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M. TECH. DEGREE EXAMINATION, MODEL QUESTION PAPER – I

First Semester

Branch: Mechanical Engineering

Specialisation: Computer Integrated Manufacturing

MMECM 105-3 RAPID PROTOTYPING

(Regular – 2013 Admissions)

Time: Three hours

Maximum: 100 marks

Answer all questions

1. (a) What are the key aspects of RPT? (5 marks)
- (b) Explain the need for Rapid Prototyping (8 marks)
- (c) Discuss the evolution of RP systems indicating the history and their growth rate in the industrial sector (12 marks)

Or

2. (a) List the classification of RP systems (5 marks)
 - (b)) What are the advantages of Rapid Prototyping (8 marks)
 - (c) Explain in detail the process chain of Rapid Prototyping (12 marks)
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3. (a)What are the principles behind SLS process (5 marks)
 - (b) Briefly explain the materials used in SLS (8 marks)
 - (c) Narrate Laminated Object manufacturing with neat sketch (12 marks)

Or

4. a) Differentiate SLA and SLS in Rapid prototyping (5 marks)
 - (b) What are the merits and demerits of laminated Object manufacturing? (8 marks)
 - (c) With a neat sketch explain Selective Laser Sintering. (12 marks)
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5. (a) Briefly explain Electroforming? (5 marks)
 - (b) What are the applications of FDM models? Give an example (8 marks)
 - (c) Describe Fused deposition modeling process with a neat diagram. (12 marks)

Or

6. (a) Which Rapid Prototyping processes are best suited for production of ceramic parts. Why? (5 marks)
(b) Write the limitations and advantages of FDM process (8 marks)
(c) Describe 3D printing process with a neat sketch (12 marks)

7. (a) What is Rapid Tool? (5 marks)
(b) Explain with an example the application of RP in Automotive industry.(8 marks)
(c) What is Rapid Tooling and explain about evaporative pattern casting process. (12 marks)

Or

8. (a) Differentiate soft tooling and hard tooling. (5 marks)
(b) With a neat sketch explain Arc spray metal tooling. (8 marks)
(c) Explain the applications of RP in different sectors. (12 marks)