**Survey and Test**

**Approaching Space Exploration through Swarm Robotics**

The purpose of this survey is:

- Obtain basic demographic information about the participants
- Obtain opinions about vocational topics
- Measure the knowledge provided by the workshop

Thanks for your help!

***Demographic Data***

Name: _____

Grade: ☐ 10th ☐11th ☐ 12th

Gender: ☐ Female
☐ Male
☐ I prefer not to answer

Date of Birth (please use day/month/year): _____ / _____ / _____

Town of Residence: _____

Are you considering to apply to the University: ☐ Yes ☐ No

What programs are you considering to apply: 1. _____

2. _____

3. _____

## *Pre 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.