Code: 13A03808 **R13**

B.Tech IV Year II Semester (R13) Regular & Supplementary Examinations April 2018

RAPID PROTO TYPING

(Mechanical Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

*****

1 Answer the following: (10 X 02 = 20 Marks)

(a) What are the key aspects of RP?
(b) List out the materials used in SLS along with the applications.
(c) Explain the fundamental principle of solid ground curing.
(d) What are the factors that influence the performance of LOM process?
(e) Explain the working principle of 3-D printer.
(f) Sketch the Modeler used for multi edge products.
(g) Differentiate soft tooling and hard tooling.
(h) Explain RP software magics.
(i) What are the data preparation errors?
(j) What is meant by vacuum casting?

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 Discuss the evolution of RP systems indicating the history and their growth rate in the industrial sector.

OR

3 List and explain different the process parameters of SLA technique.

UNIT – II

4 List advantages and disadvantages when rapid prototyping concept is applied to solid ground curing (SGC) along with the applications.

OR

5 Describe the process of fused deposition modeling and list the factors that affect the part quality.

UNIT – III

6 What is concept modeling? Explain the applications of RP components from concept modeling.

OR

7 With a neat sketch, explain the following concept modeling techniques:

(a) Thermal jet printer.
(b) Sander's model concept.

UNIT – IV

8 Explain the following methods of tooling techniques with the help of neat sketch:

(a) Silicon rubber tooling.
(b) Aluminum filled epoxy tooling.

OR

9 With a neat sketch, explain Arc spray metal tooling and 3Q Keltool.

UNIT – V

10 Write short notes on the following:

(a) File exchange errors.
(b) Part building errors.

OR

11 With a neat sketch, explain different steps involved in surface generation from points cloud.

*****