Roll No ..................................

## MMPD - 301(A)
## M.E./M.Tech., III Semester
Examination, June 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.

1. a) Define Mechatronics and describe key elements of the mechatronics system.
   b) Explain the construction of a CNC machine and explain the various mechatronics system in the design.

2. a) What are the important features considered while CNC machine building?
   b) With the simple sketch, explain the Linear Motion Bearing System in CNC.

3. a) Compare and contrast different types of drives used in mechatronics systems.
   b) Describe briefly construction, working and stepping sequence of stepper motor.

4. a) How the incremental linear transducer used in CNC machine tool for measuring the incremental system? Explain in detail.
   b) Discuss the CAD/CAM considerations in planning the FMS database.

5. a) Write a CNC part program for the figure. Assume suitable spindle speed and feed. Use standard ISO G and M codes.
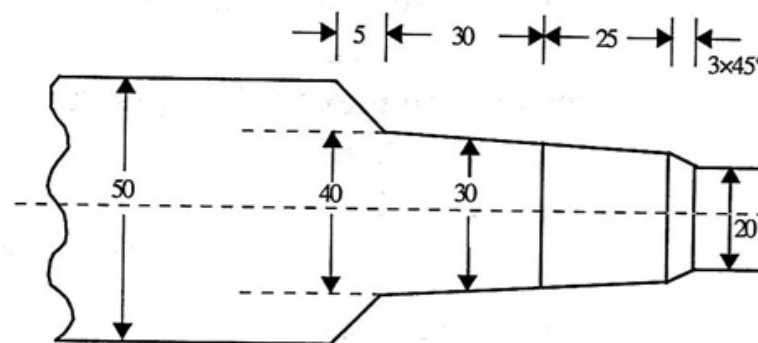


   b) How computers are helpful in NC code generation?

6. a) Describe the features of Turn-mill centre.
   b) How does a canned cycle reduce programme length?

7. a) What are the functions of DNC link?
   b) With the simple sketch, explain the Linear Motion Bearing System in CNC.

8. Write short notes of following: (Any two)
   a) Servo principle
   b) PLC
   c) Analog feedback devices

******