

R16

Code No: 137AC

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, December - 2019

ADDITIVE MANUFACTURING TECHNOLOGY

(Mechanical Engineering)

Time: 3 Hours

Max. Marks: 75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full 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 AM process chain? [2]
- b) Define the term Rapid tooling. [3]
- c) What are the recoating issues in SLA? [2]
- d) What are the strengths of SGC? [3]
- e) What are the needs for Rapid Tooling? [2]
- f) What is DTM Rapid tool process? [3]
- g) Write newly proposed formats for Rapid prototyping. [2]
- h) What are the special features that you will get in 3D VIEW software? [3]
- i) What is GIS? What is its use in Additive manufacturing? [2]
- j) What are the applications of RP in Aerospace industry and in Engineering? [3]

PART - B

(50 Marks)

2. Additive manufacturing is the key component for the "future of manufacturing". Explain your understanding of the statement and outline the process that are in use today. [10]

OR

3. Describe historical development of Rapid prototyping and write the classification of RP Process. [10]

4. Discuss in detail the Solid grand cutting. [10]

OR

5. Explain in detail the FDM process with neat sketch. [10]

6. Write the applications, advantages and disadvantages of 3DP. Also define its working principle. [10]

OR

7. Explain with a neat sketch the working principle of Selective Laser Sintering process. [10]

AG AG AG AG AG AG AG A

AG 8. Describe following terms:
a) Mimics b) 3D doctor c) Rhino d) Generic solution for STL repair [10]
e) Tessellated model.

OR

9. Discuss in detail the generation of STL file format along with methodology to repair the STL file using suitable example with neat sketch. [10]

AG 10. Write the applications of RP in following categories:
a) Coin industry
b) Production of medical device
c) Arts and Architectures
d) Automotive industries
e) GIS [10]

OR

AG 11. Discuss in detail the role of RP in Forensic science and Anthropology and in Visualization of Biomolecules. [10]

---ooOoo---

AG AG AG AG AG AG AG A

AG AG AG AG AG AG AG A

AG AG AG AG AG AG AG A

AG AG AG AG AG AG AG A