(Pages : 2) **A – 6380**

Reg. No. : .....

Name : .....

Fifth Semester B.Tech. Degree Examination, September 2016
(2008 Scheme)
Subject : 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

I. a) What is meant by tool signature ? State how it is expressed.

b) What are the factors affecting tool life ?

c) Derive the relation between chip thickness ratio in terms of shear angle and rake angle.

d) What are the requirements of cutting fluids ? List the different cutting fluids.

e) How is tool room lathe different from engine lathe ?

f) What is clapper box in shaper ?

g) Explain Glazing and loading of Grinding wheel.

h) Discuss the various steps involved in the manufacture of P/M components.

i) What are Transfer machines ? Give their advantages.

j) Explain the basic principle of LBM. Where it is used ? **(10×4=40 Marks)**

PART – B

Module – I

II. a) On suitable sketches of a single point cutting tool, mark its various principle parts and angles. What is meant by cutting tool signature ?

b) Explain the various types of chips formed during machining operations with simple sketches.

OR

III. a) What do you mean by optimum cutting speed ? Derive an expression for the same in terms of the relevant parameters.

b) What are the different sources and areas of heat generation during metal cutting ? Explain.

Module – II

IV. a) Describe with a neat sketch the working of Apron mechanism used in a Lathe.

b) What is the need of indexing process ? Explain the working of Universal dividing head with a neat Sketch and explain the process of Simple indexing. Give the index movement needed to make a gear of 30 teeth.

OR

V. a) What are lathe dogs ? Explain the working of steady rest and follower rest employed in lathes.

b) How conventional grinding wheels are designed ? What is meant by G-ratio in grinding ? Explain the various factors affecting the selection of grinding wheels.

Module – III

VI. a) Differentiate between a turret and capstan lathe with neat sketches.

b) What is meant Swiss type automatic machine tool ? Explain the working of a multiple spindle automatic chucking type machine tool.

OR

VII. a) Draw the set-up of EDM process and explain.

b) Explain the explosive forming process. Also give its advantages and disadvantages. **(3×20=60 Marks)**

MAR BASELIOS COLLEGE OF ENGINEERING & TECHNOLOGY
LIBRARY