MCQ

Fundamentals of Robotics

01. ------------- Drive is used for the lighter applications robots
    a. **Pneumatic drive**
    b. Hydraulic drive
    c. Electric drive
    d. Any of the above
02. The Robot designed with cylindrical coordinate systems has
    a. Three linear movements
    b. Three rotational movements
    c. **Two linear and one rotational movement**
    d. Two rotational and one linear movement
03. Radial movement (in & out) to the manipulator arm is provided by
    a. **Elbow extension**
    b. Wrist bend
    c. Wrist swivel
    d. Wrist yaw

Kinematics and Dynamics

1. The matrix $\begin{bmatrix} \cos\beta & 0 & \sin\beta \\ 0 & 1 & 0 \\ -\sin\beta & 0 & \cos\beta \end{bmatrix}$ represents _____ rotation
    a. x axis
    b. **y axis**
    c. z axis
    d. none of these

2. A manipulator with more DOF than necessary is called
    a. Efficient manipulator
    b. Dynamically redundant manipulator
    c. Unnecessary manipulator
    d. **Kinematically redundant manipulator**

3. The solution technique preferred for solving inverse kinematic problem is
    a. **closed form solution**
    b. numeric solution

c. Both a) & b)

d. None of these

Machine Learning

1. Which of the following machine learning algorithm is based on the concept of bagging?
   a. **Decision Tree**
   b. Random Forest
   c. Support Vector
   d. Gradient Boosting

2. Which of the following machine learning techniques helps in detecting the Outliers in data?
   a. Regression
   b. Classification
   c. **Anomaly Detection**
   d. All of the above.

3. The k-means algorithm is a _____
   a. Supervised learning algorithm
   b. **Unsupervised learning algorithm**
   c. Semi-supervised learning algorithm
   d. Weakly supervised learning algorithm

4. Machine learning is subset of the _____
   a. Deep Learning
   b. **Artificial Intelligence**
   c. Reinforcement Learning
   d. All of the above

5. _____ is the machine learning algorithms that can be used with labeled data
   a. **Regression algorithms**
   b. Clustering algorithms
   c. Association algorithms
   d. All of the above