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

Question Paper Code: 1016033

B.E. / B.Tech. DEGREE EXAMINATIONS, NOV / DEC 2024
Sixth Semester
Aeronautical Engineering
U20AE614 – ADDITIVE MANUFACTURING
(Regulation 2020)

Time: Three Hours Maximum: 100 Marks

Answer ALL questions

PART – A (10 x 2 = 20 Marks)

1. State the importance of Additive Manufacturing (AM) process chain.

2. Write the benefits of rapid tooling in Additive Manufacturing.

3. Define the reverse engineering and example.

4. Write short notes on tool path generation in additive manufacturing.

5. What are the applications of vat photo polymerization?

6. List out few points of advantage and disadvantages of solid ground curing process (SGC).

7. State the basic principle of powder bed fusion (PBF).

8. List out the disadvantages of laser engineered net shaping (LENS).

9. Brief the basic process of 3D Printing.

10. What are the advantages of ballistic particle manufacturing (BPM).

PART – B (5 x 16 = 80 Marks)

11. (a) Additive Manufacturing is the key component for the "future of manufacturing". Explain your understanding of the statement and outline the processes that are in use today. (16)

(OR)

(b) Express the various application domain of Additive manufacturing. (16)

12. (a) Describe the historical development of Rapid Prototype (RP) and classification of RP process. (16)

(OR)

(b) Explain in details about the file formats in CAD and their types. (16)

13. (a) Explain the working principle of Stereolithography Apparatus (SLA). Also write its limitation of SLA. (16)

(OR)

(b) Explain in detail the Fused Deposition Modeling (FDM) process with neat sketch.

14. (a) i) Evaluate the role of powder material in selective laser sintering. (10)

ii) Prioritize the advantages of using powders as the starting material in RP technology. (6)

(OR)

(b) Illustrate the Laser engineered net shaping (LENS) processes. Also write its advantages. (16)

15. (a) Describe the stages of 3D printing process with illustrative diagrams. (16)

(OR)

(b) Evaluate some case studies in terms of strength and weakness of 3D Printing Technology. (16)

*********All the Best**********