Code No: **R164103C** **R16** **Set No. 1**

IV B.Tech I Semester Supplementary Examinations, July/Aug - 2021

ADDITIVE MANUFACTURING

(Mechanical Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B

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PART–A *(14 Marks)*

1.	a)	Write any two applications in liquid based RP processes.	[2]
	b)	List the different materials which may be used in FDM machine	[2]
	c)	List the specifications 3 dimensional printing (3DP) machine.	[3]
	d)	Define direct AIM.	[2]
	e)	Define tessellation.	[2]
	f)	Explain the application of RP in jewelry industry with a case study.	[3]

PART–B *(4x14 = 56 Marks)*

2.	a)	What is rapid prototyping? Give its advantages and limitations.	[8]
	b)	Discuss about photo polymerization.	[6]
3.	a)	Explain with a neat sketch the working principle of FDM process.	[7]
	b)	Briefly discuss about the Laminated Object Manufacturing (LOM) operation and its materials.	[7]
4.	a)	Briefly explain the principle and process details in Selective Laser Sintering (SLS) and its applications with neat sketch.	[7]
	b)	With a neat sketch, explain different steps involved in fabrication of model using 3D printing process.	[7]
5.	a)	Discuss EOS direct tool process.	[7]
	b)	Describe the role of indirect methods of rapid tool production. What are its limitations?	[7]
6.		Write short notes on following: (i) part building errors (ii) Errors in STL files (iii) Features of Mimics software	[14]
7.	a)	Discuss with a case study in medical application.	[7]
	b)	Describe how reverse engineering will be applied to rapid prototyping techniques.	[7]