

USN

--	--	--	--	--	--	--	--	--	--	--

**Eighth Semester B.E. Degree Examination, July/August 2022**  
**Rapid Prototyping**

Max. Marks: 100

Time: 3 hrs.

**Note: Answer any FIVE full questions, selecting at least TWO full questions from each part.**

**PART - A**

- 1 a. With example, explain the historical development of rapid prototyping technology. (08 Marks)
- b. List the application of a RP technology in manufacturing industries. (06 Marks)
- c. With a neat sketch, explain the working of stereo lithography system. (06 Marks)
- 2 a. Explain with a neat sketch principle of operation of selective laser sintering process. (10 Marks)
- b. List the specification of FDM machine and write the different materials which may be used in FDM machine. (10 Marks)
- 3 a. With a neat sketch, explain the construction and operation of SGC technique. (10 Marks)
- b. With a neat sketch explain laminated object manufacturing. (10 Marks)
- 4 a. What is concept modeling? Explain the application of RP components from concept modeling. (10 Marks)
- b. With a neat sketch, explain following techniques:
  - i) Sander's model maker (10 Marks)
  - ii) 3D printer.

**PART - B**

- 5 What is rapid tooling? Explain with a neat sketch following indirect tooling techniques:
  - i) Aluminium filled epoxy tooling (20 Marks)
  - ii) Spray metal tooling.
- 6 Explain the following methods of tooling
  - i) Copper polymade
  - ii) Sand cast tooling
  - iii) Laminated tooling
  - iv) Direct tooling v/s indirect tooling. (20 Marks)
- 7 Write a short note on the following:
  - a. Economical model
  - b. Precision model
  - c. Collaboration tool
  - d. Internet based software. (20 Marks)
- 8 Write a short note:
  - a. Influence of building orientation
  - b. Part building error
  - c. Errors in SH file
  - d. File exchange error. (20 Marks)

\*\*\*\*\*

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. 2. Any revealing of identification, appeal to evaluator and/or equations written eg, 42+8 = 50, will be treated as malpractice.