ME38 WMR

Wheeled Mobile Robots

Assignment 8

1. In _____, the surgeon specifies the desired motions directly through a separate human interface device and the robot moves immediately.
   - ◯ autonomous control
   - ◯ tele-operation or tele-operator control
   - ◯ semi-autonomous control
   - ◯ manual control
   - ◯ preprogrammed control
   - ◯ intelligent control

   Correct answer is **tele-operation or tele-operator control**

2. Kinematic control is not sufficient for the legged robots and need _____ scheme.
   - ◯ a model-free control
   - ◯ a robust hybrid force-motion control
   - ◯ a model based motion control
   - ◯ a feed-forward motion control
   - ◯ a resolved motion control
   - ◯ a force control

   Correct answer is **a robust hybrid force-motion control**

3. The robots in which the wheels mounted at the end of the legs is called as _____ . These wheels can be active or passive to provide more options for terrain-specific mobility.
   - ◯ legged robots
   - ◯ articulated-wheeled robots
   - ◯ wheeled mobile robots
   - ◯ articulated legs
   - ◯ manipulators
   - ◯ powered exoskeletons

   Correct answer is **articulated-wheeled robots**

4. For the static equilibrium, the reaction forces at _____ should be reduced to only one vertical reaction just as same as the weight of the robot.
   - ◯ the of the leg
   - ◯ the centre of mass
   - ◯ the centre of pressure
   - ◯ the hip point
   - ◯ the ankle point
   - ◯ the knee point

   Correct answer is **the centre of pressure**

5. During walking, the contact between the ground and the robot is via the feet. But the ground reaction force _____
   - ◯ can pull the foot not hold it.
   - ◯ can pull the foot and hold it.
   - ◯ can push the foot not hold it.

- ◯ can push the foot and hold it.
- ◯ neither push or pull the foot.
- ◯ simply hold the foot.

Correct answer is **can push the foot not hold it.**

6. _____ is capable of navigating an uncontrolled environment without the need for physical or electro-mechanical guidance devices.
   - ◯ A guided vehicle
   - ◯ A remote-controlled robot
   - ◯ A manual cart system
   - ◯ A wheeled mobile robot
   - ◯ A humanoid robot
   - ◯ Autonomous mobile robot

   Correct answer is **Autonomous mobile robot**

7. AGV full form is _____
   - ◯ Autonomous Green Vehicle
   - ◯ Automated General Vehicle
   - ◯ Autonomous Graded Vehicle
   - ◯ A Green-energy Vehicle
   - ◯ Autonomous Genesis Vehicle
   - ◯ Automated Guided Vehicle

   Correct answer is **Automated Guided Vehicle**

8. A _____ is a robot that is intended to operate with dexterity in a workspace larger than that of a fixed-base manipulator.
   - ◯ mobile robot
   - ◯ wheeled mobile robot
   - ◯ legged robot
   - ◯ aerial robot
   - ◯ vehicle-manipulator system
   - ◯ underwater robot

   Correct answer is **vehicle-manipulator system**

9. _____ allow robots to have periods of operational independence, subsequent to coordinating their selection of tasks or roles.
   - ◯ Strongly cooperative solutions
   - ◯ Simple swarm solutions
   - ◯ Weakly cooperative solutions
   - ◯ Networked independent solutions
   - ◯ Centralized control solutions
   - ◯ No cooperative solutions

   Correct answer is **Weakly cooperative solutions**

10. Fixed wing aerial vehicles require runway, they may stall and need aerodynamic designs.
    - ◯ True
    - ◯ False

    Correct answer is **True**

11. In the _____ approach, each robot oversees the actions of a relatively small group of other robots, each of which in turn oversees yet another group of robots, and so forth, down to the lowest robot, which simply executes its part of the task.

- ◯ decentralized architecture
- ◯ centralized architecture
- ◯ hierarchical architecture
- ◯ hybrid architecture
- ◯ network architecture
- ◯ open architecture

Correct answer is **hierarchical architecture**

12. Rehabilitation robotics has been defined a special branch of robotics which focuses on machines that can be used to help people recover from severe physical trauma or assist them in activities of daily living.

    - ◯ True
    - ◯ False

    Correct answer is **True**