D **253B1** **Total pages: 2**

Register No: …… Name: .....

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

EIGHTH SEMESTER B.TECH. DEGREE EXAMINATION(R), MAY 2024

Mechanical Engineering

(2020 SCHEME)

Course Code : 20MET466

Course Name : Additive Manufacturing

Max. Marks : 100 **Duration:3 Hours**

PART A

(Answer all questions. Each question carries 3 marks)

1. Explain the binder jetting process.
2. List three industrial applications of additive manufacturing process.
3. What is wire frame modelling?
4. Write short note on data processing.
5. List three advantages and applications of Laser Engineering Net Shaping (LENS).
6. Enumerate the advantages of Electron Beam Melting (EBM) process.
7. List three applications of 3-D Printing process.
8. Explain the consequences of building valid and invalid tessellated models.
9. Enumerate the significance of bioprinting in biomedical applications.
10. Explain about 3D Keltool process.

PART B

(Answer one full question from each module, each question carries 14 marks)

MODULE I

11. What is vat photopolymerization ? Name some resins used in the process. 14

OR

12. Explain in detail the classification of additive manufacturing processes. 14

MODULE II

13. Discuss the need for support structure design in AM technology. 14

OR

14. Describe the steps involved in model slicing. 14

MODULE III

15. Define the fundamental principle of stereo lithography process. List and explain the different process parameters of SLA technique with the help of a neat diagram. 14

OR

16. Describe the principle of Fused Deposition Modelling with its advantages, disadvantages and applications. 14

MODULE IV

17. With the help of a neat diagram explain the priciple and process involved in Material jetting process. 14

OR

18. Describe the advantages and applications of Selective Laser Melting process. 14

MODULE V

19. What is rapid tooling? Discuss its importance and compare rapid tooling with conventional tooling. 14

OR

20. Explain the applications of additive manufacturing in electronics sector. 14

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