



Reg. No. :

Name :

Fifth Semester B.Tech. Degree Examination, December 2015
(2008 Scheme)
08.505 : MACHINE TOOLS (MN)

Time : 3 Hours

Max. Marks : 100

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

PART – A

- I. a) What is machinability ? What are the factors affecting it ?
- b) Explain the advantages of ceramic tools.
- c) Describe the factors influencing tool life.
- d) How shaping machine is different from a planing machine ? Explain.
- e) Briefly explain the process of differential indexing used in milling machines.
- f) How grinding wheels are specified ? Explain.
- g) Write a short note on face milling operation with suitable sketch.
- h) What is USM ? Mention its applications and features.
- i) Briefly explain the process of glazing of grinding wheels.
- j) Discuss the importance of tool geometry in reducing tool wear. **(10×4=40 Marks)**

PART – B

Module – I

- II. a) Explain the processes of orthogonal and oblique cutting in details with the help of sketches. Mention their advantages and limitations. Also give the specific applications of each method. **12**
- b) With the help of a sketch describe the working of a tool dynamometer. What are its limitations ? **8**

OR



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- III. a) Explain the different types of chips formed during metal cutting with the help of sketches. How tool signature affects the life of a cutting tool ? 12
- b) For machining a low carbon steel rod, a carbide tipped tool
0 -10° -6° -6° -8° -75° -1 mm was used with a feed rate of 0.3 mm.
Determine :
- i) Chip reduction coefficient
- ii) Shear angle. 8

Module – II

- IV. a) Describe the various attachments used on a lathe with neat sketches. 12
- b) Explain the process of dressing and truing of grinding wheels. Mention the importance of these processes in grinding. 8
- OR
- V. a) With the help of a diagram explain the working of a milling machine. 10
- b) Explain the mechanism by which grinding wheels remove material from surfaces. Discuss the classification of grinding machines. 10

Module – III

- VI. a) Describe the working of a Turret lathe with neat diagram. 10
- b) Explain WEDM process with the help of a sketch. Mention its advantages and limitations. 10
- OR
- VII. a) What are the features of high energy rate forming processes ? Explain any process with the help of a diagram. 8
- b) Explain the different stages of powder metallurgy with diagrams. Discuss the benefits and limitations of this process. 12

