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**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)****B.Tech III Year I Semester Regular Examinations November/December 2018****MACHINE TOOLS**

(Mechanical Engineering)

Time: 3 hours

Max. Marks: 60

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

UNIT-I

- 1 a What factors are responsible for formation of different types of chips? What is built up edge? 7M
- b How many types of chips are formed in metal cutting operations? 5M

OR

- 2 a Explain the importance and functions of different tool surfaces associated with the geometry of a single point cutting tool with neat sketch. 7M
- b Explain various types of chip breakers with neat sketches 5M

UNIT-II

- 3 a Draw a Merchant's circle diagram and derive expressions to show relationships among the different forces acting on the cutting tool. 7M
- b Explain the differences between orthogonal cutting and oblique cutting? 5M

OR

- 4 a What are the types of tool materials used in metal cutting? Discuss their importance. 7M
- b Explain functions and characteristics of cutting fluids. 5M

UNIT-III

- 5 a Explain different types of taper turning methods, briefly discuss about taper turning by attachment with neat sketch. 7M
- b Explain the following operations – i) Rough turning ii) Boring iii) Facing. 5M

OR

- 6 a Name the different types of the lathes available in machine shop? Describe the working of a centre lathe 7M
- b What are the differences between a Turret and a Capstan lathe? 5M

UNIT-IV

- 7 a With the help of neat sketch write short notes on following: 7M
(i) Drilling. (ii) Boring. (iii) Reaming. (iv) Tapping. (v) Counter boring.
- b Explain the principle of quick return motion mechanism of a shaper. What is the need of this mechanism? 5M

OR

- 8 a Briefly describe constructional features of plane milling cutter? 7M
- b Discuss about differential indexing method? 5M

UNIT-V

- 9 a Compare cylindrical and surface grinding machine. Explain the construction features of surface grinding machine 7M
- b What are the various parameters to be considered in selection of grinding wheel? 5M

OR

- 10 a Explain honing process with suitable sketch. 7M
- b Discuss various principles of location. 5M

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