QP Code:RM21BTECH531 | Reg. No | | | | | | | | | | | AY 21

GIET UNIVERSITY, GUNUPUR – 765022

B. Tech (Sixth Semester Regular) Examinations, May – 2024

21BMEPE36002 - 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. State the uses of additive manufacturing.	CO1	K1
b. Describe the applications area of 3D printing.	CO1	K2
c. What is STL model?	CO2	K1
d. Compare solid based rapid prototyping and liquid based rapid prototyping	CO3	K2
e. Write the applications of 3DP.	CO4	K2

PART – B **(15 x 4=60 Marks)**

Answer ***ALL*** questions	Marks	CO #	Blooms Level
2. a. Differentiate the additive manufacturing techniques with conventional manufacturing process	7	CO1	K2
b. Explain in detail about the following material with its related printing technologies (i) Acrylonitrile Butadiene Styrene (ii) Polylactic Acid (iii) Polypropylene (3)	8	CO1	K2
(OR)			
c. Explain the basic principles behind digitization techniques used in additive manufacturing.	7	CO2	K2
d. Describe the importance of part orientation and support generation in additive Manufacturing.	8	CO2	K2
3.a. Explain how additive manufacturing technology facilitates rapid prototyping and iteration in product design and development.	8	CO1	K3
b. List the traditional tooling processes used in manufacturing and compare them with additive manufacturing.	7	CO1	K3
(OR)			
c. Explain in detail about Design Rules of CAD modelling .	8	CO2	K2
d. Define model reconstruction in the context of additive manufacturing.	7	CO2	K1
4.a. Compare and contrast the liquid-based stereo lithography systems and the solid ground curing systems.	8	CO3	K3
b. Describe the principle of FDM with its advantages, disadvantages and applications.	7	CO3	K2
(OR)			
c. Analyze the advantages of using Selective Laser Sintering (SLS) over other additive manufacturing processes.	7	CO4	K4
d. Explain the process of Electron Beam Melting (EBM) With Neat Sketch.	8	CO4	K3

5.a.	Distinguish between liquid-based and solid-based additive manufacturing systems.	7	CO3	K2
b.	Explain the step-by-step process involved in Laminated Object Manufacturing (LOM).	8	CO3	K2
	(OR)			
c.	Summarize the applications of rapid prototyping in various industries.	8	CO4	K2
d.	Classify the steps in preparation of powder with neat diagram .	7	CO4	K2

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