13/12/2017 E (10)

SHAHEED BHAGAT SINGH STATE TECHNICAL CAMPUS, FEROZEPUR

ROLL No:					TTT	Total number of pages:[2
Total number	of que	estions:	06			Total number of pagessips

B.Tech. || ME || 5th Semester Industrial Automation and Robotics

Subject Code: BTME-504
Paper ID:

Time allowed: 3 Hrs

Max Marks: 60

- **Important Instructions:**
 - All questions are compulsory
 - · Assume any missing data

PART A (2×10)

- Q. 1. Short-Answer Questions:
 - (a) Differentiate Mechanization from Automation.
 - (b) What do you mean by Fluid power?
 - (c) What is pressure regulating valve?
 - (d) Sketch a non return type flow control valve.
 - (e) What do you mean by degrees of freedom?
 - (f) Differentiate Precision from Accuracy?
 - (g)What do you understand by Directional Control Valve?
 - (h) List down the different sensors used in robots.
 - (i) Distinguish between hydraulic and pneumatic systems.
 - (j) What is meant by Conda effect?

PART B (8×5)

Q. 2. What are the types of automation that can be used in a production system? CO1 Also give merits and demerits of each.

OR

Why Automation is required in industries? Also identify major socio- CO1 economic considerations favoring automation.

Q. 3. With the help of a neat sketch, explain the components of a hydraulic system. CO2 Also give its applications in detail. What do you understand by hydraulic system design? Also discuss in detail CO2 the various types of fluids used in hydraulics.

Q. 4. Draw and explain the circuit diagram to control hydraulic double acting CO3 cylinder with the condition that cylinder can be stopped anywhere between extreme positions.

OR

Why speed control is less accurate in Pneumatic systems? Also differentiate CO3 between throttle in and throttle out speed control circuit in Pneumatic with the help of a neat diagram.

Q. 5. What is the use of teach pendent in robot programming. Also give the CO4 methods of robot programming.

OR

How are transfer devices classified? Also describe the construction, working CO4 principle and important applications of any two types of transfer devices.

Q. 6. Discuss the construction of PLC and microprocessor and describe their use in CO5 industrial applications with the help of suitable examples.

OR

Why Robots are employed in industries? Also differentiate four common CO5 types of robot configuration with the help of neat diagram.
