

Survey and Test

Approaching Space Exploration through Swarm Robotics

Name: _____

Post Test

1. When we use the acronym STEM, in an education environment, it is a term that refers to:
 - a. Six Through Eight Mathematics
 - b. Space, Time, Energy, Mass
 - c. Strategic Traffic Enforcement Measures
 - d. Science, Technology, Engineering and Mathematics
 - e. Scanning Tunneling Electron Microscopy
2. What is Nasa Swarmathon?
 - a. It is a challenge to send a bird swarm to Mars
 - b. It is a marathon using robots
 - c. It is a challenge to develop cooperative robotics to revolutionize space exploration
 - d. It is the name of the rocket that will be sent to Mars next year
3. What is the goal of Nasa Swarmathon?
 - a. Investigate whether conditions have been favorable for microbial life and for preserving clues in the rocks about possible past life.
 - b. Transport humans to interplanetary destinations beyond low Earth orbit, such as asteroids, the moon and eventually Mars—and return them safely back to Earth.
 - c. Develop integrated robotic platforms that improve resource retrieval rates compared to the same number of robots operating without cooperation, and orders of magnitude faster than solitary robots.
 - d. Design and build a mining robot that can traverse the simulated Martian chaotic terrain.
4. Which of the following swarms has inspired shortest path search techniques?
 - a. Ants
 - b. Wolves
 - c. Jelly Fishes
 - d. Birds
5. The gazebo simulator is useful for:
 - a. Testing the performance of robots and different scenarios
 - b. Avoiding sun at the pool at the Caribbean
 - c. Testing and validating explosions of the rockets that are designed to explore Mars
 - d. Solving linear equations in Mars
6. What is Swarm Robotics focus?
 - a. Group of Robots working together
 - b. Group of Robots that don't work together
 - c. One robot that does everything
 - d. One robot working individually
7. What is an algorithm?
 - a. Things with rhythms
 - b. A programming language
 - c. A set of steps for solving a problem
 - d. Steps that complicate a problem

8. We can define Boolean expression as:
 - a. Decision making instruction
 - b. Arithmetic instruction for sum
 - c. A logical statement that is either TRUE or FALSE
 - d. Another way to multiply
9. Which computer science basic concept did we use throughout the Net logo program?
 - a. Conditions (if/else)
 - b. Boolean Expression
 - c. Squares
 - d. DNA expressions
10. What is a heuristic?
 - a. A process to emphasizing the importance of the whole and the interdependence of its parts
 - b. The name of a series of minerals of the zeolite group
 - c. A major unsolved problem in computer science
 - d. A general problem-solving strategy that may or may not yield a successful outcome
11. Teamwork is a very important strategy to solve complex problems.
 - a. Yes
 - b. No
12. Do you think you could solve complex problems to provide solutions for the journey to Mars project?
 - a. Yes
 - b. No
13. It is important to use "comments" inside of our code program.
 - a. Yes
 - b. No
14. What do the yellow patches represent on the simulation?
 - a. The rocks that we are gathering
 - b. The robots that are searching for rocks
 - c. Random positions on the planet
 - d. The rocks that are off the planet
 - e. The path that the robots will follow
15. In the program, which of the following values is NOT represented by sliding bars?
 - a. The number of single rocks.
 - b. The robot's speed.
 - c. The number of clusters of rocks.
 - d. The radius a robot uses to recruit other robots.
 - e. The number of robots.