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B.E/B.Tech DEGREE END SEMESTER EXAMINATIONS,NOV/DEC 2011

Manufacturing Engineering

Fifth Semester

MF9303 –PRECISION ENGINEERING

(REGULATIONS 2009)

Time:3 hr

Max.Mark:100

Answer ALL Questions

Part A (10 x 2 =20 Marks)

1. What are two key elements which enable the evolution of mechanical machining towards higher precision?
2. What do you meant by FTS?
3. When will you prefer unilateral tolerance system?
4. What is the criterion followed while selecting reference planes during the straightness test?
5. What are the advantages of integrated shaft approach used in design of spindle drive?
6. Is restrictor employed in hydrodynamic or hydrostatic bearing system? What its role?
7. What do you understand by the term Micro technology?
8. What are the three principle characteristics of MEMS?
9. Define Measurement error.
10. Write a brief note on clamping errors.

Part B (5 x 16=80 Marks)

11. a.i) Briefly explain the features and benefits of wire EDM. 8
ii) Briefly discuss about few applications of ultra precision machining. 8
 12. a.i) Enumerate the procedure for leveling the machine tool 8
ii) Briefly explain about selective assembly. 8
- Or
- b.i) Explain the procedure for checking straightness using straight edge 8
ii) Explain with neat diagrams the procedure for checking parallelism of two axes and parallelism of an axis to a plane. 8

13. a.i) Explain the benefits when use of nut and screw system for transmission. 8
ii) Explain about the principle of Hydrostatic bearing. 8

Or

- b.i) State the advantages and disadvantages of Aerostatic bearings. 10
ii) Explain the requirements need to satisfy by good guide way design according to Koenigsberger. 6

14. a.i) Enumerate the influence of MEMS in defence applications. 8
ii) Discuss about the elements of MEMS. 8

Or

- b.i) List out the differences between Microelectronics and Micro systems according to Hsu. 8
ii) Explain the applications of MEMS in the automobile industry. 8

15. a. Discuss in detail various methods of decreasing thermal effects 16

Or

- b.i) Explain about the significance of forced vibrations in determining final accuracy of component produced. 8
ii) Explain about principle of incomplete location. 8
