

Time Allowed: 3 Hrs

Max. Marks: 100

Note: Attempt any five questions.

- Q1. a) What are various types of manipulators? Discuss their constructional features.
b) Differentiate between servo and non servo manipulator. Also discuss their applications.
- Q2. a) What are actuators and transmission system? Discuss any two electrical actuators.
b) What are various feed back systems? What is difference between open and closed loop systems?
- Q3. a) Differentiate between mechanization and automation.
b) Classify various automation systems? Discuss them in regard to their application in different types of production systems.
- Q4. a) How designing of air cylinders is done? Also discuss air cylinder mountings.
b) What do you understand by direction control valve? Explain with help of neat sketch functioning of any direction control valve.
- Q5. a) What is the basis of automated work piece handling? Also discuss various techniques of work piece handling.
b) What is assembly automation? Discuss.
- Q6. Write short notes on
i) Robot programming languages.
ii) Hydraulic servo systems.
- Q7. a) What do you understand by artificial intelligence explain by giving suitable examples.
b) What do you understand by logged locomotion? Discuss.
- Q8. Discuss any two
a) Inverse manipulator
b) Manipulator dynamics
c) Pneumatic safety