

**GUJARAT TECHNOLOGICAL UNIVERSITY****ME – SEMESTER – III (New)– EXAMINATION – WINTER-2019****Subject Code: 3730809****Date: 16-11-2019****Subject Name: Rapid Prototyping****Time: 02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

**Q.1** (a) What is a product development cycle? Explain the factors influencing product design. **07**

(b) Explain the influence of innovations on product development. **07**

**Q.2** (a) Discuss the three pillars of rapid product development, and explain any one. **07**

(b) Write a short note on methodology of concurrent engineering. **07**

**OR**

(b) What are the components of CIM (Computer Integrated Manufacturing)? Explain the barriers to CIM implementations. **07**

**Q.3** (a) Enlist the various geometric models and explain Constructive Solid Geometry models. **07**

(b) What are the various steps of reverse engineering? Explain any one non-contact type method for acquiring point cloud data. **07**

**OR**

**Q.3** (a) What are the various steps in Finite Element Analysis? explain automatic mesh generation. **07**

(b) Explain the DFM and DFA approaches. **07**

**Q.4** (a) Enlist the various parts which qualify a machine to be addressed as robot. Explain any one in detail. **07**

(b) Explain the different types of CAPP systems. **07**

**OR**

**Q.4** (a) Classify rapid tooling processes. What are the various indirect rapid tooling processes? Explain any one in brief. **07**

(b) Explain the basic procedure for rapid prototyping and list its various applications. **07**

**Q.5** (a) Classify the basic Rapid Prototyping processes on the basis of the form of raw material used in them. **07**

(b) Explain the basic working principle process parameters and applications of fused deposition modeling (FDM). **07**

**OR**

**Q.5** (a) Explain the basic working principle process parameters and applications of stereo-lithography. **07**

(b) Explain the basic working principle process parameters and applications of Selective Laser Sintering. **07**

\*\*\*\*\*