Assignment 3

The due date for submitting this assignment has passed.

Due on 2021-02-10, 23:59 IST.

As per our records you have not submitted this assignment.

1) The DH parameters consist of how many parameters (transformations)? *1 point*

- 6
- 5
- 4
- 3

No, the answer is incorrect.
Score: 0
Accepted Answers:
4

2) While assigning axes as per DH notation the z-axis is *1 point*

- the axis of rotation or translation
- the axis parallel to the z-axis of base frame or ground frame
- the axis perpendicular to the first revolute joint
- the axis along the link

No, the answer is incorrect.
Score: 0
Accepted Answers:
the axis of rotation or translation

3) The four DH parameters are *1 point*

- link inertia, work volume, link length and joint offset
- link length, link inertia, work volume and joint angle
- link length, twist, offset and joint angle
- twist, link length, link inertia and offset

No, the answer is incorrect.
Score: 0
Accepted Answers:
link length, twist, offset and joint angle

4) The PUMA robot has how many DOFs? *1 point*

- 4
- 7
- 5
- 6

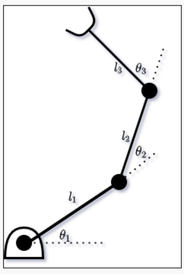
No, the answer is incorrect.
Score: 0
Accepted Answers:
6

5) The last three axes of PUMA robot *1 point*

- intersect at a point
- are at equal distance from first three coordinate axes
- have non-zero link lengths
- have parallel z-axes

No, the answer is incorrect.
Score: 0
Accepted Answers:
intersect at a point

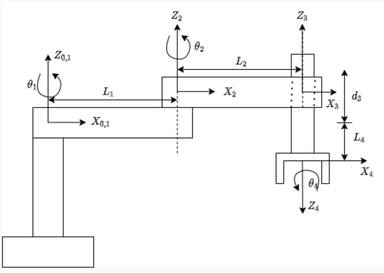
6) For the 3 DOF planer arm shown below, the last row of the DH table contains *1 point*



- $l_3, 0, 0, \theta_3$
- $l_1, 0, 0, \theta_2$
- $l_2, 0, 0, \theta_2$
- $l_2, 0, 0, \theta_3$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$l_2, 0, 0, \theta_3$

7) In the SCARA robot shown below, the fourth row of the DH table is *1 point*



- $0, 90^\circ, L_4, \theta_3$
- $0, 180^\circ, L_4, \theta_4$
- $0, 180^\circ, L_4, \theta_3$
- $0, 90^\circ, L_3, \theta_3$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$0, 180^\circ, L_4, \theta_4$

8) When we multiply all the homogeneous transformation matrices from the base up to the end effector, the last column of the combined matrix indicates *1 point*

- the distance between the origins of the second and the last frame
- the distances along x,y and z directions between the origins of the zeroth frame and the last frame
- the projection of z-axis of last frame along zeroth frame coordinate axes
- the projection of x-axis of first frame along the zeroth frame coordinate axes

No, the answer is incorrect.
Score: 0
Accepted Answers:
the distances along x,y and z directions between the origins of the zeroth frame and the last frame

9) If the rotation part of the homogeneous matrix is an identity matrix it means that the angle between the two frames is *1 point*

- 0°
- 90°
- 180°
- -90°

No, the answer is incorrect.
Score: 0
Accepted Answers:
0°

10) The total DOFs of the human arm consisting of the shoulder, elbow and wrist is equal to *1 point*

- 8
- 7
- 6
- 5

No, the answer is incorrect.
Score: 0
Accepted Answers:
7