

Id	
Question	Robot is a type of automation.
A	Fixed
B	Limited
C	Flexible
D	Hard wired

Id	
Question	As per the definition by RIA, which of the following word is not included in the requirements for a machine to be called as Robot?
A	Programmable
B	Automatic
C	Manipulator
D	Multifunctional

Id	
Question	Which of the following robotic configuration has only one linear joint?
A	Cylindrical
B	Spherical
C	Cartesian
D	Jointed Arm

Id	
Question	How many total joints are observed in a typical cylindrical configuration robot?
A	1
B	2
C	3
D	any number of joints are possible

Id	
Question	How many total joints are observed in a typical spherical configuration robot?
A	1
B	2
C	3
D	any number of joints are possible

Id	
Question	How many total joints are observed in a typical cartesian configuration robot?
A	1
B	2
C	3
D	any number of joints are possible

Id	
Question	How many total joints are observed in a typical jointed arm configuration robot?
A	1
B	2
C	3
D	any number of joints are possible

Id	
Question	How many total joints are observed in a typical SCARA robot?
A	1
B	2
C	3
D	any number of joints are possible

Id	
Question	How many linear joints are required to make a cylindrical configuration robot?
A	1
B	2
C	3
D	4

Id	
Question	How many linear joints are required to make a spherical configuration robot?
A	1
B	2
C	3
D	4

Id	
Question	How many linear joints are observed in a typical SCARA robot?
A	1
B	2
C	3
D	any number of joints are possible

Id	
Question	How many linear joints are required to make a jointed arm configuration robot?
A	1
B	2
C	3
D	any number of linear joints are possible

Id	
Question	How many rotational joints are required to make a cartesian configuration robot?
A	3
B	2
C	1
D	0

Id	
Question	SCARA is a special configuration of jointed arm robot designed for _____ operation.
A	spay painting
B	arc welding
C	assembly
D	testing and quality control

Id	
Question	For a robotic joint, if the angle between the axis of links before the rotation and after the rotation remains unchanged, then the joint is called as _____ joint.
A	Rotational
B	Linear
C	Twisting
D	Revolving

Id	
Question	For a robotic joint, if the angle between the axis of links before the rotation and after the rotation changes, then the joint is called as _____ joint.
A	Rotational
B	Linear
C	Twisting
D	Revolving

Id	
Question	In which of the following type of robotic joint motion the angle between the two links connected changes after rotation/translation?
A	T
B	R
C	V
D	all of these

Id	
Question	If the axis of a two connected links before and after rotation remains collinear then the joint it is denoted by a letter
A	T
B	R
C	L
D	V

Id	
Question	Which letter is used for representing the translational motion of robotic joint?
A	T
B	R
C	L
D	V

Id	
Question	Which letter is used for representing the revolving joint of robot?
A	T
B	R
C	L
D	V

Id	
Question	A robotic wrist may typically have maximum of joints.
A	1
B	2
C	3
D	4

Id	
Question	A robotic wrist must have at least joints.
A	1
B	2
C	3
D	4

Id	
Question	SCARA robot is a special case of configuration.
A	Cylindrical
B	Spherical
C	Cartesian
D	Jointed Arm

Id	
Question	LLL joint configuration corresponds to..... configuration of robot.
A	Polar
B	Cylindrical
C	Rectangular
D	None above

Id	
Question	LVL joint configuration corresponds to..... configuration of robot.
A	Polar
B	Cylindrical
C	Rectangular
D	None above

Id	
Question	TRL joint configuration corresponds to..... configuration of robot.
A	Polar
B	Cylindrical
C	Rectangular
D	None above

Id	
Question	TLL joint configuration corresponds to..... configuration of robot.
A	Polar
B	Cylindrical
C	Rectangular
D	None above

Id	
Question	LTL joint configuration corresponds to..... configuration of robot.
A	Polar
B	Cylindrical
C	Rectangular
D	None above

Id	
Question	TRR joint configuration corresponds to..... configuration of robot.
A	Polar
B	Cylindrical
C	Rectangular
D	Jointed Arm

Id	
Question	VVR joint configuration corresponds to..... configuration of robot.
A	Polar
B	Cylindrical
C	Rectangular
D	Jointed Arm

Id	
Question	Which of the following representation corresponds to cylindrical configuration robot?.
A	TRL
B	TRR
C	LTL
D	None above

Id	
Question	Which of the following representation corresponds to polar configuration robot?
A	TRL
B	TRR
C	LTL
D	None above

Id	
Question	The robotic wrist will typically have a type of joint for achieving the roll motion.
A	T
B	R
C	L
D	V

Id	
Question	The robotic wrist will typically have a type of joint for achieving the pitch motion.
A	T
B	R
C	L
D	V

Id	
Question	The robotic wrist will typically have a type of joint for achieving the yaw motion.
A	T
B	R
C	L
D	V

Id	
Question	The 'T' type robotic joint is characterized by_____
A	Angle between the axis of the links does not change before and after rotation
B	Angle between the axis of the links changes after rotation
C	Axis of the link are collinear before and after rotation
D	Is associated with the translation

Id	
Question	The 'L' type robotic joint is characterized by_____
A	Angle between the axis of the links does not change before and after rotation
B	Angle between the axis of the links changes after rotation
C	Axis of the link are collinear before and after rotation
D	Is associated with the translation

Id	
Question	The 'R' type robotic joint is characterized by_____
A	Angle between the axis of the links does not change before and after rotation
B	Angle between the axis of the links changes after rotation
C	Axis of the link are collinear before and after rotation
D	Is associated with the translation

Id	
Question	The 'V' type robotic joint is characterized by_____
A	Angle between the axis of the links does not change before and after rotation
B	Angle between the axis of the links changes after rotation
C	Axis of the link are collinear before and after rotation
D	Is associated with the translation

Id	
Question	The 'Twisting' type robotic joint is characterized by_____
A	Angle between the axis of the links does not change before and after rotation
B	Angle between the axis of the links changes after rotation
C	Axis of the link are collinear before and after rotation
D	Is associated with the translation

Id	
Question	The 'Linear' type robotic joint is characterized by_____
A	Angle between the axis of the links does not change before and after rotation
B	Angle between the axis of the links changes after rotation
C	Axis of the link are collinear before and after rotation
D	Is associated with the translation

Id	
Question	The 'Rotational' type robotic joint is characterized by_____
A	Angle between the axis of the links does not change before and after rotation
B	Angle between the axis of the links changes after rotation
C	Axis of the link are collinear before and after rotation
D	Is associated with the translation

Id	
Question	The 'Revolved' type robotic joint is characterized by_____
A	Angle between the axis of the links does not change before and after rotation
B	Angle between the axis of the links changes after rotation
C	Axis of the link are collinear before and after rotation
D	Is associated with the translation

Id	
Question	While representing the robotic configuration using letters (L, R, T, and V), _____.
A	Joints are considered from wrist end to the base
B	Joints are considered from base to wrist end
C	Joints are considered from longest link to the smallest link
D	Joints are considered from smallest link to the largest link

Id	
Question	While representing the robotic configuration using letters (L, R, T, and V), the wrist configuration is separated from the configuration of body by _....._____.
A	#
B	@
C	&
D	:

Id	
Question	For a linear robotic joint if full range is 1.0 m and the robotic controller has 12 bit architecture, the control resolution on the joint will be
A	0.012 mm
B	0.244 mm
C	0.488 mm
D	data is insufficient

Id	
Question	For a linear robotic joint if full range is 2.0 m and the robotic controller has 12 bit architecture, the control resolution on the joint will be
A	0.012 mm
B	0.244 mm
C	0.488 mm
D	data is insufficient

