ITR ASSIGNMENT 1:

Q2:

1. Manipulators (robotic arms)
   https://www.youtube.com/watch?v=rbki4HR41-4
   https://www.youtube.com/watch?v=SisrRUX_Zfk
   https://www.youtube.com/watch?v=mKCVol2iWcc
   Robotic arms are called so because they resemble human arms. The arm has several joints that function as axes to allow some mobility. A robotic arm's range of motion increases with the number of rotational joints it possesses. Most industrial robotic arms have four to six joints, giving them the same number of rotational axes. They are often affixed on a base. They also have actuators, sensors, vision systems, power systems, software components, and an end-of-arm tool.

2. Mobile robots (ground)
   https://www.youtube.com/watch?v=c6DZ_8upx2Y
   https://www.youtube.com/watch?v=M0fL5Q6rGws
   https://www.youtube.com/watch?v=WnT6uTHdgSI
   https://www.youtube.com/watch?v=M-kZTzUXF3Q
   It is a type of robot that can move around in its environment under the direction of software and uses sensors and other technologies to recognize its surroundings. They can be unmanned and may use AI, but also have components like wheels, legs, or tracks. Its main functions include the capacity to move around and investigate transport payloads. It might also be used to carry out sophisticated tasks utilizing an onboard system, such as robotic arms.

3. Aerial robots
   https://www.youtube.com/watch?v=Lji09PTZtOw
   https://www.youtube.com/watch?v=P2YPG8PO9JU
   https://www.youtube.com/watch?v=9IkaP6XMNZw
   One of its types is drones which are widely used in military applications nowadays. They can be used for surveillance, exploration projects (areas that are not accessible to humans), and nowadays, even for public events and also as a means of delivery. They are controlled by onboard controllers, GPS modules, and sensors. They can either be manned or unmanned.

4. Underwater robots

https://www.youtube.com/watch?v=4WOOwesIkss
https://www.youtube.com/watch?v=QGF0IYPEyVg

Remotely operated vehicles (ROVs) and autonomous underwater vehicles (AUVs) can be used for Ocean research. These robots can travel to parts of the ocean that are too risky or challenging for people. In order to gather large volumes of data from deep-sea settings, underwater robots are available in various sizes and forms and may be equipped with a wide range of sensors and instruments.

5. Soft robots

   https://www.youtube.com/watch?v=iwQRYzLZvGE
   https://www.youtube.com/watch?v=4HVSr3ouCdk
   https://www.youtube.com/watch?v=q2Q-taHAo7Q

   They comprise motion that mimics the movements of people, animals, and plants. They are made of compliant materials, as opposed to rigid linkages, and are used to design, manufacture and control robots. The compliance of soft robots, as opposed to rigid-bodied ones made of metal, ceramic, and rigid plastics, might increase their safety when operating in close proximity to humans.

6. Microrobots

   https://www.youtube.com/watch?v=k8IsYb31He8

   A microrobot is a very small robot built to do specific tasks. They are used to carry out microscale activities such as medication delivery, cell manipulation, micro-assembly, and biosensing.