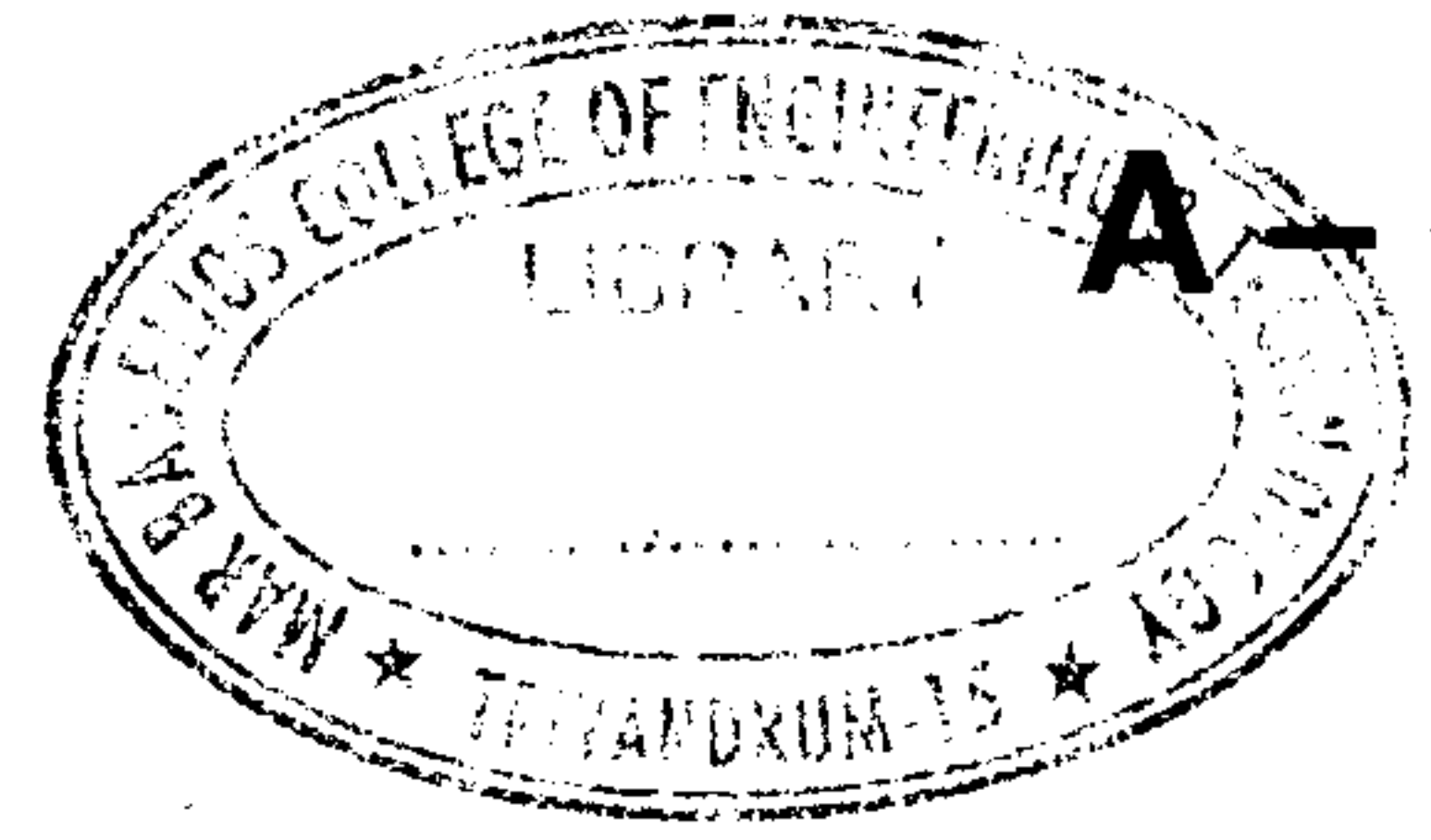




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A-6491

Reg. No. :

Name :

**Fifth Semester B.Tech. Degree Examination, October 2016
(2013 Scheme)
13.505 : MACHINE TOOLS (MN)**

Time : 3 Hours

Max. Marks : 100

Answer **all** questions from Part – **A** and **any one** question from **each** Module of Part – **B** :

PART – A

1. Distinguish between electrolyte of ECM with dielectric fluid in EDM.
2. Differentiate between up milling and down milling.
3. Compare capstan and turret lathe.
4. Name three different types of chucks used on lathe.
5. Explain the electromagnetic forming.
6. Write down the properties of a good cutting fluid.
7. Write down the specification of lathe.
8. What are the factors affecting machinability ?
9. Write a brief note on CHM and list some of the applications.
10. Write down the principle of EDM process. **(10×2=20 Marks)**

**PART – B
Module – I**

11. a) Explain Merchant's model for determining the shear plane angle in orthogonal cutting.
b) Illustrate the tool geometry of a single point cutting tool.

OR

P.T.O.



12. a) Explain with suitable sketch, the hydraulic quick return mechanism of shaper machine.
- b) During orthogonal cutting operation C-40 steel, the following data were obtained. Chip thickness = 0.45 mm, width of cut = 2.5 mm, feed = 0.25 mm/rev, tangential cut force = 1130 N, Feed thrust force = 295 N, cutting speed = 2.5 m/s. Rake angle = +10.
Calculate shear angle, shear force and kinetic coefficient of friction at the chip tool interface.

Module – II

13. a) With neat sketch, explain Turret indexing mechanism of lathe.
b) List and describe commonly used attachments on lathe.

OR

14. a) Differentiate between single spindle automat and multi-spindle automat. 10
b) Explain hydraulic quick return mechanism of shaper. 10

Module – III

15. a) Explain various types of milling cutters. 10
b) Differentiate between up milling and down milling. 10

OR

16. a) Explain dressing and truing of grinding wheels. 10
b) Write down the factors for selecting grinding wheels. 10

Module – IV

17. a) What is HERF ? Explain the process of explosive forming. 10
b) Explain Laser Beam Machining Process. 10

OR

18. a) Explain AJM process of machining with neat sketch. Write down the application of it. 10
b) Compare EDM and ECM process. 10

(20×4=80 Marks)