Id	
Question	For a linear robotic joint if full range is 1.0 m and the robotic controller has 16 bit architecture, the control resolution on the joint will be
A	0.01526 mm
B	0.03061 mm
C	0.1526 mm
D	data is insufficient

Id	
Question	For a linear robotic joint if full range is 2.0 m and the robotic controller has 16 bit architecture, the control resolution on the joint will be
A	0.012 mm
B	0.244 mm
C	0.488 mm
D	data is insufficient

Id	
Question	Which of the following parameter affects the control resolution of robotic joint?
A	Range
B	Word size of controller
C	Both (A) & (B)
D	None above

Id	
Question	For a robotic joint the relation between the joint accuracy and special resolution is:
A	Accuracy is double the special resolution
B	Accuracy is half the special resolution
C	Accuracy is equal to special resolution
D	Accuracy is independent of special resolution

Id	
Question	Which of the following is not an advantage of Robots
A	Accuracy
B	Precision
C	Lower cost of installation
D	None above

Id	
Question	Which of the following is an advantage of Robots
A	Accuracy
B	Easy to maintain
C	Lower cost of installation
D	Aesthetics

Id	
Question	Robot is an example of type of automation.
A	Hard wired
B	Mechanical
C	Electrical
D	Programmable

Id	
Question	Which of the following is not a type of moving robot?
A	Bipedal
B	Under water
C	Autonomous
D	SCARA

Id	
Question	Find odd term out of the following. (based on classification criteria for Robots)
A	Bipeddle robot
B	Limited mobility robot
C	Autonomous robot
D	Stationary robot

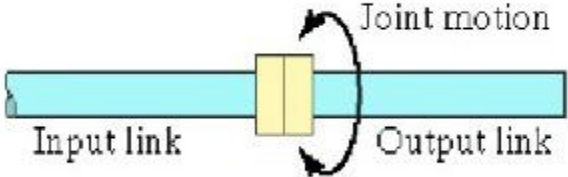
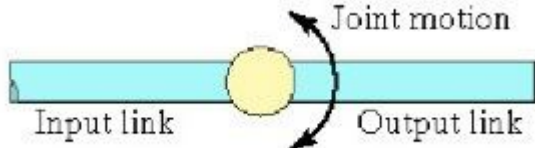
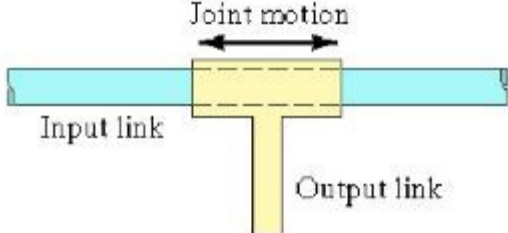
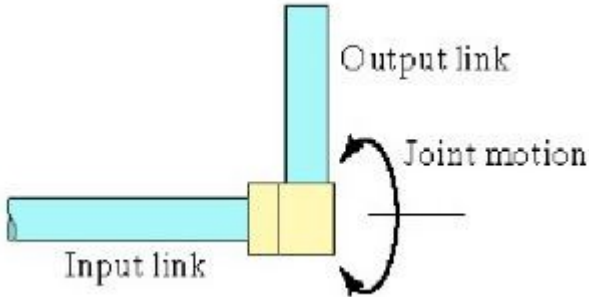
Id	
Question	Degree of freedom of a robot is _____.
A	Same as the number of joints of robots
B	Double the number of joints of robot
C	Triple the number of joints of robot
D	Always 3 for 3dimensional robot and 2 for planar robot

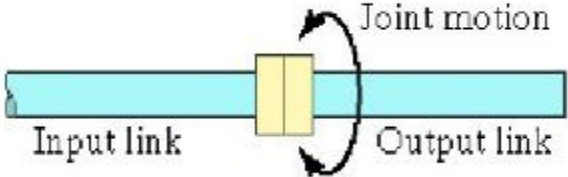
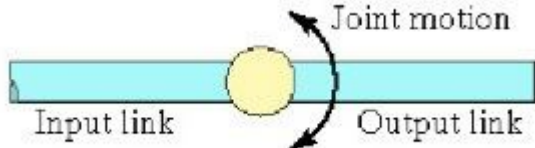
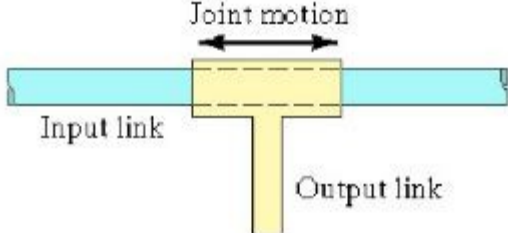
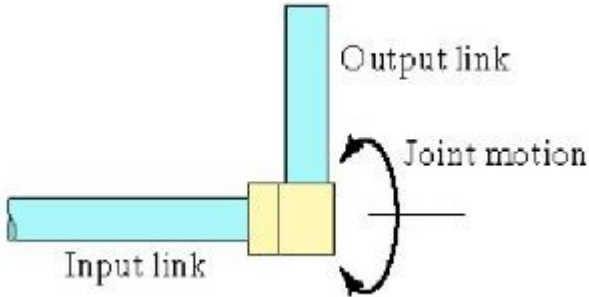
Id	
Question	Which of the following letter is not used as notation to indicate a robotic joint?
A	J
B	L
C	T
D	V

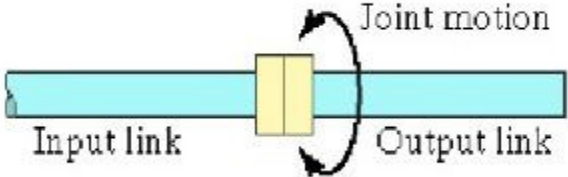
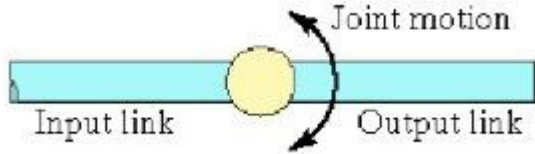
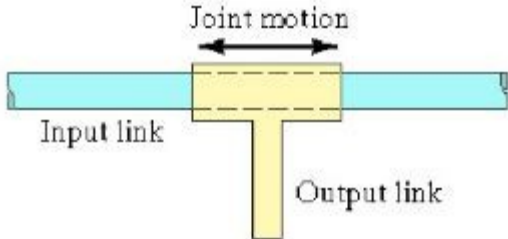
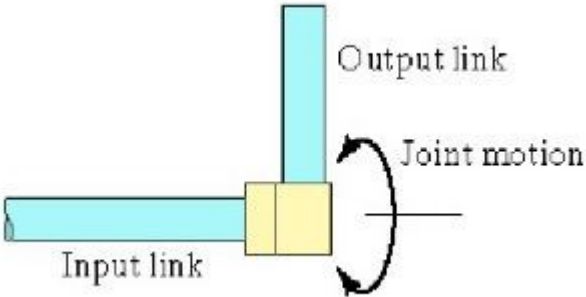
Id	
Question	Which of the following is the advantage of a Cartesian robot?
A	Possible to reach at 'difficult to reach (interior)' locations
B	Easy to design the controller
C	Speedy operation
D	None of these

