

**Roll No:**

**B.E (Full Time) DEGREE END SEMESTER EXAMINATIONS, April / May 2011**

Manufacturing Engineering

Fifth Semester

**MF9303 PRECISION ENGINEERING**

(Regulations 2008)

Duration: Three hours

Max. Marks: 100

**Answer ALL questions:**

**PART A (10 x 2 = 20 marks)**

1. Compare precision and accuracy.
2. What is the need for high precision machining?
3. Define tolerances.
4. What is meant by interference?
5. List the advantages of friction drive system.
6. What is meant by the concept of preferred numbers?
7. List the factors to be considered in design of MEMS.
8. What are the materials used in MEMS?
9. Define static stiffness.
10. What are the sources of thermal error?

**Part-B (5 x 16 = 80)**

11. a. (i) Explain the hole and shaft system in detail. 8  
(ii) Discuss the different gauge acceptance tests for machine tools. 8
12. a. Explain different classes of machining accuracy. 16  
OR  
b. (i) Explain the properties of CBN and diamond. 10  
(ii) Discuss the different thermal considerations in precision machining. 6
13. a. (i) Explain the design criteria of guide ways in precision engineering. 8  
(ii) Discuss in detail, the advantages of linear motor drive when compared to other drives. 8

OR

b. Discuss rolling element bearings in detail.	16
14. a. Describe the characteristics and principles of MEMS.	16
OR	
b. Discuss the applications of MEMS in	16
(i) Automobiles.	
(ii) Defense.	
(iii) Aerospace.	
(iv) Telecommunications.	
15. a. (i) How variation in cutting forces are analyzed.	8
(ii) How heat dissipation errors are controlled in precision machining?	8
OR	
b. Discuss the error controls associated with	
(i) Clamping and setting.	8
(ii) Locations	8