Reg. No. : | | | | | | | | | | | | |

Question Paper Code : X 85838

M.E./M.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020
First Semester
Manufacturing Engineering
MF 5101 – ADVANCES IN MANUFACTURING TECHNOLOGY
(Regulations 2017)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions

PART – A **(10×2=20 Marks)**

1. Write short notes on isotropic machining.
2. Highlight the process capabilities of ultrasonic machining process.
3. What are the important process parameters in ELID process ?
4. List down the drawbacks of binderless wheels.
5. Highlight the scope of warm forging.
6. State the advantages of isostatic pressing.
7. Write short notes on size effect in micromachining.
8. Define epitaxy technique.
9. Define critical exposure in stereolithography.
10. Compare surface modification and surface coating processes.

PART – B **(5×13=65 Marks)**

11. a) Explain the process of electric discharge machining. Highlight its process capabilities.

(OR)

b) Explain the process of electro chemical machining. Derive a relation for the material removal rate in electro chemical machining.

12. a) Explain in detail about a spherical surface and define the various surface parameters.

(OR)

b) With neat sketch, explain the process of chemical mechanical polishing.

13. a) i) Compare hot and cold isostatic pressing. **(3)**

ii) Explain the process of hydroforming and mention its limitations. **(10)**

(OR)

b) Write short notes on the following :

i) Orbital forging. **(4)**

ii) Isothermal forging. **(4)**

iii) High speed extrusion. **(5)**

14. a) Explain the process of ion beam etching with neat diagram.

(OR)

b) i) Write short notes on chip formation in micromachining. **(5)**

ii) Explain in detail about sub micron lithographic technique. **(8)**

15. a) i) Explain the generic process of rapid prototyping process. **(7)**

ii) Classify the different surface modification processes. **(6)**

(OR)

b) Explain the process of selective laser sintering and explain the method of powder recycling process.

PART – C **(1×15=15 Marks)**

16. a) Write short notes on the following :

i) Photopolymerization. **(5)**

ii) Sintering mechanism in selective laser sintering. **(10)**

(OR)

b) Write short notes on the following :

i) Process parameters of powder rolling process. **(7)**

ii) Stresses in high speed grinding wheels. **(8)**

———————