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

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) How does pattern differ from prototype? (5 marks)
- (b) Explain photo polymerization of SL reins? (8 marks)
- (c) Explain stereo lithography process with a neat sketch. (12 marks)

Or

2. (a) Discuss on STL files and Define slicing relevant to CAD (5 marks)
- (b) What is meant by a Rapid Prototype? What are the roles of prototype in product development process (8 marks)
- (c) Explain in detail the common information workflow indicating the main stages of RP systems workflow (12 marks)

3. (a) Can rapid prototype parts be made of paper? Explain (5 marks)
- (b) Write the advantages, disadvantages and applications of selective laser sintering process . (8 marks)
- (c) Explain in detail the LENS process with a neat diagram. Also write the advantages and disadvantages. (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)
5. (a) What is investment casting? (5 marks)
 - (b) Explain shape deposition manufacturing? (8 marks)
 - (c) How FDM used in RPT. What are the applications of FDM models. (12 marks)

Or

6. (a) Explain Vacuum casting? (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 are heterogeneous objects? (5 marks)
(b) Explain the application of rapid prototyping in medical field with Examples. (8 marks)
(c) What is rapid tooling and explain the applications of RPT in manufacturing and tooling. (12 marks)

Or

8. (a) Write a short note on MEMS (5 marks)
(b) Explain with a suitable example the application of Rapid Prototyping in Aerospace Industry (8 marks)
(c) What is Rapid Tooling and explain about shell investment casting process with its advantages and disadvantages (12 marks)