

**Roll No** .....

**MMPD-301(A)**

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

Examination, November 2018

## **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. Write its characteristics and key elements.  
b) Explain Differentiate between FMC, FMS and CIM.
2. a) Explain the main features of CNC machining centers and CNC turning centers.  
b) With the simple sketch, explain linear motion bearing system in CNC.
3. Explain finite positioning system and continuous path control system with suitable diagrams.
4. a) Discuss the Electrical cabinets and air cooling.  
b) Explain:-
  - i) Measurement and control system.
  - ii) Gauging and tool monitoring system.

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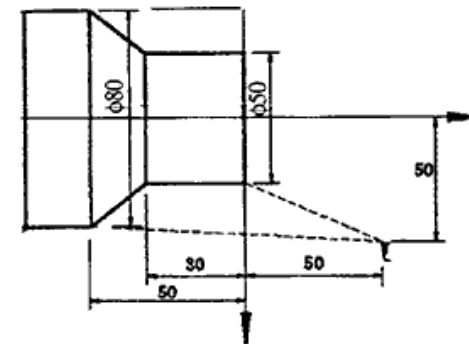
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5. a) What is coordinate system? What are the operations of CNC machine?  
b) Explain the working principle of DNC and advantage and limitation of DNC.
6. a) What are the function of DNC link?  
b) How computers are helpful in NC code generation?
7. Write a CNC part program for the figure. Assume suitable spindle speed and feed. Use standard ISO G codes and M codes.



8. Write short notes on any two:
- a) Canned cycles and subroutines
  - b) APT
  - c) Assembly techniques and guide-ways
  - d) Servo principle

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