SL-342

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Seat No.	

B.E. (Mechanical) (Part-II) (Semester-VIII) (Revised) Examination, May - 2017

INDUSTRIAL AUTOMATION AND ROBOTICS (Elective-IV)

Sub. Code : 68518

Day and Date : Friday, 05-05-2017 **Total Marks : 100**

Time : 2.00 p.m. to 5.00 p.m.

Instructions :
1) **All questions are compulsory.**
2) **Figures to the right indicate full marks.**
3) **Make suitable assumption if necessary and mention them clearly.**

Q1) a) With neat block diagram explain basic elements of an automated system. **[8]**

b) Explain the features and applications of the following. **[8]**

i) Flexible automation

ii) Programmable automation

iii) Fixed automation

OR

b) Explain three phases of typical automation strategy. **[8]**

Q2) a) Explain the following with respect to continuous control system: **[8]**

i) Regulatory control ii) Adaptive control

b) Explain analysis of transfer line without storage buffer. **[8]**

Q3) a) Explain the different types of part feeder mechanisms in automated assembly. **[8]**

OR

a) Explain the following parts in assembly automation. **[8]**

i) Hoppers ii) Orientation mechanisms.

b) Explain the four automated assembly system configurations. **[10]**

P.T.O.

Q4) a) Explain the common robot configurations and their work volumes. **[8]**

OR

a) Explain with a suitable sketch, the various parts of an industrial robot.**[8]**

b) Explain different joints and their degrees of freedom in robot system.**[8]**

Q5) a) Explain the factors to be considered in design and selection of gripper. **[8]**

OR

a) Explain in detail types of grippers. **[8]**

b) Explain the remote center compliance (RCC) device in robot assembly.**[8]**

Q6) a) Explain a robot program as a path in space. **[8]**

b) Explain WAIT, SIGNAL and DELAY commands in industrial robot.**[10]**

OR

b) Elaborate in detail industrial robot applications. **[10]**