Registration No :

Total Number of Pages : 02 **M.Tech**

P2PUCC02

2nd Semester Regular / Back Examination 2018-19

RAPID PROTOTYPING & TOOLING

BRANCH : PRODUCTION ENGG, PRODUCTION ENGG AND OPERATIONAL MGT

Max Marks : 100

Time : 3 Hours

Q.CODE : F173

Answer Question No.1 (Part-1) which is compulsory, any EIGHT from Part-II and any TWO from Part-III.

The figures in the right hand margin indicate marks.

Part- I

Q1 **Only Short Answer Type Questions (Answer All-10)** **(2 x 10)**

a) State the concept of concurrent engineering.

b) Explain stair-step effect in Rapid Prototyping.

c) Write the principle of RP.

d) State the applications of 3D printing

e) Write the principle of electric arc spray gun

f) Show the correct and incorrect triangle orientations in RP

g) Explain the term “Voxel”.

h) What do you mean by vacuum casting?

i) Describe about Repetitive masking

j) Slicing is meant for which process.

Part- II

Q2 **Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve)** **(6 x 8)**

a) Describe the relative advantages and disadvantages of different solid modeling techniques.

b) Describe the process Beam interference solidification

c) Explain the factors influencing the accuracy of rapid manufacturing process.

d) Classify the RP technology based on raw material used and write principle of each.

e) Describe the process holographic interference solidification.

f) Describe the fused deposition modeling process.

g) Explain the steps for pre-processing the CAD data before used in GMP System.

h) Explain in detail the Ballastic particle manufacturing in 3D.

i) Describe the laminated object manufacturing process in RP.

j) Discuss on STL files and Define slicing relevant to CAD.

k) Explain the concept of concurrent engineering with advantages and relation with RP.

l) Explain the application of rapid prototyping in batch production

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four)

Q3	Explain in detail with flow diagram the steps involved in rapid prototyping and process chain for rapid prototype development.	**(16)**
Q4	Describe in details the data preparation errors, part building errors and error in finishing in RP.	**(16)**
Q5	Explain in details the stereo lithography with liquid thermal and solid foil polymerization process with a neat sketch.	**(16)**
Q6	Write about the concept of rapid tooling techniques and explain in detail about laminated metallic tooling and direct metal laser sintering	**(16)**