

[Total No. of Printed Pages:2]

CODE NO:- Z-113
FACULTY OF ENGINEERING
B.E (EE/EEP/EEE) Year Examination - June – 2015
Industrial Automation
(Revised)

[Time: Three Hours]

[Max. Marks:80]

“Please check whether you have got the right question paper.”

- i) Q. no 1 & Q. No 6 are compulsory
- ii) Solve any two questions from remaining questions from each section A & B.
- iii) Figures to the right indicate full marks.

SECTION-A

- Q.1 Solve any five 10
- 1) What is actuator? List the names of actuator.
 - 2) What are the low energy output signals of controllers used in electrical & pneumatic system? Write their range.
 - 3) What is mean by discrete & continuous variable? Give the example.
 - 4) What is ladder diagram? Give one example.
 - 5) List four input & output devices connected to programmable logic controller.
 - 6) What are the serial standards used for serial communication with PLC?
 - 7) What are the types of automation used for different operations?
 - 8) Draw traditional control system diagram.
- Q.2 a) How to automate only one process operation & multiple process operation? Draw & explain automated system. 08
b) How level of automation is described as manually operated, semi-automatic & fully automatic? Explain in detail. 07
- Q.3 a) How a liquid level in a tank is controlled by continuous control & discrete control? Explain if they applied separately & compositely. 08
b) What is factory automation? Give the example. 07
- Q.4 a) Why digital control supervisory control is required? How it is achieved? What are their features, merits & demerits? 08
b) Draw & explain functional programmable logic controller. 07
- Q.5 a) How starter & overload protection is provided to AC motor using PLC? Draw ladder diagram & explain. 08
b) How analog PLC operation is implemented? Explain in detail. 07
- SECTION-B**
- Q.6 Solve any five 10
- 1) What is DCS? What are its advantages?
 - 2) What is the function of a protocol driver program?
 - 3) From configuration how device address & data is made in MTU?
 - 4) List the data variables acquired from different substation using SCADA system.
 - 5) List communication techniques used in SCADA system.
 - 6) List the applications of DCS.
 - 7) How displays are categorised in DCS?
 - 8) What are the functions of SCADA?
- Q.7 a) How SCADA is implemented for power system operation? Explain. 08
b) How automatic substation control is achieved using SCADA system? Explain. 07

- Q.8 a) What is DCE & DTE(data collection Equipment & data transmission Equipment)? What its function? Explain. 07
b) How protocols divide binary message into various fields? How data is configured in RTU or MTU? 08
- Q.9 a) Draw & explain basic DCS architecture. 08
b) How communication links are used in DCS? How it links to process station & control centre? Explain. 07
- Q.10 Write short notes on any three 15
a) Function of Alarm handling & trending
b) Access control & logging
c) Alarm functions in SCADA & DCS.
d) Difference between DCS & traditional control system.