Code: 13A02806

R13

B.Tech IV Year II Semester (R13) Advanced Supplementary Examinations July 2018

INDUSTRIAL AUTOMATION & CONTROL

(Electrical and Electronics Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

*****

1 Answer the following: (10 X 02 = 20 Marks)

(a) What is industrial automation?
(b) What is calibration?
(c) How does cascade control work?
(d) What is control system?
(e) State three main components of PLC's.
(f) What is sequence / logic control?
(g) What is pneumatic system?
(h) Name any two differences between servo valve and a proportional valve.
(i) What is steeper motor?
(j) What is a variable frequency drive?

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 With neat sketches, explain any two displacement and speed measurement.

OR

3 Classify and sub classify errors. Explain briefly each type of error, with example and how can be reduced.

UNIT – II

4 How does cascade control works? Explain advantages and disadvantages of cascade control system.

OR

5 What is PID controller and how it works?

UNIT – III

6 Describe the elements of a typical RLL program and their interpretations.

OR

7 Explain briefly the structured design approach in sequence control.

UNIT – IV

8 Explain with a neat sketch:

(a) Balanced vane motor.
(b) Swash plate piston motor.

OR

9 Explain with a suitable circuit diagram:

(a) Shuffle valve.
(b) Quick exhaust valve.

UNIT – V

10 Sketch and explain the principle of stepper motor and name the applications of stepper motors.

OR

11 What are electrical drives? Why electrical drives are needed? With a block diagram, explain AC electric drive.

*****