Code: 13A03808 **R13**

B.Tech IV Year II Semester (R13) Advanced Supplementary Examinations July 2018

RAPID PROTO TYPING

(Mechanical Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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

(a) Explain the need for rapid prototyping.
(b) Explain the fundamental principle of stereo lithography process.
(c) What are the factors that influence the performance of FDM process?
(d) List out the advantages and application of solid ground curing.
(e) Explain the working principle of thermal jet printing.
(f) Sketch the Sander's model used for products.
(g) Compare rapid tooling with conventional tooling.
(h) What is meant by rapid tooling?
(i) List out the factors influencing accuracy in rapid manufacturing process.
(j) Explain the need for surface digitization.

PART – B

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

UNIT – I

2 Explain rapid prototyping process chain along with the applications.

OR

3 Briefly explain the materials used in SLS and their importance.

UNIT – II

4 Explain the path generation in fusion decomposition modeling (FDM).

OR

5 Narrate laminated object manufacturing with neat sketch.

UNIT – III

6 What are the factors that influence the performance of the 3D printing process? Explain in detail.

OR

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

(a) Genisys Xs printer.
(b) Object quadra system.

UNIT – IV

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

(a) Sand cast tooling.
(b) Laminate tooling.

OR

9 Describe the importance of magic's, mimics, solid view, view expert operations in rapid prototyping software.

UNIT – V

10 Write short notes on the following:

(a) Influence of building orientation.
(b) Errors in SH files.

OR

11 With a neat sketch, explain different steps involved in vacuum casting.

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