

Set No. 1

III B.Tech I Semester Supplementary Examinations, November - 2015

METAL CUTTING & MACHINE TOOLS

(Mechanical Engineering)

Time: 3 hours**Max. Marks: 75**

Answer any FIVE Questions

All Questions carry equal marks

- 1 a) During an orthogonal cutting a chip length of 160mm was obtained from an uncut chip length of 350 mm. The cutting tool has 22° rake angles and a depth of cut is 0.8mm. Determine the shear plane angle and chip thickness. [7]
b) Give in summary form the factors influencing formation of various types of chips. [8]
- 2 What is the working principle of lathe? Explain briefly the parts of a lathe? How is the size of lathe specified? [15]
- 3 a) What is the principle of working of shaper? [6]
b) State the advantages, limitations and applications of shaper. [9]
- 4 Discuss in detail the following with neat sketches: [15]
i) Drilling operations (ii) Jig boring machine.
- 5 Explain briefly with neat sketches: [15]
i) Conventional milling process ii) Straddle milling iii) form milling.
- 6 a) How is grinding classified? [3]
b) Discuss in detail about internal cylinder grinding. [12]
- 7 a) Explain briefly about clamping screws. [8]
b) Enumerate and explain any one type of fixtures. [7]
- 8 a) What are the functions of CNC? [5]
b) List out the advantages and disadvantages of CNC machines. [10]

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