

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Regular & Supplementary Examinations February-2024
METAL CUTTING AND MACHINE TOOLS
(Mechanical Engineering)

Time: 3 Hours**Max. Marks: 60**

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

UNIT-I

- 1 a How can you classify cutting tools? CO1 L1 6M
b Define the single point cutting tool elements. CO1 L2 6M

OR

- 2 Write the short notes on ASA system and ORS system. Show the inter relationship equations between ASA and ORS system. CO1 L2 6M

UNIT-II

- 3 Draw a Merchant's circle diagram and derive the expressions to show relationships among the different forces acting on the cutting tool and coefficient of friction. CO2 L3 6M

OR

- 4 a Discuss the characteristics of an ideal cutting tool material. CO2 L3 6M
b List out the types of cutting tool material and explain CO2 L2 6M
(i) Coronite (ii) Ucon.

UNIT-III

- 5 Draw the engine lathe and label the parts. Discuss the functions of the lathe part. CO3 L4 12M

OR

- 6 Describe the Single spindle and multi spindle automatic lathes. CO3 L4 12M

UNIT-IV

- 7 Explain the working of any one drilling machine with neat sketch. CO4 L3 12M

OR

- 8 Draw the block diagram of a shaper machine and explain briefly the functions of various parts and operations performed on it. CO4 L4 12M

UNIT-V

- 9 How grinding machines are classified? Explain plain cylindrical grinding machine with neat sketch. CO5 L2 12M

OR

- 10 a How are broaching machines classified? CO5 L2 6M
b What are the advantages, limitations and applications of broaching? CO5 L2 6M

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