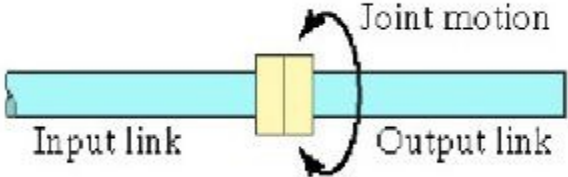
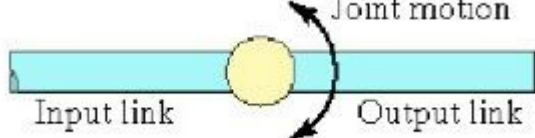
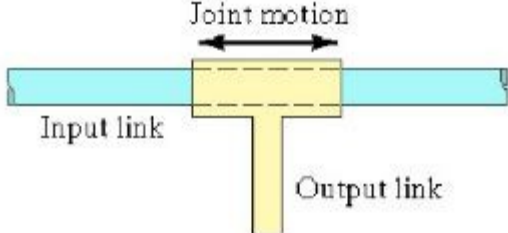
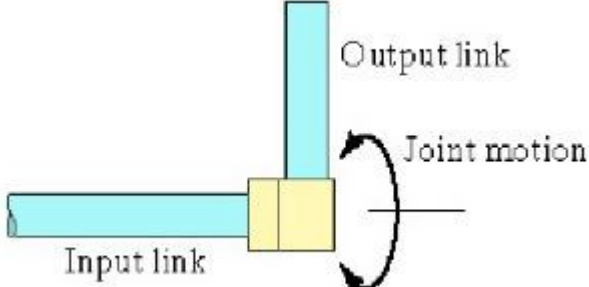
Id	
Question	Which of the following is the advantage of a Jointed arm configuration robot?
A	Possible to reach at 'difficult to reach (interior)' locations
B	Easy to design the controller
C	Speedy operation
D	None of these

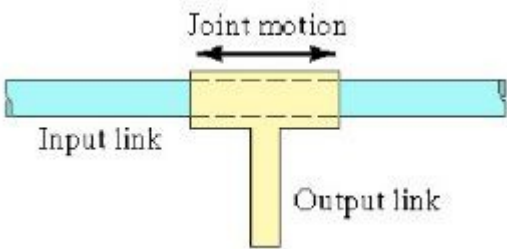
Id	
Question	Which of the following configuration is specially designed for the assembly operations?
A	Cartesian Configuration
B	Cylindrical Configuration
C	Polar Configuration
D	SCARA

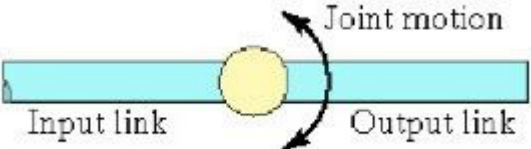
Id	
Question	From the following figures, identify the 'T' type of robotic joint.
A	
B	
C	
D	

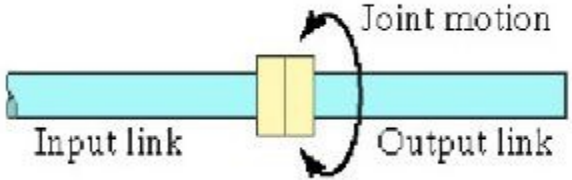
Id	
Question	From the following figures, identify the 'R' type of robotic joint.
A	
B	
C	
D	

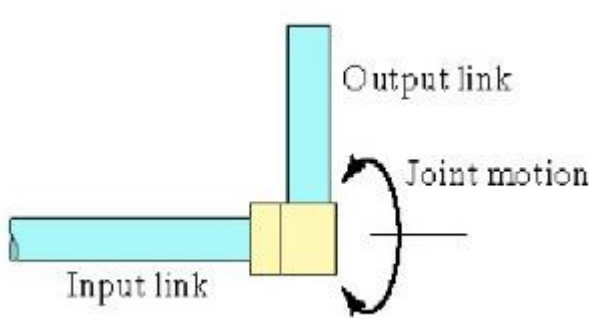
Id	
Question	From the following figures, identify the 'V' type of robotic joint.
A	
B	
C	
D	

Id	
Question	From the following figures, identify the 'L' type of robotic joint.
A	 <p>Diagram A shows a revolute joint. Two horizontal cyan links, labeled "Input link" and "Output link", are connected at a central yellow rectangular joint. A curved arrow labeled "Joint motion" indicates rotation around the joint axis.</p>
B	 <p>Diagram B shows a revolute joint. Two horizontal cyan links, labeled "Input link" and "Output link", are connected at a central yellow circular joint. A curved arrow labeled "Joint motion" indicates rotation around the joint axis.</p>
C	 <p>Diagram C shows a prismatic joint. A horizontal cyan link labeled "Input link" is connected to a yellow T-shaped joint. A vertical cyan link labeled "Output link" extends downwards from the joint. A double-headed arrow labeled "Joint motion" indicates linear sliding motion along the horizontal axis.</p>
D	 <p>Diagram D shows a revolute joint. A horizontal cyan link labeled "Input link" is connected to a yellow rectangular joint. A vertical cyan link labeled "Output link" extends upwards from the joint. A curved arrow labeled "Joint motion" indicates rotation around the joint axis.</p>

Id	
Question	Identify the joint shown in the following figure.  <p>The diagram shows a revolute joint between two links. A horizontal cyan link is labeled 'Input link' and a yellow T-shaped link is labeled 'Output link'. The two links are connected at a central pivot point. A double-headed arrow above the pivot is labeled 'Joint motion', indicating relative rotation between the links.</p>
A	T
B	V
C	L
D	R

Id	
Question	Identify the joint shown in the following figure.  <p>The diagram shows two light blue rectangular links connected at a central yellow circular joint. The left link is labeled 'Input link' and the right link is labeled 'Output link'. A curved arrow above the joint is labeled 'Joint motion', indicating rotational movement.</p>
A	T
B	V
C	L
D	R

Id	
Question	Identify the joint shown in the following figure.  <p>The diagram shows two light blue cylindrical links, labeled 'Input link' on the left and 'Output link' on the right, connected at a central yellow rectangular joint. Two curved arrows above the joint indicate rotational movement, labeled 'Joint motion'.</p>
A	T
B	V
C	L
D	R

Id	
Question	Identify the joint shown in the following figure.  <p>The diagram shows two light blue links connected at a central yellow rectangular joint. The horizontal link on the left is labeled 'Input link' and the vertical link on the right is labeled 'Output link'. A curved arrow labeled 'Joint motion' indicates rotation around the joint's axis.</p>
A	T
B	V
C	L
D	R

Id	
Question	Robotic Wrist may have number of joints.
A	1 to 4
B	2 to 4
C	2 to 3
D	2 to 5

Id	
Question	Which of the following joint is not observed in a robotic wrist?
A	T
B	V
C	L
D	R

Id	
Question	Which of the following does not represent a robotic wrist?
A	RT
B	TRR
C	RTR
D	TRL

Id	
Question	Which of the following represent a robotic wrist?
A	RLR
B	TLR
C	RRR
D	RTR

Id	
Question	What is the co-relation between the speed of joint and accuracy?
A	Directly
B	Inversely
C	Not connected at all
D	Can not say

Id	
Question	In which of the following robot control is used for spot welding operation?
A	Limited sequence control
B	Point to point
C	Playback robot with continuous path control
D	Intelligent robots

Id	
Question	In which of the following robot control is used for spray painting operation?
A	Limited sequence control
B	Point to point
C	Playback robot with continuous path control
D	Intelligent robots

Id	
Question	In which of the following robot control is used for Arc Welding operation?
A	Limited sequence control
B	Point to point
C	Playback robot with continuous path control
D	Intelligent robots

Id	
Question	For a bottle filling plant, a robot is to be used for picking empty bottles from a bin and load it under the filling station. Which of the following control will you recommend?
A	Limited sequence control
B	Playback robot with continuous path control
C	Intelligent robots
D	None of these

