Code No. 5229 / MP

FACULTY OF ENGINEERING

B.E. 4/4 (Mech./Prod.) II – Semester (Make-up) Examination, August 2012

Subject : **Rapid Prototyping Technologies (Elective – III)**

Time : 3 hours Max. Marks : 75

Note: Answer all questions from Part–A and answer any **FIVE** questions from Part–B.

PART – A (25 Marks)

1. Distinguish Virtual Prototyping and Rapid Prototyping. 3

2. Justify the statement : STL files are problematic. 2

3. Explain principle of mask generation in SGC process. 3

4. Explain the Zephyr^{TM} system of SLA RP machine. 3

5. Expand the terms : SLA, FDM, SLS, 3DP 2

6. Phase change does not occur in which of the following RP process. 2
   a) SLA b) FDM c) SGC d) LOM

7. Name any two RP systems that are powder-based. 2

8. Explain principle of 3DP process. 3

9. Explain the application of RP technology in engineering analysis models. 3

10. Match the following : 2

1) Polymerization	A) SGC
2) Photomask	B) FDM
3) Extrusion	C) LOM
4) Laser cutting	D) SLS
	E) SLA

PART – B (5 x 10 = 50 Marks)

11.a) What are the main roles and functions for prototypes? How do you think rapid prototyping satisfied these roles? 5

b) What are the advantages and limitations of RP technology? 5

12.a) Describe the process flow of the 3D system SLA. State the applications. 5

b) Describe the process flow of the Cubital's SGC system. State the applications. 5

13.a) Compare and contrast the laser-based LOM and the FDM systems. What are the advantages and disadvantages for each of the system? 5

b) Discuss the case studies of LOM and FDM processes. 5