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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

B.Tech III Year I Semester Supplementary Examinations Feb-2021

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 What are the conditions for producing continuous chips? 6M

OR

- 2 a During orthogonal cutting a bar of 90mm diameter is reduced to 87.6mm. If the mean length of the cut is 88.2mm and rake angle is 15°, calculate: (i) Cutting ratio (ii) Shear angle. 6M
b Discuss about machining of metals. 6M

UNIT-II

- 3 a Explain cutting speed, feed, and depth of cut. 8M
b State the advantages and disadvantages of chemical fluids. 4M

OR

- 4 a Derive an equation for shear strain from velocity relations. 7M
b What are the characteristics of an ideal cutting tool material? 5M

UNIT-III

- 5 a Show the lathe set up for thread cutting operation and explain thread cutting. 6M
b Explain the advantages and disadvantages of a turret lathe. 6M

OR

- 6 a What are the different types of taper turning methods? Discuss any one method with suitable diagram. 5M
b Define the working principle of lathe. How can you specify a lathe? 7M

UNIT-IV

- 7 Draw the block diagram of a shaper machine and explain briefly its various parts and operations performed. 12M

OR

- 8 a What are the advantages of planer? 6M
b How milling machines are broadly classified? 6M

UNIT-V

- 9 a How are broaching machines classified? 6M
b Describe briefly "Principles of jig and fixture design". 6M

OR

- 10 a What is a 'grinding wheel'? What are the grinding wheel parameters that influence the grinding performance? 6M
b Define and explain the terms i) Jig and ii) Fixture with its uses. 6M

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