

 **Robotics**

An industrial robot is a reprogrammable, multi-functional manipulator designed to move material, parts, tools or specialized devices through various programmed motions for the performance of a variety of tasks.

- 1 The volume of space into which it can be positioned, i.e. working space.
- 2 All the places your hands can reach.
In theory most of the land surface of the earth.
- 3 Humans are mobile.
- 4 The different dimensions in which a robot manipulator can move.

Cartesian or rectilinear	3	0	cube
<i>Cylindrical or post-type</i>	2	1	<i>cylinder</i>
<i>Spherical or polar</i>	1	2	<i>sphere</i>
<i>Anthropomorphic or joint</i>	0	3	<i>almost sphere</i>

1. out
2. than
3. of
4. human
5. in
6. hand
7. Could
8. example
9. because, since, as
10. not
11. give, provide
12. do
13. most

Normal

- 1 If the ignition is off, the light is off.
- 2 If the seat is not occupied, the light is off.
- 3 If the seat is occupied and the ignition is off, the light is off.

Faulty

- 4 Even if the seat is occupied, the ignition is on and the belt open, the light is off.
- 5 Although the seat is not occupied, the light is on.
- 6 Even if the ignition is off, the light is on.

1 Stepper motors allow accurate positioning; hence the head will be able to read from the correct position on the disc.

2 Commutator and brushes.

3 A small step angle as the accuracy is 3% to 5% the last step.

Type	Advantages	Applications
Variable reluctance	No detent torque <i>Good acceleration High speed</i>	<i>Micropositioning tables</i>
Permanent magnet motor	High dynamic torque at low speed <i>Large step angles Low cost</i>	<i>Computer peripherals and printers</i>
Hybrid type	Good speed/torque characteristics <i>Micro-stepping capability</i>	
Disc magnet	Can be made very small, very efficient	<i>Quartz-controlled watches</i>

