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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)**B.Tech III Year I Semester Supplementary Examinations August-2021****MACHINE TOOLS**

(Mechanical Engineering)

Time: 3 hours

Max. Marks: 60

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

UNIT-I

- 1 a What are the basic objectives of the economical and efficient machining practice? **6M**
b How can you classify cutting tools? **6M**

OR

- 2 a Derive the equation for chip thickness ratio and shear plane angle. **6M**
b Define the single point cutting tool elements. **6M**

UNIT-II

- 3 a List out the types of cutting tool material and explain (i) Corundum (ii) Ucon. **8M**
b Give the broad classification of cutting fluids and explain them briefly. **4M**

OR

- 4 a Explain work done in metal cutting process. **7M**
b Explain the stress and strain acting on a chip. **5M**

UNIT-III

- 5 a List the Turret lathe operations and with neat sketch explain any one operation. **6M**
b Name the different types of lathe operations? Explain about facing and knurling with neat sketches. **6M**

OR

- 6 a What is meant by tool layout of a turret lathe? **5M**
b Explain lathe machine accessories with neat sketches **7M**

UNIT-IV

- 7 a How is a drilling machine specified? Name the different types of the drilling machines? **6M**
b Discuss briefly, with a neat sketch, a horizontal boring machine **6M**

OR

- 8 a What is a shaper? What is the working principle and specification of a shaper? **6M**
b Explain briefly plain indexing and differential indexing with suitable example. **6M**

UNIT-V

- 9 a What are the advantages, limitations and applications of broaching? **6M**
b Write short notes on: i) Silicon carbide ii) Aluminium oxide iii) Abrasive size. **6M**

OR

- 10 a How is "grinding" classified? **6M**
b What is a 'bond'? Name and explain principal bonds. **6M**

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