**Quiz #5. Automated planning**

What is a frame problem? How is it solved?

What is the major difference between the hybrid Wumpus agent and propositional agent (SATPlan)? Hint, how is propositional inference used in these planners?

Why do we need to set some propositional variables to false in the description of the initial state for SATPlan?

How does SATPlan find the length of the plan? Does it always guarantee to find the shortest plan?

What is the role of action exclusion axioms?

Describe formally when two actions interfere using the classical planning model.

How is time modeled in situation calculus?

If we use situation calculus to find a plan, how is the plan obtained from answer to the query?

How is information that some proposition does not hold in a state expressed in classical planning model?

How is frame problem solved in classical planning?

Is it possible to reformulate the planning operators such that they do not use negative preconditions (negated literals among preconditions)? Hint, how do you model that hand does not hold any block in the blockworld problem?

How do you recognize fluents and rigid predicates from the description operators?

Can action, that is not relevant for the goal, be used as the last action in the solution plan? If yes, what can we say about such a solution plan? Hint: think about the length of the plan.

What is the relation between goal (goal condition) and goal state?

Encode the domain model for the blockworld problem using three operators only (assume that hand is empty at the beginning and at the goal).

Compare advantages and disadvantages of progression and regression planning.

If we use depth-first search for regression planning, how can we formulate the condition that the algorithm starts cycling?

How are initial state and goal represented in plan-space planning?

What is an open goal (in plan-space planning) and how can it be closed? Hint: look at regression planning.

What is the major difference between classical planning and problem solving? Hint: look at the size of state space.