B.E. /B.Tech. DEGREE END SEMESTER EXAMINATIONS, November/December 2012

MANUFACTURING ENGINEERING BRANCH

FIFTH SEMESTER

MF9303 Precision Engineering

Duration: 3Hours **Maximum : 100 Marks**

Answer all the questions

Part-A (10 X 2 = 20 Marks)

1. What are the four classes of machining accuracy that is achievable?
2. List few applications of microdrilling.
3. Distinguish between tolerance and allowance.
4. What is 'making to suit' in precision engineering?
5. Distinguish between prismatic symmetric and prismatic asymmetric guideways.
6. What are lubricated bearings?
7. What is MEMS?
8. Compare Microelectronics with MEMS.
9. Define static Stiffness.
10. What is stabilization temperature?

Part-B (5 X 16 = 80 Marks)

11. Explain the inaccuracies that result due to temperature effects in machining. (16)

12.a. Explain the salient features of Ultra precision machining and its applications. (16)

(Or)

b.i. Describe the diamond based micromachining processes with sketches wherever necessary. (10)

ii. Write detailed notes on Hot pressed Ceramic tools. (6)

13.a.i. Explain different ways of expressing tolerances using neat sketches. (12)

ii. Explain hole basis and shaft basis systems. (4)

(Or)

b. Explain the method of checking the Parallelism, squareness and coincidence. (16)

14.a.i. Explain the design and working of various spindle drive systems. (10)

ii. Enumerate the desirable characteristics of a good bearing. (6)

(Or)

(PTO)

b.i. Discuss the applications of hydrodynamic thrust bearings. (8)
ii. Explain the advantages of using aerostatic bearings. (8)

15.a. Explain the elements of MEMS. (16)

(Or)

b. Discuss in detail various industrial applications of MEMS. (16)