

# IAT 3-Mechatronics

21 Dec 2020; Time: 60mins. Good luck.

The respondent's email address (**chtn17me@cmrit.ac.in**) was recorded on submission of this form.

Name \*

Chetan TN

USN \*

1CR17ME019

Section \*

A

B

Wrist motion of y involves \*

1 point

- right to left rotation of the object
- up and down rotation of the object
- twisting of the object about the arm axis
- none of the mentioned

Robots are specified by \*

1 point

- pay load
- dimension of work envelope
- degree of freedom
- all of the mentioned

Hydraulic drives are used for a robot when \*

1 point

- high torque is required
- b) high power is required
- rapid motion of robot arm
- all of the mentioned

The following type of robot is most suitable for pick and place operations \*

1 point

- rectangular
- cylindrical
- spherical
- jointed arm type

A robot's arm is also known as its \*

1 point

- actuator
- end effector
- manipulator
- servomechanism

Which type of actuator generates a good deal of power but tends to be messy? \*

1 point

- electric
- hydraulic
- pneumatic
- none of the mentioned

If a robot can alter its own trajectory in response to external conditions, it is considered to be \*

1 point

- intelligent
- mobile
- non servo
- open loop

Programming a robot by physically moving it through the trajectory you want it to follow is called \*

1 point

- contact sensing control
- continuous path control
- pick and place control
- robot vision control

Which device is mostly associated with automation? \*

1 point

- flexible manufacturing
- robots
- computer graphics workstation
- NC machine

Choose the robot component from the following \*

1 point

- micro computer
- coaxial cable
- arm
- software

The main objective(s) of Industrial robot is to \*

1 point

- To minimise the labour requirement
- To increase productivity
- To enhance the life of production machines
- All of the above

A configuration for a robot is \*

1 point

- octagonal
- oblong
- square
- spherical

In which of the following operations Continuous Path System is used \*

1 point

- Pick and Place
- Loading and Unloading
- Continuous welding
- All of the above

Which of the following sensors determines the relationship of the robot and its environment and the objects handled by it \*

1 point

- Internal State sensors
- External State sensors
- Both (A) and (B)
- None of the above

Internal state sensors are used for measuring \_\_\_\_\_ of the end effector. \*

1 point

- Position
- Position & Velocity
- Velocity & Acceleration
- Position, Velocity & Acceleration

The following drive is used for lighter class of Robot. \*

1 point

- Pneumatic drive
- Hydraulic drive
- Electric drive
- All of the above

The Robot designed with Cartesian coordinate systems has \*

1 point

- three linear movements
- Three rotational movements
- Two linear and one rotational movement
- Two rotational and one linear movement

The Robot designed with Polar coordinate systems has \*

1 point

- Three linear movements
- Three rotational movements
- Two linear and one rotational movement
- Two rotational and one linear movement

Drives are also known as \*

1 point

- Actuators
- Controller
- Sensors
- Manipulator
- Option 5

Industrial Robots are generally designed to carry which of the following coordinate system(s). \*

1 point

- Cartesian coordinate systems
- Polar coordinate systems
- Cylindrical coordinate system
- All of the above

\_\_\_\_\_ is the name for space inside which a robot unit operates? \*

1 point

- environment
- spatial base
- exclusion zone
- work envelope



For a robot unit to be considered a functional industrial robot, typically, how many degrees of freedom would the robot have? \*

1 point

- three
- four
- eight
- six

The scientific principle that makes hydraulic systems possible is \*

1 point

- Pascal's principle
- Boyle's law
- Bernoulli's principle
- The fluid flow principle

Pneumatic and other power systems can support three kinds of motion; they are \*

1 point

- Linear, reciprocating, and random motion
- Linear, flowing, and rotary motion
- Linear, zigzag, and spiral motion
- Linear, reciprocating, and rotary motion

A single acting cylinder can be pressurized externally from one direction only. \*

1 point

- True
- False

A one-way valve that lets air into the reservoir of a compressor, but doesn't let it out, is a \*

1 point

- Check valve
- Receiver valve
- Control valve
- Three way valve

The \_\_\_\_\_ converts the compressed air energy into mechanical energy in the form of linear movement in one direction only. \*

1 point

- Piston cylinders
- Double acting cylinders
- Single acting cylinders
- Hydraulic pumps

When the piston area of the cylinder is connected to the atmosphere, the piston of the single-acting cylinder is pressed by the spring to the \_\_\_\_\_ \* 1 point

- Cylinder center
- Cylinder down
- Cylinder bottom
- Cylinder upper

When comparing first cost of hydraulic systems to pneumatic systems, generally they are: \* 1 point

- more expensive to purchase.
- less expensive to purchase.
- cost about the same.

The most common hydraulic fluid is: \* 1 point

- mineral oil.
- synthetic fluid.
- water

Which of the following is used as a component in hydraulic power unit? \*

1 point

- pressure gauge
- filler gauge
- valve
- reservoir

Accessories used in a hydraulic power unit adjust pressure and are used to generate flow and direction of the fluid. \*

1 point

- True
- False

Rotary motion in a hydraulic power unit is achieved by using \*

1 point

- hydraulic cylinder
- pneumatic cylinder
- both hydraulic and pneumatic cylinder
- none of the above

A relief valve \*

1 point

- Provides back pressure for a cylinder
- Unloads a pump
- Is a directional control valve
- None of these

Types of pressure relief valves are \*

1 point

- Direct acting
- Pilot operated
- Both the above
- neither

Single acting cylinder can have a spring attached \*

1 point

- Yes
- No

Non differential cylinder has two outlets \*

1 point

- True
- False

Differential cylinder has how many fluid passages \*

1 point

- 1
- 2
- 3

Telescopic cylinder is an example of \*

1 point

- Single acting
- Double acting
- Neither

Term WAY refers to the direction of fluid flow in the valve \*

1 point

- True
- False

This form was created inside of CMR Institute of Technology.

Google Forms