

**2006 JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY**

**II B.TECH II SEMESTER REGULAR EXAMINATIONS**

**MACHINE TOOL ENGINEERING  
(PRODUCTION ENGINEERING)**

**APRIL 2006**

**TIME : 3 HOUR  
MARK : 80**

**ANSWER ANY FIVE QUESTIONS ALL QUESTIONS CARRY EQUAL MARKS**

1. (a) Derive an expression for optimum value of cutting speed.  
(b) While machining a mild steel bar with H.S.S tool the Cutting speed is 32m/min, tool life is 50 min, If cutting speed is increased by 50%, how tool life is affected. Take  $n=0.2$ .
2. Give neat diagram of engine lathe, and describe its main parts and controls.
3. (a) What are primary and secondary motions of turret and capstan lathes? Explain.  
(b) Describe with help of neat sketch, the working of collet chuck. And types of collet chucks?
4. (a) What is planer? Illustrate and describe its working principle.  
(b) Give detailed classification of planer machines.
5. (a) Explain with neat sketches the constructional features of a twist drill and label the important features  
(b) What is the function of a drill Jig? What provisions it must include?
6. Show with sketches and explain the following milling cutter angles
  - (a) Radial rake angle
  - (b) Axial rake angle
  - (c) Approach angle
  - (d) Side clearance angle
7. Explain with a neat sketch the chip formation during surface grinding. Describe the expression for the various forces generated.
8. (a) Explain clearly Honing tools with neat sketches .  
(b) State the differences between Honing and Lapping.