Id	
Question	From the ease of design of the controller, which one out of the following is the easiest?
A	Playback robot with continuous path control
B	Intelligent robots
C	Limited sequence control
D	Point to point

Id	
Question	From the ease of design of the controller, which one out of the following is the most difficult?
A	Playback robot with continuous path control
B	Intelligent robots
C	Limited sequence control
D	Point to point

Id	
Question	What is the co-relation between the speed of response and accuracy?
A	Directly
B	Inversely
C	Not connected at all
D	Can not say

Id	
Question	Conversion of world coordinates into joint coordinates is called as
A	Forward transformation
B	Reverse transformation
C	Joint transformation
D	Neutral transformation

Id	
Question	Conversion of joint coordinates into world coordinates is called as
A	Forward transformation
B	Reverse transformation
C	Joint transformation
D	Neutral transformation

Id	
Question	Reverse transformation means
A	Recording the robotic motion in reverse direction
B	Bringing back the robotic arm in original position in the same way as forward motion
C	Conversion of joint coordinates into world coordinates
D	Conversion of world coordinates into joint coordinates

Id	
Question	Forward transformation means
A	Recording the robotic motion in reverse direction
B	Bringing back the robotic arm in original position in the same way as forward motion
C	Conversion of joint coordinates into world coordinates
D	Conversion of world coordinates into joint coordinates

Id	
Question	In the kinematic equation using homogeneous transformation, the normal vector 'n' is the
A	Normal to the surfaces of the gripping surfaces
B	Normal to the face plate of the wrist
C	Normal to the 'a' vector and 'o' vector
D	Normal to the 'P' vector

Id	
Question	In the kinematic equation using homogeneous transformation, the orientation vector 'o' describes orientation of
A	Fingers of robotic hand/end effector/gripper
B	Axis of approach to the final location
C	Wrist with respect to base
D	Final position vector 'P'

Id	
Question	In the kinematic equation using homogeneous transformation, the approach vector 'a' describes
A	Orientation of fingers of robotic hand/end effector/gripper
B	Axis of approach to the final location
C	Wrist with respect to base
D	Final position vector 'P'

Id	
Question	The slew motion is characterized by _____.
A	each joint moving at its maximum possible speed simultaneously
B	each joint moving at its minimum possible speed simultaneously
C	each joint moving at its maximum possible speed one after another
D	each joint moving at its minimum possible speed one after another

Id	
Question	In which of the following motion types, joint wear and tear is maximum?
A	Slew motion
B	Joint interpolated motion
C	Straight line motion
D	All above

Id	
Question	In a homogeneous transformation matrix as shown below, if 'P' is representing the position vector of a point in space, 'w' represents:
A	Weight of joint
B	Scaling factor
C	Offset of coordinate system
D	Rotation about X axis

Id	
Question	During position analysis, for LLL and RRR robot configuration, which is more difficult to solve mathematically?
A	LLL
B	RRR
C	Both are equally difficult
D	Can't say

Id	
Question	In which of the following motion types, The calculation of joint manipulation is the most difficult in case of a RRR configuration?
A	Slew motion
B	Joint interpolated motion
C	Straight line motion
D	All above

Id	
Question	In which of the following motion types, The calculation of joint manipulation is the easiest.
A	Slew motion
B	Joint interpolated motion
C	Straight line motion
D	All above

Id	
Question	For which of the following configuration of Robot, calculations of joint manipulation is the easiest in case of straight line motion?
A	LLL
B	LRL
C	LTR
D	LTL

Id	
Question	For a RRR configuration of the Robot, the from Joint 1, joint 2 and Joint 3 have to travel 30 degree, 60 degree, and 90 degree respectively. The joint speeds are 10 degree /s, 30 degree /s, and 45 degree /s respectively. If all the joints are operating at 80% of its maximum speed, as per the Slew motion, what is the maximum time required for completion of the operation?
A	3 Sec
B	7 Sec
C	3.75 Sec
D	8.75 Sec

Id	
Question	For a RRR configuration of the Robot, the from Joint 1, joint 2 and Joint 3 have to travel 30 degree, 60 degree, and 90 degree respectively. The joint speeds are 10 degree /s, 30 degree /s, and 45 degree /s respectively. If all the joints are operating at 80% of its maximum speed, as per the Join interpolated motion, what is the maximum time required for the completion of the operation?
A	3 Sec
B	7 Sec
C	3.75 Sec
D	8.75 Sec

Id	
Question	For a RRR configuration of the Robot, the from Joint 1, joint 2 and Joint 3 have to travel 30 degree, 60 degree, and 90 degree respectively. The joint speeds are 10 degree/s, 30 degree/s, and 45 degree/s respectively. If all the joints are operating at 80% of its maximum speed, as which of the following motion will give the fastest completion of operation?
A	Slew motion
B	Joint Interpolated motion
C	Both A & B
D	Straight line motion

Id	
Question	For a RRR configuration of the Robot, the from Joint 1, joint 2 and Joint 3 have to travel 30 degree, 60 degree, and 90 degree respectively. The joint speeds are 10 degree /s, 30 degree /s, and 45 degree /s respectively. If all the joints are operating at 80% of its maximum speed, as per the Slew motion, which of the joint will be subjected to maximum wear and tear?
A	Joint 1
B	Joint 2
C	Joint 3
D	All the Joints will have same wear and tear

Id	
Question	For a RRR configuration of the Robot, the from Joint 1, joint 2 and Joint 3 have to travel 30 degree, 60 degree, and 90 degree respectively. The joint speeds are 10 degree /s, 30 degree /s, and 45 degree /s respectively. If all the joints are operating at 80% of its maximum speed, as per the Joint interpolated motion, which of the joint will be subjected to maximum wear and tear?
A	Joint 1
B	Joint 2
C	Joint 3
D	All the Joints will have same wear and tear

Id	
Question	Representation of a point in space as $P(x, y, z)$ is called as representation.
A	Neutral
B	Joint space
C	Homogeneous
D	None of these

Id	
Question	Representation of a point in space as $P(\theta, \phi, \psi)$ is called as representation.
A	Neutral
B	Joint space
C	Homogeneous
D	None of these

Id	
Question	Why homogeneous transformation matrix is used for kinematic analysis in robots?
A	So that all the transformation matrices can be added together
B	So that all the transformation matrices can be multiplied together
C	All the units are made uniform
D	To take advantage of the scaling factor 'w'

Id	
Question	What will be the order of transformation matrix for rotation in 3D space if homogeneous transformation method is used?
A	3 X 3
B	4 X 4
C	6 X 6
D	Can't tell

Id	
Question	What will be the order of transformation matrix for rotation in 3D space if homogeneous transformation method is not used?
A	3 X 3
B	4 X 4
C	6 X 6
D	Can't tell

Id	
Question	What will be the order of transformation matrix for Translation in 3D space if homogeneous transformation method is used?
A	3 X 3
B	4 X 4
C	6 X 6
D	Can't tell

Id	
Question	What will be the order of transformation matrix for translation in 3D space if homogeneous transformation method is not used?
A	3 X 3
B	4 X 4
C	6 X 6
D	Can't tell

Id	
Question	Which of the following transformation may not be required in case of robot position analysis?
A	Rotation
B	Translation
C	Reflection
D	All above are required

Id	
Question	What will be the order of homogeneous transformation matrix if the position analysis of a 3 degree of freedom robot is to be calculated in 3D space?
A	3 X 3
B	4 X 4
C	6 X 6
D	Can't tell

Id	
Question	What will be the order of homogeneous transformation matrix if the position analysis of a 4 degree of freedom robot is to be calculated in 3D space?
A	3 X 3
B	4 X 4
C	6 X 6
D	Can't tell

Id	
Question	What will be the order of homogeneous transformation matrix if the position analysis of a 5 degree of freedom robot is to be calculated in 3D space?
A	3 X 3
B	4 X 4
C	6 X 6
D	Can't tell

Id	
Question	What will be the order of homogeneous transformation matrix if the position analysis of a 3 rotational and 2 translational degree of freedom robot is to be calculated in 3D space?
A	3 X 3
B	4 X 4
C	6 X 6
D	Can't tell

Id	
Question	Which of the following statement is wrong?
A	The transformation matrix is a square matrix
B	Transformation matrix is always a symmetric matrix
C	It is possible to obtain a single homogeneous transformation matrix of series of transformation to be carried out sequentially
D	The homogeneous matrix is operated on the initial position vector to get the final position of robot end effector.

