

**Reg. No:**

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**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**  
(AUTONOMOUS)  
**B.Tech III Year I Semester Supplementary Examinations November-2020**  
**MACHINE TOOLS**  
(Mechanical Engineering)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

**UNIT-I**

- 1 a Explain basic elements in metal cutting with a neat sketch. 6M  
b Discuss about machining of metals. 6M

**OR**

- 2 Give the short notes on ASA system and ORS system. Show the inter relationship equations between ASA and ORS system. 12M

**UNIT-II**

- 3 a Explain various forces acting on a chip. 6M  
b Derive an equation for shear strain from velocity relations. 6M

**OR**

- 4 Discuss tool failure and wear mechanism in cutting tool. 12M

**UNIT-III**

- 5 Explain lathe machine accessories with neat sketches. 12M

**OR**

- 6 a Explain the advantages and disadvantages of a turret lathe. 6M  
b What is meant by tool layout of a turret lathe? 6M

**UNIT-IV**

- 7 a Define the terms "Drilling" and "Drill". 4M  
b How is a drilling machine specified? Name the different types of the drilling machines? 8M

**OR**

- 8 Draw the block diagram of a horizontal milling machine and explain its various parts. 12M

**UNIT-V**

- 9 With a neat sketch, explain construction and working of tool and cutter grinding machine. 12M

**OR**

- 10 a Define and explain the terms i) Jig and ii) Fixture with its uses 6M  
b Describe briefly "Principles of jig and fixture design". 6M

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