



Reg. No. :

| | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

Question Paper Code : 91830

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019

Eighth Semester

Mechanical Engineering

ME 6018 – ADDITIVE MANUFACTURING

(Regulations 2013)

Common to (PTME 6018 – Additive Manufacturing for B.E. (Part-Time) – Sixth Semester – Mechanical Engineering – Regulations 2014)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. What are the needs for Additive Manufacturing ?
2. Classify additive manufacturing by the initial form of its material.
3. Brief adaptive slicing.
4. Define STL file.
5. Write fundamental principle of SLA process ?
6. What are process variables in FDM ?
7. Why surface deviation occurs in SLS ?
8. State Electron Beam Melting.
9. What is the complexity involved in fabrication of orthopedic implants ?
10. What are the three types of information associated with medical imaging data files ?

PART – B

(5×13=65 Marks)

11. a) Discuss the impact of additive manufacturing on Product Development. (13)
(OR)
b) Enumerate about the potential advantages of fabricating tooling with additive manufacturing. (13)

91830



12. a) Explain the various stages in reverse engineering and product prototyping. (13)
(OR)
b) Describe briefly about the preparation of CAD file for additive manufacturing. (13)
13. a) Describe the process flow of LOM process with its processing capabilities. (13)
(OR)
b) With the help of simple sketch, explain the FDM process with its advantages and limitations. (13)
14. a) Explain in detail the process of 3D printing with example. (13)
(OR)
b) Explain LENS process. List the advantages, limitations and applications. (13)
15. a) Explain how computer aided tissues engineering revolutionize in creating functional tissues. (13)
(OR)
b) Explain how three dimensional reconstruction useful to the medical field. (13)

PART – C

(1×15=15 Marks)

16. a) Explain the need for reverse engineering in design, manufacturing and medical fields with suitable examples. (15)
(OR)
b) Design and explain a medical implant using bio-additive manufacturing technique. (15)
-