Id	
Question	Which of the following statement is wrong?
A	The rotational transformation matrix is a square matrix
B	Rotational Transformation matrix is always a symmetric matrix
C	The Translational transformation matrix is a square matrix
D	Translational Transformation matrix is always a symmetric matrix

Id	
Question	Which method is most preferred for position analysis of robots?
A	graphical
B	analytical
C	Matrix based transformations
D	None of these

Id	
Question	Out of the following transformation matrices, which one corresponds to translation of point in 3D space?
A	$\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & \cos \theta & -\sin \theta & 0 \\ 0 & \sin \theta & \cos \theta & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$
B	$\begin{bmatrix} 1 & 0 & 0 & a \\ 0 & 1 & 0 & b \\ 0 & 0 & 1 & c \\ 0 & 0 & 0 & 1 \end{bmatrix}$
C	$\begin{bmatrix} \cos \theta & -\sin \theta & 0 & 0 \\ \sin \theta & \cos \theta & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$
D	$\begin{bmatrix} \cos \theta & 0 & \sin \theta & 0 \\ 0 & 1 & 0 & 0 \\ -\sin \theta & 0 & \cos \theta & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$

Id	
Question	Out of the following transformation matrices, which one corresponds to rotation of point in 3D space about X axis?
A	$\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & \cos \theta & -\sin \theta & 0 \\ 0 & \sin \theta & \cos \theta & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$
B	$\begin{bmatrix} 1 & 0 & 0 & a \\ 0 & 1 & 0 & b \\ 0 & 0 & 1 & c \\ 0 & 0 & 0 & 1 \end{bmatrix}$
C	$\begin{bmatrix} \cos \theta & -\sin \theta & 0 & 0 \\ \sin \theta & \cos \theta & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$
D	$\begin{bmatrix} \cos \theta & 0 & \sin \theta & 0 \\ 0 & 1 & 0 & 0 \\ -\sin \theta & 0 & \cos \theta & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$

Id	
Question	Out of the following transformation matrices, which one corresponds to rotation of point in 3D space about Y axis?
A	$\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & \cos \theta & -\sin \theta & 0 \\ 0 & \sin \theta & \cos \theta & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$
B	$\begin{bmatrix} 1 & 0 & 0 & a \\ 0 & 1 & 0 & b \\ 0 & 0 & 1 & c \\ 0 & 0 & 0 & 1 \end{bmatrix}$
C	$\begin{bmatrix} \cos \theta & -\sin \theta & 0 & 0 \\ \sin \theta & \cos \theta & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$
D	$\begin{bmatrix} \cos \theta & 0 & \sin \theta & 0 \\ 0 & 1 & 0 & 0 \\ -\sin \theta & 0 & \cos \theta & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$

Id	
Question	Out of the following transformation matrices, which one corresponds to rotation of point in 3D space about Z axis?
A	$\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & \cos \theta & -\sin \theta & 0 \\ 0 & \sin \theta & \cos \theta & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$
B	$\begin{bmatrix} 1 & 0 & 0 & a \\ 0 & 1 & 0 & b \\ 0 & 0 & 1 & c \\ 0 & 0 & 0 & 1 \end{bmatrix}$
C	$\begin{bmatrix} \cos \theta & -\sin \theta & 0 & 0 \\ \sin \theta & \cos \theta & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$
D	$\begin{bmatrix} \cos \theta & 0 & \sin \theta & 0 \\ 0 & 1 & 0 & 0 \\ -\sin \theta & 0 & \cos \theta & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$

Id	
Question	Out of the following transformation matrices, which one corresponds to rotation of point in 3D space about X axis using homogeneous transformation system?
A	$\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & \cos \theta & -\sin \theta & 0 \\ 0 & \sin \theta & \cos \theta & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$
B	$\begin{bmatrix} 1 & 0 & 0 \\ 0 & \cos \theta & -\sin \theta \\ 0 & \sin \theta & \cos \theta \end{bmatrix}$
C	$\begin{bmatrix} \cos \theta & -\sin \theta & 0 & 0 \\ \sin \theta & \cos \theta & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$
D	$\begin{bmatrix} \cos \theta & 0 & \sin \theta \\ 0 & 1 & 0 \\ -\sin \theta & 0 & \cos \theta \end{bmatrix}$

Id	
Question	Out of the following transformation matrices, which one corresponds to rotation of point in 3D space about Y axis using homogeneous transformation system?
A	$\begin{bmatrix} \cos \theta & -\sin \theta & 0 & 0 \\ \sin \theta & \cos \theta & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$
B	$\begin{bmatrix} \cos \theta & -\sin \theta & 0 \\ \sin \theta & \cos \theta & 0 \\ 0 & 0 & 1 \end{bmatrix}$
C	$\begin{bmatrix} \cos \theta & 0 & \sin \theta & 0 \\ 0 & 1 & 0 & 0 \\ -\sin \theta & 0 & \cos \theta & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$
D	$\begin{bmatrix} \cos \theta & 0 & \sin \theta \\ 0 & 1 & 0 \\ -\sin \theta & 0 & \cos \theta \end{bmatrix}$

Id	
Question	Out of the following transformation matrices, which one corresponds to rotation of point in 3D space about Z axis using homogeneous transformation system?
A	$\begin{bmatrix} 1 & 0 & 0 \\ 0 & \cos \theta & -\sin \theta \\ 0 & \sin \theta & \cos \theta \end{bmatrix}$
B	$\begin{bmatrix} \cos \theta & 0 & \sin \theta & 0 \\ 0 & 1 & 0 & 0 \\ -\sin \theta & 0 & \cos \theta & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$
C	$\begin{bmatrix} \cos \theta & -\sin \theta & 0 \\ \sin \theta & \cos \theta & 0 \\ 0 & 0 & 1 \end{bmatrix}$
D	$\begin{bmatrix} \cos \theta & -\sin \theta & 0 & 0 \\ \sin \theta & \cos \theta & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$

Id	
Question	Out of the following transformation matrices, which one corresponds to Translation of point in 3D space using homogeneous transformation system?
A	$\begin{bmatrix} a \\ b \\ c \end{bmatrix}$
B	$\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & \cos \theta & -\sin \theta & 0 \\ 0 & \sin \theta & \cos \theta & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$
C	$\begin{bmatrix} \cos \theta & -\sin \theta & 0 & 0 \\ \sin \theta & \cos \theta & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$
D	$\begin{bmatrix} 1 & 0 & 0 & a \\ 0 & 1 & 0 & b \\ 0 & 0 & 1 & c \\ 0 & 0 & 0 & 1 \end{bmatrix}$

Id	
Question	Which of the following force is not considered while designing the torque requirement at a any of the robotic joint?
A	Electro-magnetism
B	Self weight
C	Inertial forces
D	Reaction forces

