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Total Number of Pages : 02

B.Tech
PME4D003

4th Semester Regular / Back Examination 2018-19
RAPID MANUFACTURING PROCESS

BRANCH : MECH

Max Marks : 100

Time : 3 Hours

Q.CODE : F971

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)

- State the different components of a manufacturing systems?
- What do you mean by rapid prototyping? State its limitations?
- What do you mean by fused deposition modelling (FDM)
- Give some examples of subtractive prototyping process?
- What do you mean by slicing?
- What is stereo lithography?
- State the parameters for selective laser sintering process?
- What do you mean by internal hatching how it is different from slicing?
- What is a stl file and state its importance in CAD?
- What do you mean by reverse engineering?

Part- II

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

- Discuss the need of rapid prototyping in the context of batch production
- What do you mean by flexible manufacturing and state its application and limitations?
- State the advantages of rapid prototyping?
- Discuss the various factors that influence the accuracy of rapid manufacturing process?
- Explain stereo lithography with liquid thermal polymerization?
- Discuss the stereo lithography solid foil polymerization?
- What is solid ground clearing? State the advantages of SGC over RP?
- Discuss the Ballistic particle manufacturing (BPM) for creating solid objects? Also state the requirement of a support structure in BPM?
- What do you mean by shape melting process how is it different from fused deposition modelling? State its advantages, limitations and applications?
- What is repetitive masking and deposition? State its importance in the field of mechatronics?
- Write a short note on Programming in RP modelling?
- What do you mean by selective powder binding? State its limitations? Also state the difference between drop on demand and continuous jet system?

Part-III

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

Q3 Discuss in details the various steps involved in RP? How RP is integrated in CAD environment? **(16)**

Q4 Discusses in details the Classification of different RP techniques? **(16)**

Q5 Describe Holographic interference solidification in RP using alloys? **(16)**

Q6 Explain the Data preparation errors, Part building errors, Error in finishing, influence of build orientation in rapid prototyping? **(16)**