Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code : 53684

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2019.

Sixth Semester

Robotics and Automation Engineering

RO 6602 – AUTOMATION SYSTEM DESIGN

(Regulation 2013)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   Define automation.

2.   What are the levels of automation?

3.   Define partial automation.

4.   What is mean by modular fixture?

5.   What is mean by air motors?

6.   Define travel step diagram.

7.   General rules for product design for automation.

8.   What is the difference between traditional design and mechatronic design?

9.   What are the selection criteria for hydraulic cylinders?

10. What is proportional valve?

PART B — (5 × 13 = 65 marks)

11. (a)   Explain the concept in manufacturing and reasons for automation.

Or

(b)   (i)   Explain the types of production.   (7)

(ii)   Explain automation strategies.   (6)

12. (a) Explain terminology and analysis of transfer lines without storage.

Or

(b) (i) Brief about RFID. (6)

(ii) Explain modular fixturing. (7)

13. (a) Explain the construction and components for pneumatic control.

Or

(b) (i) Brief about sequence control. (6)

(ii) Explain the Cascade method. (7)

14. (a) Explain the design of parts for high speed feeding and orienting.

Or

(b) Explain the stages in design and also explain mechatronic design.

15. (a) (i) Explain the maintenance of hydraulic systems. (8)

(ii) Explain heat generation in hydraulic system. (5)

Or

(b) Explain PLC construction, types and operation.

PART C — (1 × 15 = 15 marks)

16. (a) Explain the working of flow and direction control valves using neat sketch.

Or

(b) Explain the selection criteria for hydraulic components.

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