Introduction to Robotics Puzzle

Name _____ Period _____

Across
2. robotic arms. MobileRobots unmanned vehicles capable of locomotion.
5. is the reverse of Forward Kinematics.
7. Joints constraint free movement, measured in these
12. derive information from environment's reaction to robot's actions, e.g. bumpers and sonar.
16. direct a robot how to move.
17. execute robot movement and judge progress with sensors. They can thus compensate for errors.
18. low-level control, tight sensor-action loop, decisions cycles (DCs) order of milliseconds.
20. run by movement program
21. reactive to environment
23. these create a visual representation of the world.
24. mobile robots with manipulators.
28. is the estimation of distance and direction from a previously visited location using the number of revolutions made by the wheels of a vehicle.
30. generates global solutions to complex tasks, path planning, model-based planning, analyze sensor data represented by executive layer, DCs order of minutes.
31. mechanical action sequence

Down
1. these sensors are used to determine distances from other objects, e.g. bumpers, sonar, lasers, whiskers, and GPS.
2. controlled by operator
3. are the "muscles" of the robot.
4. Each wheel is controlled by a distinct motor.
6. Component to accomplish some desired physical function
8. imitates human actions
9. is the study of motion without regard for the forces that cause it.
10. as 2 but modifiable
11. Allow for perception.
13. of Freedom
14. an example of an effector
15. observers only, e.g. cameras and microphones .
19. Typically defined as a graph of links and joints:
22. execute robot movement without feedback.
24. are software architectures combining deliberative and reactive controllers.
25. is sensor-driven and behavior must emerge from interaction.
26. are model-driven and involve planning before acting.
27. these provide information on the robot's internal state, e.g. the position of its joints.
29. directives from deliberative layer sequenced for reactive layer, representing sensor information, localization, mapping, DCs order of seconds.