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

B. Tech (Eighth Semester - Regular) Examinations, April - 2026

22BMEOE48011 - Reverse Engineering

(Mechanical Engineering)



Time: 3 hrs

Maximum: 70 Marks

Answer ALL questions

(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. How do you create the Manufacturing Database?	CO1	K1
b. Explain Display Control Commands	CO2	K2
c. Mention the defects in STL files and repairing algorithms.	CO2	K1
d. Introduce Rapid Prototyping: Basic Process	CO3	K1
e. What do you understand by Scanner pipeline?	CO4	K1

PART – B

(15 x 4 = 60 Marks)

Answer **ALL** the questions

	Marks	CO #	Blooms Level
2. a. Explain the 3 phases of Reverse Engineering.	8	CO1	K2
b. Write short notes on Transformations of Geometry.	7	CO1	K2
(OR)			
c. Write about STL files:Process Overview	8	CO1	K2
d. Write about STL interface:Specification	7	CO1	K2
3.a. Explain different types of 3D scanning technologies used in Reverse Engineering. Discuss their working principles and applications.	8	CO2	K2
b. Describe the concept of point cloud processing. What are the common challenges faced during point cloud data handling.	7	CO2	K3
(OR)			
c. What is surface reconstruction in Reverse Engineering? Explain different methods used for creating surfaces from scanned data.	8	CO2	K2
d. Discuss the applications of Reverse Engineering in industries such as automotive, aerospace and biomedical engineering.	7	CO2	K2
4.a. Explain the concept of geometric modeling in Reverse Engineering. Discuss wireframe, surface and solid modeling techniques.	8	CO3	K3
b. Describe the role of rapid prototyping in Reverse Engineering. How does it help in product development and validation?	7	CO3	K2
(OR)			
c. Discuss various errors encountered during data acquisition in Reverse Engineering and methods to minimize them.	8	CO3	K2
d. Explain the importance of data alignment and registration in Reverse Engineering. Describe common techniques used for this purpose.	7	CO3	K3
5.a. Explain the basis process of Rapid Prototyping.	8	CO4	K2

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| b. Explain the relationship between Reverse Engineering and Rapid Prototyping. | 7 | CO4 | K2 |
| (OR) | | | |
| c. Explain about interdisciplinary application of Reverse Engineering and Rapid Prototyping. | 8 | CO4 | K2 |
| d. How do you integrate formal and structural methods in Reverse engineering? | 7 | CO4 | K2 |
| --- End of Paper --- | | | |