Id	
Question	Which of the following force needs to be considered while designing the torque requirement at a any of the robotic joint?
A	Electro-magnetism
B	Self weight
C	Thermal stresses
D	All of these

Id	
Question	During the static design analysis of Robot, which of the following forces need not be considered?
A	Self-weight of links
B	The externally applied load
C	Inertia forces
D	All of these are necessary

Id	
Question	Which of the following forces are considered in dynamic analysis of robots?
A	Inertia
B	Buoyancy
C	Traction
D	None of these

Id	
Question	For a two degree of freedom planar RR manipulator, if L1 and L2 are the lengths of the links 1 and 2 respectively and the angles θ_1 and θ_2 are the joint rotations, if L1 = 30 cm, L2 = 25 cm and angles $\theta_1 = 30$ degree and $\theta_2 = 45$ degree. Calculate, the coordinates of the end point of the arm.
A	(32.5, 39.15)
B	(32.5, 32.67)
C	(43.67, 32.67)
D	(43.67, 39.15)

Id	
Question	A point in space represented by $7i+2j-3k$ is translated by 7 units, 3 units and 5 units in X, Y and Z directions respectively. Its' Z coordinate after transformation will be_.....
A	-8
B	5
C	2
D	0

Id	
Question	A point in space represented by unit vector $7i+2j-3k$. The shortest distance of the point from the base is 10 units. It is translated by 7 units, 3 units and 5 units in X, Y and Z directions respectively. Its' Z coordinate after transformation will be _____
A	2
B	-25
C	8
D	-8

Id	
Question	A point on x axis at a distance 10 units from the base of the robot is rotated about Z axis by 60 degree counterclockwise. What will be the final coordinates of the point in space?
A	(8.66, -5, 0)
B	(8.66, 5, 5)
C	(5, 8.66, 0)
D	(5, 8.66, 8.66)

Id	
Question	A point on x axis at a distance 10 units from the base of the robot is rotated about Z axis by 30 degree counterclockwise What will be the final coordinates of the point in space?
A	(8.66, 5, 0)
B	(8.66, -5, 0)
C	(5, 8.66, 5)
D	(5, 8.66, 8.66)

Id	
Question	A point on x axis at a distance 10 units from the base of the robot is rotated about Y axis by 30 degree. What will be the final coordinates of the point in space?
A	(8.66, 0, 5)
B	(8.66, 0, -5)
C	(5, -8.66, 0)
D	(5, 8.66, 8.66)

Id	
Question	Which of the following rules are used for deciding clockwise/counter clockwise rotation for transformation?
A	Right Hand Rule
B	Left Hand Rule
C	Right Hand thumb rule
D	Left hand thumb rule

Id	
Question	A point in space represented by a vector $25i+10j+20k$, is translated by 8 units in x direction and by 5 units in y direction. What will be the final position vector of the point after transformation?
A	$25i+25j+25k$
B	$33i+25j+25k$
C	$33i+15j+20k$
D	$33i+15j+25k$

Id	
Question	A point in space represented by a vector $5i+3j+8k$, is rotated about x axis 90 degrees in counter-clockwise direction. What will be the final position vector of the point after transformation?
A	$5i+8j+3k$
B	$8i+3j+8k$
C	$5i-8j+3k$
D	$5i+8j+3k$

Id	
Question	A point in space represented by a unit vector $5i+2j+4k$, and is at a distance of 5 units from base is translated by 8 units in x direction and by 5 units in y direction. What will be the final position vector of the point after transformation?
A	$25i+25j+25k$
B	$33i+25j+25k$
C	$33i+15j+20k$
D	$33i+15j+25k$

Id	
Question	A point in space represented by a vector $5i+3j+8k$, is rotated about x axis 90 degrees in clockwise direction. What will be the final position vector of the point after transformation?
A	$5i+8j+3k$
B	$8i+3j+8k$
C	$5i-8j+3k$
D	$5i+8j+3k$

Id	
Question	A point in space represented by a vector $5i+3j+8k$, is rotated about y axis 90 degrees in counter- clockwise direction. What will be the final position vector of the point after transformation?
A	$5i+8j+3k$
B	$-8i+3j+5k$
C	$5i-8j+3k$
D	$8i+3j-5k$

Id	
Question	A point in space represented by a vector $5i+3j+8k$, is rotated about y axis 90 degrees in clockwise direction. What will be the final position vector of the point after transformation?
A	$5i+8j+3k$
B	$-8i+3j+5k$
C	$5i-8j+3k$
D	$8i+3j-5k$

Id	
Question	A point in space represented by a vector $5i+3j+8k$, is rotated about Z axis 90 degrees in counter- clockwise direction. What will be the final position vector of the point after transformation?
A	$5i+8j+3k$
B	$3i+5j+8k$
C	$-3i+5j+8k$
D	$3i-5j+8k$

Id	
Question	A point in space represented by a vector $5i+3j+8k$, is rotated about Z axis 90 degrees in clockwise direction. What will be the final position vector of the point after transformation?
A	$5i+8j+3k$
B	$3i+5j+8k$
C	$-3i+5j+8k$
D	$3i-5j+8k$

Id	
Question	A point in space is initially lying on Y axis and is at a distance of 60 units from the base of frame. It is translated linearly along Z axis by 30 units. If finally it is rotated about Z axis in counter clockwise direction by 90 degrees. Then what will
A	(60, 30, 90)
B	(0, 60, 30)
C	(60, 0, -30)
D	(60, 0, 30)

Id	
Question	A point in space is initially lying on Y axis and is at a distance of 60 units from the base of frame. It is translated linearly along Z axis by 30 units. If finally it is rotated about Y axis in clockwise direction by 90 degrees. Then what will be the
A	(60, 30, 90)
B	(0, 60, 30)
C	(30, 60, 0)
D	(-30, 60, 0)

Id	
Question	A point in space is initially lying on Y axis and is at a distance of 60 units from the base of frame. It is translated linearly along Z axis by 30 units. If finally it is rotated about X axis in clockwise direction by 90 degrees. Then what will be the
A	(60, 30, 90)
B	(0, 60, 30)
C	(0, -60, 30)
D	(0, -30, 60)

Id	
Question	If for a planar RR configuration robot the length of the two links are 300 mm and 450 mm respectively. If the position of a point in joint notation is given by (300, 300), what will be position of the free end in neutral coordinate system?
A	(539.7, 484.8)
B	(375, 375)
C	(484.8, 539.7)
D	None of these

Id	
Question	Which of the following element is not a part of robot control unit?
A	Servo controller
B	Power amplifier
C	Proximity sensor
D	Program memory

Id	
Question	Executive processor can get inputs from _____
A	Servo controllers
B	Joint Actuators
C	Program memory
D	None above

Id	
Question	For a Cartesian coordinate robot of configuration LLL (along X, Y and Z axes) is to be moved from position (0, 50, 50) to position (200, 350, 150). Assume all dimensions in mm. If the joint maximum speeds at the joints are 200 mm/s, 150 mm/s and 100 mm/s respectively, find the time required to complete the operation, if slew motion is used.
A	1 Sec
B	2. Sec
C	1.5 Sec
D	2.5 Sec

Id	
Question	For a Cartesian coordinate robot of configuration LLL (along X, Y and Z axes) is to be moved from position (0, 50, 50) to position (200, 350, 150). Assume all dimensions in mm. If the joint maximum speeds at the joints are 200 mm/s, 150 mm/s and 100 mm/s respectively, maximum speed at which any of the joint will be operating, if slew motion is used.
A	200 mm/sec
B	150 mm/sec
C	100 mm/sec
D	Can't predict based on information

