Total No. of Questions : 8]   [Total No. of Printed Pages : 2

Roll No ....

MMPD-301(A)

M.E./M.Tech., III Semester

Examination, December 2016

Mechatronics and Flexible Manufacturing

(Elective-I)

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.
ii) All questions carry equal marks.
iii) Assume suitable data, if required.

1. a) What do you understand by Mechatronics? Write its characteristics and key elements.   7

   b) Write and explain the Mechatronics systems with the help of suitable examples.   7

2. Discuss the main features of CNC machining centers and CNC turning centres.   14

3. What do you understand by Control System? Explain finite positioning control system and continuous path control system with the help of suitable diagram.   14

4. Explain spindle and feed drives, servo principle and optimization. Also write the selection criteria for drives.   14

5. a) What do you understand by interfacing, monitoring and diagnostics?   7

   b) Write and explain the features and function of CNC systems.   7

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6. What do you understand by Programmable Logic Controllers (PLC's) and Direct Numerical Control (DNC)? Also write the function and benefits of DNC.   14

7. a) Discuss the composition of NC part programming. Also explain how part programming is done for CNC machining?   7

   b) To prepare a part program for milling a contoured surface of a C.I. component as shown in figure 1.   7
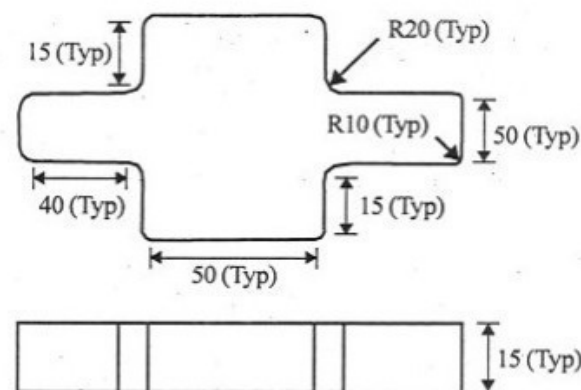

Figure 1

8. Write short notes on :   14

   a) Co-ordinates areas and symbol of motion

   b) Canned cycle and subroutine

   c) Benefits of FMS and suitability to batch production

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