C 80591 (Pages : 2) Name.....

Reg. No.....

EIGHTH SEMESTER B.TECH. (ENGINEERING) (09 SCHEME) DEGREE EXAMINATION, APRIL 2015

EE 09 804 L24—MECHATRONICS

Time : Three Hours Maximum : 70 Marks

Part A

Answer **all** *questions.*

1. Differentiate point to point and contouring systems.
2. How is accuracy maintained in CNC machines ?
3. Define Latches and Flip flop.
4. What are the important steps to be followed while preparing part programming ?
5. Give an application of touch sensor.

(5 × 2 = 10 marks)

Part B

Answer any **four** *questions.*

6. Explain the evolution of mechatronics.
7. List out the merits and demerits of CNC systems.
8. Write short notes on stepper motors.
9. What is the difference between positioning machines and contouring machines ?
10. Discuss the design considerations of CNC machines for improving machining accuracy.
11. Write short notes on robot drives.

(4 × 5 = 20 marks)

Part C

Answer **all** *questions.*

12. (a) What are the different types of contouring system in a CNC machine ? Explain with neat sketches.

Or

(b) Explain the control of contouring system in CNC with neat block diagram.

13. (a) Explain digital to analog converters.

Or

(b) Explain pulse digitizer and encoders.

Turn over

14. (a) Define CNC and DNC. With a help of a diagram explain the working of NC machine tool.

Or

(b) Briefly discuss the APT programming with example.

15. (a) Discuss the different robot programming methods, listing the merits and demerits.

Or

(b) With an application example and discuss the function of range sensor.

(4 × 10 = 40 marks)