

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII(NEW) EXAMINATION – SUMMER 2019****Subject Code:2181922****Date:13/05/2019****Subject Name:Automation****Time:10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Necessity of automation in Industry. **03**
(b) Short note on USA principle. **04**
(c) What is Automation? Explain different types of Automation. **07**
- Q.2** (a) Describe 3-way valve hydraulic amplifier. **03**
(b) Write a note on (i) Hydraulic accumulator and unloading valve, **04**
(ii) Relief valve and direction control valve.
(c) Explain the different component used in Hydraulic System with neat diagram. **07**
- OR**
- (c) List out the basic components of a pneumatic circuit. Explain with neat diagram. **07**
- Q.3** (a) Differentiate the pneumatics system and hydraulic system. **03**
(b) Describe the application of robots with example. **04**
(c) Describe the working of microcontroller with example. **07**
- OR**
- Q.3** (a) What is the role of PLC in automation? **03**
(b) Explain the application of PLC in automation with suitable example. **04**
(c) Define PLC with example Describe the classification the hydraulic actuator and explain any one. **07**
- Q.4** (a) Explain CMM. **03**
(b) Explain the scope of automation in Indian industries. **04**
(c) What are the criteria for selection of an industrial robot? Explain in brief. **07**
- OR**
- Q.4** (a) Explain the different types of actuators in robotics. **03**
(b) Describe automated material handling system. **04**
(c) List out the different types of sensors in robotics. Describe the working of any five sensors. **07**
- Q.5** (a) Explain robot control system. **03**
(b) What is an automation migration strategy? **04**
(c) Describe the parameters and procedure set the automation in the Casting shop. **07**
- OR**
- Q.5** (a) Define Break-even point with sketch. **03**
(b) Explain the ASRS **04**
(c) List the different types of AGV. Explain any three with neat sketch. **07**
