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B.E. /B.Tech. DEGREE END SEMESTER EXAMINATIONS, April/May 2014

MANUFACTURING ENGINEERING BRANCH

FIFTH SEMESTER

MF9303 Precision Engineering

Regulations (2008)

Duration: 3Hours

Maximum : 100 Marks

Answer all the questions

Part-A

(10 X 2 = 20 Marks)

1. Distinguish between accuracy and precision.
2. What is ultra precision machining?
3. Discuss the relationship between tolerance and cost.
4. Mention the importance of checking form of the components.
5. What are the requirements of a good guideway?
6. List any 4 disadvantages of hydrostatic bearings.
7. Give any 6 examples for basic microfabrication technologies.
8. Distinguish between Microelectronics and MEMS.
9. List few external heat sources.
10. Write short notes on boundary element method.

Part-B

(5 X 16 = 80 Marks)

11. i. Explain the consequences of thermal effects in machining. (8)
ii. Discuss few methods of minimizing thermal effects. (8)
12. a.i. Explain the need for high precision machining. (10)
ii. Explain the classification of micromachining. (6)

(Or)

- b.i. Explain the characteristics of PVD coated carbides and their applications. (10)
ii. Discuss elaborately the characteristics and applications of Polycrystalline diamonds. (6)

(PTO)

- 13.a.i. Describe and differentiate the process of make to suit and selective assembly. (12)
- ii. Explain hole basis and shaft basis systems. (4)
- (Or)
- b. Explain the method of checking the leveling of machine elements. (16)
- 14.a. Explain with neat sketches various types of guide way systems. (16)
- (Or)
- b.i. Explain with necessary diagrams the spindle drive systems. (12)
- ii. Discuss what preferred numbers represent. (4)
- 15.a. Explain various micro etching MEMS techniques with suitable diagrams. (16)
- (Or)
- b. Discuss in detail various automobiles applications of MEMS. (16)