**The artificial intelligence**

1. What is the artificial intelligence? (5 points)

* systems that are able to complete a variety of tasks
* systems that are able to perform tasks requiring human intelligence
* systems that are able to perform tasks after getting information about the world
* systems that are able to perform in different conditions

1. What are main parts of the artificial intelligence? (5 points)

* Machine learning
* Computer vision
* Applications development
* Natural language processing

1. What is a specific feature of a rational agent? (5 points)

* A sequence of actions that can be executed
* A sequence of actions that leads to the final goal
* A sequence of actions that minimizes the time required to complete the task
* A sequence of actions that maximizes the performance measure

1. What is not a feature of a rational agent? (5 points)

* Sensors
* Actuators
* Restoration
* Performance measure

1. What a search strategy are we going to use if the search space is represented by search trees, and a wanted object is located in upper levels? (5 points)

* Heuristic search
* Backtracking search
* Breadth-first search
* Depth-first search

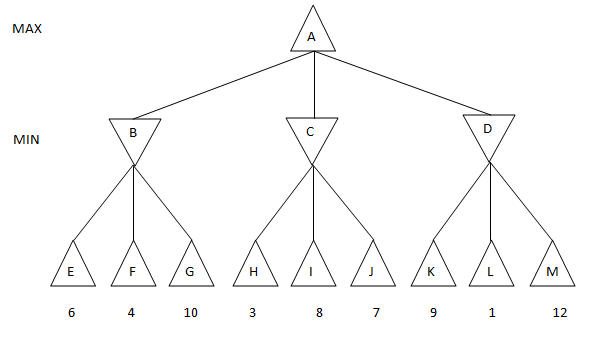
1. What a search strategy are we going to use if the search space is represented by search trees, and a wanted object is located in lower levels? (5 points)

* Backgammon
* Heuristic search
* Depth-first search
* Uniform cost search

1. What a search strategy are we going to use if the search space is represented by a graph of roads with the distance between nodes? (5 points)

* Uniform cost search
* Breadth-first search
* Backtracking search
* Depth-first search

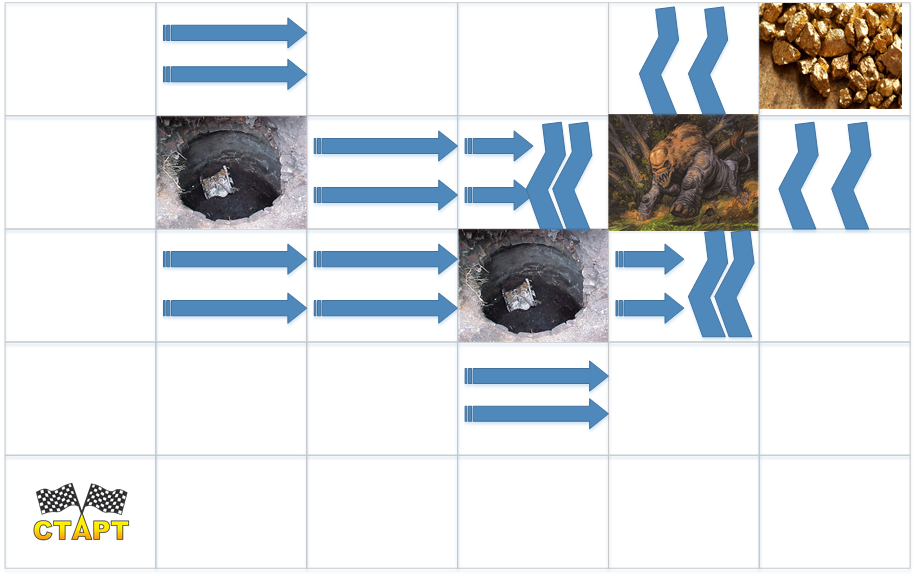
1. What will be a value of the root node if we have the following minimax problem (5 points)



* 7
* 1
* 4
* 6

**The practical part**

1. Build a rational agent that will have a definite goal, and describe ways how its performance could be optimized. You need to include all parameters: performance, environment, actuators, sensors. (25 points)
2. In this task you need to build the behavior of the agent in his search of gold taking in account a condition that he does not have any information about Wumpus cave’s internal structure. (25 points)



1. Use the breadth-first and the depth-first search to find a node (10) in this tree (10 points)

