

Code: 9A14502

**R9**

B.Tech III Year I Semester (R09) Supplementary Examinations, May 2013

**MACHINE TOOLS AND METROLOGY**

(Mechatronics)

Time: 3 hours

Max Marks: 70

All questions carry equal marks

A total of five questions are to be answered with at least two questions from each part

Use separate booklets for Part A and Part B

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**PART - A**

- 1 What is Merchant's force diagram? Explain with a neat sketch.
- 2 With a neat sketch, explain the working of a lathe machine?
- 3 (a) Explain the working of a fine boring machine with a neat sketch.  
(b) Explain the principle involved in various milling operations.
- 4 (a) Classify grinding machines.  
(b) Explain the working of a honing machine.

**PART - B**

- 5 What is autocollimator? Explain the principle and working of an autocollimator.
- 6 (a) Explain about the various measurements done for surface finish.  
(b) How are they accomplished?
- 7 (a) Explain the principle used in laser interferometer.  
(b) What are its applications in linear and angular measurements?
- 8 (a) What is a CMM?  
(b) Explain various types and constructional features of CMM.

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