Code No: 157AB

R18

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, January/February - 2023
ADDITIVE MANUFACTURING
(Mechanical Engineering)

Time: 3 Hours **Max. Marks: 75**

Note: i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

(25 Marks)

1.a) What is the need for additive manufacturing? [2]
b) List out the advantages of Rapid prototyping. [3]
c) Mention the specifications of LOM. [2]
d) What is meant by 3DP? [3]
e) Explain the need for Rapid tooling. [2]
f) Differentiate between direct and indirect tooling. [3]
g) Explain 3D Keltool process. [2]
h) What is consequence of building valid tessellated model? [3]
i) Mention any two RP applications in biomedical industry. [2]
j) Mention RP applications in aerospace industry. [3]

PART – B

(50 Marks)

2.a) What are the advantages of RP over conventional processes?
b) Define the additive manufacturing process. List out the advantages of AM process in detail. [5+5]

OR

3.a) Explain the working steps in Rapid Prototyping.
b) Explain any five commonly used terms in Rapid Prototyping. [5+5]

4.a) Explain with a neat sketch the working principle of LOM process.
b) List advantages and disadvantages when rapid prototyping concept is applied to solid ground curing. [5+5]

OR

5.a) Name the materials used in fusion deposition modeling and state the advantages of this process.
b) What are the advantages and disadvantages of FDM? [5+5]

6.a) What are different types of materials available for the SLS system? What are their respective applications?
b) Briefly discuss about DTM Rapid Tool Process. [5+5]

OR

7.a) Compare LOM with SLS with suitable reasons.
b) Which rapid tooling techniques are best suited for production of ceramic parts. Explain any one? [5+5]

8.a) Explain any two translators used in place of STL.
b) Explain about STL file problems in detail with examples. [5+5]

OR

9.a) List various rapid prototyping data formats. Explain in detail.
b) Describe the importance of magics and mimics of rapid prototyping software. [5+5]

10.a) Discuss RP applications in forensic science and anthropology.
b) Discuss the GIS applications of RP. [5+5]

OR

11.a) Discuss RP applications in Visualization of Bimolecular field.
b) What is the significant role of RP in design and production of medical devices? [5+5]

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