

**Metal Cuttings and CNC Machine***Time : Three Hours**Maximum Marks : 100**Minimum Pass Marks : 35*

*Note: Attempt five questions selecting one from each unit. All questions carry equal marks.*

**Unit - I**

1. a) What are different types of machine tool drives.  
b) What is the principle of thread cutting. State the procedure of thread cutting on lathe.

**OR**

2. a) With the help of a neat sketch describe the geometry of a single point cutting tool.  
b) What do you mean by tool life. State and explain the factors affecting tool life.

**Unit - II**

3. a) What do you mean by grinding. Briefly discuss different types of grinding machines available for grinding operation.  
b) What are the advantages of centerless grinding over centre type grinding.

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4. Write short notes on :
  - i) Truing and Dressing of wheel
  - ii) Cylindrical and internal grinding.

**Unit - III**

5. a) What are common milling methods. Compare their merit and demerit.  
b) Explain the drilling procedure of drilling in radial drilling machine.

**OR**

6. a) What do you understand by Indexing. Explain any one type of indexing mechanism with neat sketch.  
b) Differentiate between drilling and broaching. Explain the principle of broaching.

**Unit - IV**

7. a) Explain the process of gear shaping and machine set up for shaping operation.  
b) Discuss the various types of quick return mechanism for shaper. Explain any one in detail.

**OR**

8. Write short notes on :
  - i) Machining time in shaper
  - ii) Die casting
  - iii) Gear shaving
  - iv) Cause of surface irregularities during shaping operation.

**Unit - V**

9. a) What is a control system. Discuss different types of control systems used in mechatronics.  
b) Discuss the advantage and disadvantages of CNC machines.

**OR**

10. Write short notes on :
  - i) Electronic switch
  - ii) Transducers
  - iii) Function of servomotor
  - iv) CD-Rom players.