



Reg. No. :

Name :

**Fifth Semester B.Tech. Degree Examination, September 2014
(2008 Scheme)**

(Special Supplementary)

08.505 : MACHINE TOOLS (MN)

Time: 3 Hours

Max. Marks: 100

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

PART – A

1. Differentiate between orthogonal and oblique cutting with sketch.
2. What are the different work holding devices in Lathe ?
3. What are Stellites ? How are they made ? Describe their applications.
4. Define Machinability. How do you evaluate materials for machinability ?
5. What is Centreless Grinding ? Explain.
6. Describe Hydroforming Process.
7. What are the advantages and limitations of Powder metallurgy process over casting ?
8. Differentiate between Capstan and Turret Lathes.
9. What are the requirements of cutting fluids ? List different cutting fluids.
10. Explain the basic principle of AJM. Where it is used ? **(10×4=40 Marks)**

PART – B

Module – I

11. a) Explain the various types of chips formed during machining operations with simple sketches. **10**
- b) The tool life of a cutting tool is expressed as $VT^n = C$. The life of certain tool was found to be 30 min. While operating at 250 m/min. If the tool is operated at 150 m/min, find the tool life ? Assume $n = 0.2$. **10**

OR

P.T.O.





12. a) Explain the various factors affecting the cutting tool life. 10
b) Explain with the help of a neat sketch, the principle of working of a turning tool Dynamometer. 10

Module – II

13. a) How Lathes are classified ? Draw the figure of a centre Lathe and briefly explain the functions of various parts of the Lathe. 10
b) With neat sketch, explain the Apron Mechanism of Lathe. 10

OR

14. a) What are the various types of Milling cutters ? Give the sketch of a profile of sharpened milling cutter and mark all the elements of the cutter. 10
b) Explain with suitable example the simple indexing method. How it differ from Differential Indexing ? 10

Module – III

15. a) With neat sketch explain EDM process. Also give the merits, limitations and applications of the process. 10
b) What is HERF ? Explain the process Explosive Forming. 10

OR

16. a) With neat sketch, explain EBM process. Also give the advantages and disadvantages of the process. 10
b) Discuss the various steps involved in the manufacture of a Powder metallurgy component. Give the names of powder metallurgy products used in industries. 10