Id	
Question	For a Cartesian coordinate robot of configuration LLL (along X, Y and Z axes) is to be moved from position (0, 50, 50) to position (200, 350, 150). Assume all dimensions in mm. If the joint maximum speeds at the joints are 200 mm/s, 150 mm/s and 100 mm/s respectively, Minimum speed at which any of the joint will be operating, if slew motion is used.
A	200 mm/sec
B	150 mm/sec
C	100 mm/sec
D	Can't predict based on information

Id	
Question	For a Cartesian coordinate robot of configuration LLL (along X, Y and Z axes) is to be moved from position (0, 50, 50) to position (200, 350, 150). Assume all dimensions in mm. If the joint maximum speeds at the joints are 200 mm/s, 150 mm/s and 100 mm/s respectively, maximum speed at which any of the joint will be operating, if Joint interpolation motion is used.
A	200 mm/sec
B	150 mm/sec
C	100 mm/sec
D	Can't predict based on information

Id	
Question	For a Cartesian coordinate robot of configuration LLL (along X, Y and Z axes) is to be moved from position (0, 50, 50) to position (200, 350, 150). Assume all dimensions in mm. If the joint maximum speeds at the joints are 200 mm/s, 150 mm/s and 100 mm/s respectively, Minimum speed at which any of the joint will be operating, if slew motion is used.
A	200 mm/sec
B	150 mm/sec
C	100 mm/sec
D	Can't predict based on information

Id	
Question	For a Cartesian coordinate robot of configuration LLL (along X, Y and Z axes) is to be moved from position (0, 50, 50) to position (200, 350, 150). Assume all dimensions in mm. If the joint maximum speeds at the joints are 200 mm/s, 150 mm/s and 100 mm/s respectively, find the time required to complete the operation, if slew motion is used.
A	1 Sec
B	2. Sec
C	1.5 Sec
D	2.5 Sec

Id	
Question	For a jointed arm VVR configuration robot is to move to a new position so that the first joint has to move by 50 degrees, second joint has to move by 90 degrees and the third joint has to move by 25 degrees. If the maximum possible speeds are 20 degrees per second, 20 degrees per second, and 5 degrees per second respectively. Find the time required to complete the operation, if slew motion is used.
A	2.5 Sec
B	4.5 Sec
C	5 Sec
D	12 Sec

Id	
Question	For a jointed arm VVR configuration robot is to move to a new position so that the first joint has to move by 50 degrees, second joint has to move by 90 degrees and the third joint has to move by 25 degrees. If the maximum possible speeds are 20 degrees per second, 20 degrees per second, and 5 degrees per second respectively. Find the time required to complete the operation, if joint interpolated motion is used.
A	2.5 Sec
B	4.5 Sec
C	5 Sec
D	12 Sec

Id	
Question	For a jointed arm VVR configuration robot is to move to a new position so that the first joint has to move by 50 degrees, second joint has to move by 90 degrees and the third joint has to move by 25 degrees. If the maximum possible speeds are 20 degrees per second, 30 degrees per second, and 5 degrees per second respectively. Find the maximum speed that any of the joint operates at assuming the slew motion.
A	20 degrees per second
B	30 degrees per second
C	5 degrees per second
D	Can't predict based on information

Id	
Question	For a jointed arm VVR configuration robot is to move to a new position so that the first joint has to move by 50 degrees, second joint has to move by 90 degrees and the third joint has to move by 25 degrees. If the maximum possible speeds are 20 degrees per second, 30 degrees per second, and 5 degrees per second respectively. Find the maximum speed that any of the joint operates at assuming joint interpolated motion.
A	20 degrees per second
B	30 degrees per second
C	5 degrees per second
D	Can't predict based on information

Id	
Question	For a jointed arm VVR configuration robot is to move to a new position so that the first joint has to move by 50 degrees, second joint has to move by 90 degrees and the third joint has to move by 25 degrees. If the maximum possible speeds are 20 degrees per second, 30 degrees per second, and 5 degrees per second respectively. Find which of the joint will operate at the maximum speed assuming joint interpolated motion.
A	First Joint
B	Second Joint
C	Third Joint
D	All the three Joints will operate at maximum speed

Id	
Question	For a jointed arm VVR configuration robot is to move to a new position so that the first joint has to move by 50 degrees, second joint has to move by 90 degrees and the third joint has to move by 25 degrees. If the maximum possible speeds are 20 degrees per second, 30 degrees per second, and 5 degrees per second respectively. Find which of the joint will operate at the maximum speed assuming slew motion.
A	First Joint
B	Second Joint
C	Third Joint
D	All the three Joints will operate at maximum speed

Id	
Question	For a jointed arm VVR configuration robot is to move to a new position so that the first joint has to move by 50 degrees, second joint has to move by 90 degrees and the third joint has to move by 25 degrees. If the maximum possible speeds are 20 degrees per second, 30 degrees per second, and 5 degrees per second respectively. Find which of the joint will operate at the minimum speed assuming slew motion.
A	First Joint
B	Second Joint
C	Third Joint
D	All the three Joints will operate at maximum speed

Id	
Question	For a jointed arm VVR configuration robot is to move to a new position so that the first joint has to move by 50 degrees, second joint has to move by 90 degrees and the third joint has to move by 25 degrees. If the maximum possible speeds are 20 degrees per second, 30 degrees per second, and 5 degrees per second respectively. Find which of the joint will operate at the minimum speed assuming joint interpolated motion.
A	First Joint
B	Second Joint
C	Third Joint
D	All the three Joints will operate at maximum speed

Id	
Question	For a jointed arm VVR configuration robot is to move to a new position so that the first joint has to move by 50 degrees, second joint has to move by 90 degrees and the third joint has to move by 25 degrees. If the maximum possible speed possible on each of the joint is 10 degrees per second, find which of the joint will operate at the minimum speed assuming joint interpolated motion.
A	First Joint
B	Second Joint
C	Third Joint
D	All the three Joints will operate at maximum speed

Id	
Question	For a jointed arm VVR configuration robot is to move to a new position so that the first joint has to move by 50 degrees, second joint has to move by 90 degrees and the third joint has to move by 25 degrees. If the maximum possible speed possible on each of the joint is 10 degrees per second, find which of the joint will operate at the minimum speed assuming slew motion.
A	First Joint
B	Second Joint
C	Third Joint
D	All the three Joints will operate at maximum speed

Id	
Question	For a jointed arm VVR configuration robot is to move to a new position so that the first joint has to move by 50 degrees, second joint has to move by 90 degrees and the third joint has to move by 25 degrees. If the maximum possible speed possible on each of the joint is 10 degrees per second, find which of the joint will operate at the maximum speed assuming joint interpolated motion.
A	First Joint
B	Second Joint
C	Third Joint
D	All the three Joints will operate at maximum speed

Id	
Question	For a jointed arm VVR configuration robot is to move to a new position so that the first joint has to move by 50 degrees, second joint has to move by 90 degrees and the third joint has to move by 25 degrees. If the maximum possible speed possible on each of the joint is 10 degrees per second, find which of the joint will operate at the maximum speed assuming slew motion.
A	First Joint
B	Second Joint
C	Third Joint
D	All the three Joints will operate at maximum speed

Id	
Question	For a jointed arm VVR configuration robot is to move to a new position so that the first joint has to move by 50 degrees, second joint has to move by 90 degrees and the third joint has to move by 25 degrees. If the maximum possible speed possible on each of the joint is 10 degrees per second. Assuming joint interpolated motion find the time required for completing the operation.
A	2.5 sec
B	5 Sec
C	9 Sec
D	16.5 Sec

