Reg. No. :

Question Paper Code : X 85817

M.E./M.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020
Elective
Manufacturing Engineering
MF 5003 – MICRO MANUFACTURING
(Regulations 2017)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions

PART – A **(10×2=20 Marks)**

1. Compare Abrasive Jet Micro Machining with Water Jet Micro Machining.
2. Write any two applications of Electric discharge micro machining.
3. Differentiate between Electron Beam Micro Machining and Ion Beam Micro Machining.
4. Name any four types of LASER according to active medium used in Micro Machining.
5. What are the three different types of Abrasive Flow finishing ?
6. What are the advantages of Magnetic Abrasive Finishing ?
7. What is meant by Roller Imprinting ?
8. What is meant by Micro bending ?
9. List any two manufacturing process of Micro gear.
10. What is meant by Acoustic Emission (AE) ?

PART – B **(5×13=65 Marks)**

11. a) Explain the working principle of abrasive water jet micro machining with neat sketch. List out its advantages and disadvantages.

(OR)

b) Explain the principle and working of Electro Chemical Micro Machining with sketch. List out its applications.

12. a) Write short notes on the principle of Electro Discharge Grinding. Explain its components and working with neat sketch.

(OR)

b) Discuss in detail about the principal, working and application of Ion Beam Micro Machining.

13. a) Explain the working principles and features of magneto rheological abrasive flow finishing process with neat sketch. List out its applications.

(OR)

b) Briefly describe the working principles and process of Elastic Emission Machining with neat sketch. Mention its applications.

14. a) Explain briefly about conduction and deep penetration (keyhole) LASER micro welding. State with advantages and applications.

(OR)

b) Briefly describe micro bending with LASER. Explain four principle mechanism used.

15. a) Briefly explain about Ductile regime machining with diagram.

(OR)

b) Write briefly about Acoustic emission and AE based tool wear compensation.

PART – C **(1×15=15 Marks)**

16. a) Why is micro manufacturing of growing interest to designers and manufacturers ? Explain its role in product life cycle.

(OR)

b) How Nano plastic forming and roller imprinting helps for rapid fabrication technique in Nano Structures ? Discuss in detail.

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