M.E. Second Semester (Mecha. Engg. (Adv. Manu. & Mech. Sys. Design) (New - CGS)

13470 : Rapid Prototyping And Tooling : 2 MMD 2

P. Pages : 2 | **AU - 3388**

Time : Three Hours | Max. Marks : 80

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Notes : 1. All question carry marks as indicated.
2. Answer **three** question from Section A and **three** question from Section B.
3. Assume suitable data wherever necessary.
4. Illustrate your answer necessary with the help of neat sketches.
5. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION – A

1. a) Explain the steps involved in general design process. **6**

b) What are the application areas of rapid prototyping? Explain any one by giving suitable example for testing. **7**

2. a) Describe the following basic manufacturing processes. **6**
i) Sintering process.
ii) Curing process
iii) Binding process.

b) State and explain the overall advantage and limitations of additive manufacturing processes. **7**

3. a) Explain the working principle of stereolithography process. Give suitable sketch of the process. **7**

b) Explain the working principle of FDM process. Give suitable sketch of the process. **7**

4. a) Explain photopolymerization of SL resin. **7**

b) Explain the distinguished characteristics possessed by model and support materials used in FDM process. **6**

5. a) Describe the following FDM modeller build parameters: **6**

i) Road width ii) Part surface quality

iii) Part interior style iv) Support style

b) Differentiate between SLS and FDM. **7**

SECTION – B

6. a) Explain the working principle of LOM process. Support your answer with neat sketch. **7**

b) Explain the application areas & distinguished features of (LENS) laser engineering net shaping. **6**

7.	a)	What is rapid tooling? What do you understand by direct tooling and indirect tooling? Explain by giving suitable examples of each.	7
	b)	Explain the applications of rapid prototyping in medical field. State also which methods of RP are more preferred in medical applications and why.	7
8.	a)	Explain with neat sketch the working principle and process parameters of BPM.	7
	b)	Explain the limitations of RP technologies related with tooling and manufacturing.	6
9.	a)	Explain the shell investment casting process.	7
	b)	Describe the capabilities of commercially available RP pre-processing software.	6
10.		Describe with diagrams the SLM and EBM processes. Compare and contrast their distinguished features.	13

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