QP Code: RA22BTECH441 | Reg. No | | | | | | | | | | | AR21/22

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET University)

B. Tech(Sixth Semester – Regular/Suuplementary) Examinations, April 2025

21BMEPE36021/22BMEPE36021 – Additive Manufacturing

(Mechanical)

Time: 3 hrs | Maximum: 70 Marks

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions

		CO #	Blooms Level
a.	List out the advantages of rapid prototyping process	CO1	K2
b.	Illustrate which material can be efficiently used as a support material?	CO1	K3
c.	Discuss on STL files and define slicing relevant to CAD.	CO2	K2
d.	Select the type of raw material which is used in SLA process?	CO3	K4
e.	State power bed fusion	CO4	K1

PART – B **(15 x 4=60 Marks)**

Answer ***all*** the questions

		Marks	CO #	Blooms Level
2. a.	Mention the advantages of additive manufacturing process over traditional manufacturing process	8	CO1	K2
b.	Explain in detail the process chain rapid prototyping	7	CO1	K2
	(OR)			
c.	Define digitization and list common techniques for model reconstruction	8	CO2	K1
d.	Explain the data processing steps in AM from CAD to toolpath generation	7	CO2	K2
3.a.	Discuss limitations of rapid prototyping explain in detail.	8	CO1	K2
b.	Interpret Polymers and their properties in details .	7	CO1	K3
	(OR)			
c.	Compare the features and applications of MIMICS and MAGICS software	8	CO2	K4
d.	Evaluate challenges in data preparation for complex AM parts..	7	CO2	K5
4.a.	Describe the fabrication of a complex part using SLA, considering orientation and supports.	8	CO3	K4
b.	Evaluate the suitability of Laminated Object Manufacturing (LOM) for various industries	7	CO3	K5
	(OR)			
c.	Discuss the advantages and disadvantages of powder based rapid prototyping system	8	CO4	K2
d.	Explain the benefits and limitations of using Laser Engineered Net Shaping (LENS) technology	7	CO4	K2
5.a.	Compare SLA and FDM in terms of mechanism, materials, surface finish, and applications	8	CO3	K4
b.	Explain in details the working principle of solid ground curing models with its advantages and disadvantages	7	CO3	K2
	(OR)			
c.	Compare SLS and 3DP technologies in terms of material usage, accuracy, and applications.	8	CO4	K4
d.	Describe the industrial applications and process advantages of Electron Beam Melting (EBM)	7	CO4	K2

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