented by (choose all correct options) *1 point*

- a set of partially instantiated operators
- a set of ordering links between actions
- the start state, the goal state, and some intermediate states
- a set of causal links between actions
- A set of binding constraints

No, the answer is incorrect.
Score: 0
Accepted Answers:
a set of partially instantiated operators
a set of ordering links between actions
a set of causal links between actions
A set of binding constraints

4) The start node in the plan space search represents *1 point*

- is always the empty set
- always contains exactly two actions
- contains all actions relevant to the goal state
- contains all actions applicable in the start state

No, the answer is incorrect.
Score: 0
Accepted Answers:
always contains exactly two actions

5) The action A_0 in a partial plan *1 point*

- is always exactly the same in all planning problems
- is always a dummy action with no preconditions and no effects
- is a dummy action whose preconditions are the start state propositions
- is a dummy action whose effects are the start state propositions

No, the answer is incorrect.
Score: 0
Accepted Answers:
is a dummy action whose effects are the start state propositions

6) The action A_{∞} in a partial plan *1 point*

- is always exactly the same in all planning problems
- is always a dummy action with no preconditions and no effects
- is a dummy action whose preconditions are the goal state propositions
- is a dummy action whose effects are the goal state propositions

No, the answer is incorrect.
Score: 0
Accepted Answers:
is a dummy action whose preconditions are the goal state propositions

7) Which of the following are true of Plan Space Planning (PSP)? *1 point*

- In every cycle in the loop of the planning algorithm a new action is always added to the plan being constructed
- In some cycle in the loop of the planning algorithm no new action may be added
- It is possible that one does not know in what order two actions in a given partial plan will be executed
- None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
In some cycle in the loop of the planning algorithm no new action may be added
It is possible that one does not know in what order two actions in a given partial plan will be executed

8) Identify the features that make Forward State Space Planning (FSSP) and Plan Space Planning (PSP) different from each other *1 point*

- In FSSP when one adds an action one knows exactly when the action will be executed
- In PSP when one adds an action one knows exactly when the action will be executed
- The initial plan in FSSP contains zero actions but the initial plan in PSP has some actions
- The initial plan in PSP contains zero actions but the initial plan in FSSP has some actions

No, the answer is incorrect.
Score: 0
Accepted Answers:
In FSSP when one adds an action one knows exactly when the action will be executed
The initial plan in FSSP contains zero actions but the initial plan in PSP has some actions

9) Which of the following are possible for a problem whose solution has more than one action? *1 point*

- The *first* action selected by Plan Space Planning can be the *first* action that is executed
- The *first* action selected by Forward Space Space Planning can be the *first* action that is executed
- The *first* action selected by Backward State Space Planning can be the *first* action that is executed
- None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
The first action selected by Plan Space Planning can be the first action that is executed
The first action selected by Forward Space Space Planning can be the first action that is executed

10) Which of the following are possible for a problem whose solution has more than one action? *1 point*

- The *first* action selected by Plan Space Planning can be the *last* action that is executed
- The *first* action selected by Forward Space Space Planning can be the *last* action that is executed
- The *first* action selected by Backward State Space Planning can be the *last* action that is executed
- None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
The first action selected by Plan Space Planning can be the last action that is executed
The first action selected by Backward State Space Planning can be the last action that is executed

11) Fill in the blanks. In Plan Space Planning the producer-consumer relationship is represented by _____ *1 point*

- an ordering constraint
- a causal link
- a binding constraint
- a threat

No, the answer is incorrect.
Score: 0
Accepted Answers:
a causal link

12) Choose all the necessary conditions for an action a_1 to become a threat to a causal link (a_2, P, a_3)? *1 point*

- a_1 produces ¬ Q such that P can be unified with Q
- a_1 produces Q such that P can be unified with ¬Q.
- It is possible for a_1 to be scheduled after a_2
- It is possible for a_1 to be scheduled before a2
- It is possible for a_1 to be scheduled after a_3
- It is possible for a_1 to be scheduled before a_3

No, the answer is incorrect.
Score: 0
Accepted Answers:
a_1 produces ¬ Q such that P can be unified with Q
It is possible for a_1 to be scheduled after a_2
It is possible for a_1 to be scheduled before a_3

13) Which of the following statement(s) is/are true about the Planning Graph (PG)? *1 point*

- The size of the PG increases monotonically (is non decreasing) with each new layer
- While growing the PG, the algorithm does not consider the goal and applies all applicable actions at each layer
- While growing the PG, the algorithm always considers the goal to decide the actions at each layer
- The algorithm grows the PG until it levels off only when it does not find a plan

No, the answer is incorrect.
Score: 0
Accepted Answers:
The size of the PG increases monotonically (is non decreasing) with each new layer
While growing the PG, the algorithm does not consider the goal and applies all applicable actions at each layer
The algorithm grows the PG until it levels off only when it does not find a plan

14) Which of the following are true about the Planning Graph? *1 point*

- All the propositions in a layer in the planning graph constitute a state
- The propositions in a layer combine with each other to form a state
- All the propositions in a layer in the planning graph can be true simultaneously
- All the actions in a layer in the planning graph can be executed simultaneously

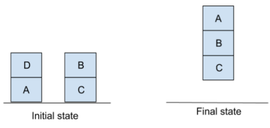
No, the answer is incorrect.
Score: 0
Accepted Answers:
The propositions in a layer combine with each other to form a state

15) A mutex relation in a planning graph *1 point*

- can occur across layers signifying mutual exclusion
- a relation between the preconditions of an action
- a relation between a proposition and an action
- can occur across an individual proposition layer signifying mutual exclusion
- can occur across an individual action layer signifying mutual exclusion
- signifies a no-op action

No, the answer is incorrect.
Score: 0
Accepted Answers:
can occur across an individual proposition layer signifying mutual exclusion
can occur across an individual action layer signifying mutual exclusion

Consider the planning problem as given in the last assignment.



16) How many actions are there in a shortest plan for the problem depicted in the above figure?
Your answer should be an integer

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: String) 4

1 point

17) When algorithm Graphplan is applied to the problem in the above figure, how many actions, not counting no-ops, are added to the first layer?

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: String) 2

1 point

18) When algorithm Graphplan is applied to the problem in the above figure, how many new predicates are added to the first layer? Note that the first predicate layer is added after the first action layer

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: String) 4

1 point