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INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

M.Tech I Semester End Examinations (Regular) - February, 2018

Regulation: IARE-R16

RAPID PROTOTYPE TECHNOLOGIES

(CAD/CAM)

Time: 3 Hours

Max Marks: 70

Answer ONE Question from each Unit

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

UNIT – I

- Give a brief classification of rapid prototype technologies and explain the terms used in rapid prototyping. [7M]
 - Discuss the application of rapid prototyping in manufacturing industry. [7M]
- Discuss the advantages and limitations of rapid prototyping. [7M]
 - Explain the steps involved in rapid prototyping process chain. [7M]

UNIT – II

- Explain the working principle of laminated object manufacturing and list out any four advantages. [7M]
 - Describe the principle of fused deposition modeling and list out any two applications. [7M]
- Explain the working principle of solid ground curing and list out its merits and demerits. [7M]
 - Demonstrate the working procedure of stereo lithography apparatus with a neat sketch. [7M]

UNIT – III

- Explain the concept of modelling technique for 3D printer. [7M]
 - Discuss the working principle of selective laser sintering and list out any four applications. [7M]
- What is rapid tooling ? Differentiate between conventional tooling and rapid tooling. [7M]
 - Discuss the need for rapid tooling and explain spray metal deposition. [7M]

UNIT – IV

- Write short notes on [7M]
 - Influence of building orientation.
 - Part building errors.
 - Explain invalid tessellated models with neat sketches. [7M]

8. (a) Explain the STL format . Discuss the generic and dedicated solution with an example. [7M]
(b) What are the features of rapid prototyping software and explain briefly solid view, view expert and 3D view. [7M]

UNIT – V

9. (a) Categorize how the material relationship will contribute in rapid prototype technique. Specify the applications in aerospace industry. [7M]
(b) Explain the use of rapid protoyping in the forensic science. [7M]
10. (a) Discuss the application of rapid prototype in visualization of bio molecules [7M]
(b) List several possible applications of rapid prototyping in medical and biomedical engineering. [7M]