Id	
Question	For a jointed arm VVR configuration robot is to move to a new position so that the first joint has to move by 50 degrees, second joint has to move by 90 degrees and the third joint has to move by 25 degrees. If the maximum possible speed possible on each of the joint is 10 degrees per second. Assuming joint interpolated motion find the time required for completing the operation.
A	2.5 sec
B	5 Sec
C	9 Sec
D	16.5 Sec

Id	
Question	For a jointed arm VVR configuration robot is to move to a new position so that the first joint has to move by 50 degrees, second joint has to move by 90 degrees and the third joint has to move by 25 degrees. If the maximum possible speed possible on each of the joint is 10 degrees per second, find the minimum speed at which any of the joint will operate assuming joint interpolated motion.
A	10 degrees per second
B	5.55 degrees per second
C	2.78 degrees per second
D	Can't predict based on data

Id	
Question	Which is the most essential component for a Pneumatic or Hydraulic system to work?
A	Relay
B	Solenoid
C	DC valves
D	All above

Id	
Question	Electrical Drives are suitable for
A	Light loads with impact required
B	Heavy load carrying capacity is required
C	Portability is required for moderate loads such as in mobile robots
D	For all above applications

Id	
Question	Hydraulic Drives are suitable for
A	Light loads with impact required
B	Heavy load carrying capacity is required
C	Portability is required for moderate loads such as in mobile robots
D	For all above applications

Id	
Question	Pneumatic Drives are suitable for
A	Light loads with impact required
B	Heavy load carrying capacity is required
C	Portability is required for moderate loads such as in mobile robots
D	For all above applications

Id	
Question	Which of the following drives will be suggested for a robot for light loads and precise and silent operations?
A	Pneumatic
B	Hydraulic
C	Electrical
D	any one of these

Id	
Question	From economy point of view, which is the most economical drive for very heavy load carrying capacity of robots?
A	Electrical
B	Pneumatic
C	Hydraulic
D	Electronics

Id	
Question	Which of the following is the advantage of the hydraulic drive?
A	High load carrying capacity
B	Portability
C	Impact loading
D	Programmable control

Id	
Question	Which of the following is the advantage of the pneumatic drive?
A	High load carrying capacity
B	Portability
C	Impact loading
D	Programmable control

Id	
Question	Which of the following is the advantage of the electrical drive?
A	High load carrying capacity
B	Portability
C	Impact loading
D	Programmable control

Id	
Question	Which of the following is an essential component of an electro-pneumatic system?
A	Shuttle valve
B	Delay
C	Solenoid
D	Flow control valve

Id	
Question	FRL stands for
A	Full wave Regulator Linear
B	Flexible Rectangular Lobe
C	Filter Regulator Lubricator unit
D	Fine Reinforced Longitudinal stress

Id	
Question	FRL unit is an essential component for _____
A	Electrical Drive
B	Hydraulic Drive
C	Pneumatic Drive
D	Electro-hydraulic drive

Id	
Question	Hose pipe is used in _____
A	Electrical Drive
B	Hydraulic Drive
C	Pneumatic Drive
D	Both in Hydraulic and Pneumatic Drive

Id	
Question	Delay is used in _____
A	Electrical Drive
B	Electro-Pneumatic Drive
C	Pneumatic Drive
D	All of these

Id	
Question	Shuttle valve is used as _____ logic
A	AND
B	OR
C	NAND
D	NOR

Id	
Question	Hydraulic drive is not recommended for a robot being used for arc welding operation because_____
A	It is very costly
B	Poor Accuracy
C	Fire Hazardous
D	All of these

Id	
Question	Pneumatic drive is not recommended for a robot being used for arc welding operation because_____
A	It is very costly
B	Poor Accuracy
C	Fire Hazardous
D	All of these

Id	
Question	Pneumatic drive is recommended for a robot being used for stamping operation because_____
A	Good Accuracy
B	Good control over motion
C	Impact loading
D	All of these

Id	
Question	Pneumatic drive is recommended for a robot being used for miniming applications because_____
A	Good Accuracy
B	Clean work environment
C	Programmable control
D	All of these

Id	
Question	Which of the following drive have most noisy operation?
A	Hydraulic
B	Pneumatic
C	Eletro-hydraulic
D	All of these

Id	
Question	If the return stroke of a cylinder is due to the spring force, the cylinder is called as _____
A	Spring loaded cylinder
B	Single acting cylinder
C	Elastic cylinder
D	Rebounding cylinder

Id	
Question	The circuit used for controlling the speed of operation of a hydraulic cylinder during it's forward stroke is called as _____.
A	Meter-in circuit
B	Meter-out circuit
C	Both A & B are correct
D	Both A & B are incorrect

Id	
Question	The circuit used for controlling the speed of operation of a hydraulic cylinder during it's reverse stroke is called as _____.
A	Meter-in circuit
B	Meter-out circuit
C	Both A & B are correct
D	Both A & B are incorrect

Id	
Question	Which of the following type of motor works on electrical pulses?
A	Stepper motor
B	DC Servo motor
C	AC synchronous motor
D	All above

Id	
Question	Which of the following motor has the inbuilt feedback system?
A	Stepper motor
B	DC Servo motor
C	AC synchronous motor
D	All above

Id	
Question	Which of the following motor works on open loop system?
A	Stepper motor
B	DC Servo motor
C	Both A & B
D	None of these

Id	
Question	The speed of stepper motor is independent of _____.
A	Pulse rate
B	Number of poles
C	frequency
D	None of these

Id	
Question	For indexing of turret, which of the following type of motor will you recommend?
A	Stepper motor
B	DC Servo motor
C	AC synchronous motor
D	None above

Id	
Question	Back emf type motor is an example (a subtype) of _____
A	Stepper motor
B	DC Servo motor
C	AC synchronous motor
D	None above

Id	
Question	Optical encoder is used in _____
A	Stepper motor
B	DC Servo motor
C	AC synchronous motor
D	None above

Id	
Question	Which of the following is a method to activate the pneumatic/electro-pneumatic DC valves?
A	Solenoid
B	Spring
C	Peddle
D	All above

Id	
Question	Which of the following is a disadvantage of pneumatic drive compared to hydraulic drive?
A	Low load carrying capacity
B	Compressible nature of working fluid
C	Poor control over the motion
D	All above

Id	
Question	Which of the following is an advantage of pneumatic drive compared to hydraulic drive?
A	Cheaper working fluid
B	Accuracy
C	Recycling of working fluid
D	All above

Id	
Question	What is the major advantage of rotary air compressor over reciprocating air compressor?
A	Higher pressures can be delivered
B	Continuous flow of compressed air
C	Both A & B
D	None of these

Id	
Question	What is the major disadvantage of rotary air compressor over reciprocating air compressor?
A	Noisy operation
B	Lower operating pressures
C	Balancing required
D	Air tank is required

Id	
Question	What is the main purpose of two stage compression of air?
A	Double (quantity) the delivery of compressed air
B	Silent operation
C	High pressure air delivery
D	All oboe

Id	
Question	What is the main purpose of V type double cylinder reciprocating air compressor?
A	Ease of Balancing
B	Silent operation
C	High pressure air delivery
D	All oboe

Id	
Question	Which of the following is a rotary actuator used in pneumatic drive?
A	Single acting cylinder
B	Double acting cylinder
C	Rotary air compressor
D	Vane motor

Id	
Question	What is most preferred method to achieve time delay in a pneumatic circuit?
A	Delay valve (Tank)
B	Throttle valve
C	Double acting cylinder with cushioning effect
D	All above

Id	
Question	Positive displacement pump is used in _____ drive
A	Electrical
B	Pneumatic
C	Hydraulic
D	All above