

Unit 10 - Week 8:

Course outline

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Lecture 41 : Intelligent Robot

Lecture 42 : Biped Walking

Lecture 43 : Biped Walking(Contd.)

Lecture 44 : Summary

Lecture 45 : Summary (Contd.)

Lecture Materials

Quiz : Assignment 8

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Assignment 8

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment.

Due on 2019-09-25, 23:59 IST.

1) Navigation and Manipulation problems are related to

1 point

- a. Manipulator and Mobile robot, respectively
- b. Mobile robot and Manipulator, respectively
- c. Manipulator only
- d. Mobile robot only

No, the answer is incorrect.
Score: 0

Accepted Answers:
b. Mobile robot and Manipulator, respectively

2) An intelligent robot should have

1 point

- a. adaptive controller only
- b. adaptive motion planner only
- c. adaptive motion planner but not adaptive controller
- d. both adaptive motion planner as well as adaptive controller

No, the answer is incorrect.
Score: 0

Accepted Answers:
d. both adaptive motion planner as well as adaptive controller

3) Global and local approaches of robot motion planning are applicable to

1 point

- a. structured and un-structured environments, respectively
- b. un-structured and structured environments, respectively
- c. structured environment only
- d. un-structured environment only

No, the answer is incorrect.
Score: 0

Accepted Answers:
a. structured and un-structured environments, respectively

4) Motion planning aims to

1 point

- a. provide teaching to a robot
- b. control a robot
- c. determine collision-free path for the robot
- d. ensure smooth variation of joint angles of a robot

No, the answer is incorrect.
Score: 0

Accepted Answers:
c. determine collision-free path for the robot

5) Which one of the following statements is FALSE regarding Potential Field Approach?

1 point

- a. It is suitable for determining collision-free path for a robot navigating among some moving obstacles.
- b. Its performance is independent of the chosen potential function.
- c. There is a chance of this approach to get trapped into the local minimum problem particularly for a concave obstacle.
- d. The robot may suffer from some oscillatory motions by using this approach.

No, the answer is incorrect.
Score: 0

Accepted Answers:
b. Its performance is independent of the chosen potential function.

6) During single support phase of a biped robot, its Zero Moment Point (ZMP) is

1 point

- a. nothing but its centre of pressure point
- b. nothing but its mass centre
- c. nothing but a point about which the sum of all moments becomes equal to zero
- d. a point that has no role to play in carrying out dynamic balance analysis of a biped robot

No, the answer is incorrect.
Score: 0

Accepted Answers:
c. nothing but a point about which the sum of all moments becomes equal to zero

7) Which one of the following statements is FALSE?

1 point

- a. During walking, a biped robot is to be kinematically stable.
- b. During walking, a biped robot is to be dynamically stable.
- c. Maintaining balance of a biped robot is more difficult compared to a hexapod robot.
- d. Insects have been rightly designed to have either six or eight legs but not only two legs.

No, the answer is incorrect.
Score: 0

Accepted Answers:
a. During walking, a biped robot is to be kinematically stable.

8) Which one of the following motion planning approaches cannot find collision-free path for a robot moving among dynamic obstacles?

1 point

- a. Incremental planning
- b. Potential Field approach
- c. Reactive control strategy
- d. Visibility Graph

No, the answer is incorrect.
Score: 0

Accepted Answers:
d. Visibility Graph

9) Which one of the following graphs-based methods is used for solving motion planning problem among moving obstacles?

1 point

- a. Voronoi Diagram
- b. Visibility Graph
- c. Tangent Graph
- d. Accessibility Graph

No, the answer is incorrect.
Score: 0

Accepted Answers:
d. Accessibility Graph

10)A Potential Field approach can be used to solve

1 point

- a. Find-path problems only in robotics
- b. Dynamic motion planning problems only in robotics
- c. Both find-path and dynamic motion planning problems in robotics
- d. Neither find-path nor dynamic motion planning problem in robotics

No, the answer is incorrect.
Score: 0

Accepted Answers:
c. Both find-path and dynamic motion planning problems in robotics