

Reg No :

Name :

MAR ATHANASIOUS COLLEGE OF ENGINEERING, KOTHAMANGALAM

(Govt. Aided Autonomous Institution)

First Semester B.Tech. Degree (SAY) Examination, February, 2026

Course Code: B24MC1T02

Course Name: Design Thinking

Max. Marks: 50

Duration:2 Hours

PART - A: 20 Marks (4 Qns x 5 Marks)

Answer all questions

1. What is the Double-Diamond Model of Design?
2. Describe the importance of identifying customer needs in the design process.
3. Explain the decision matrix for evaluation.
4. Examine the barriers that prevent designers from fully understanding the needs of users, and how can these be overcome.

PART - B: 30 Marks (2 Qns (Module 1 &2) x 8 Marks + 2 Qns (Module 3 & 4) x 7 Marks)

Answer any One full question from each module.

Module 1

5. Explain in detail how to increase levels of your creativity.

OR

6. Discuss the Empathize and Define stages of the Design Thinking process. Explain their significance and describe techniques used in each stage with examples.

Module 2

7. Describe the relationship between product functions and customer needs. How can designers ensure that functions align with what customers value?

OR

8. Explain the role of data analysis in optimizing product design. How can data-driven decisions enhance user experience and functionality?

Module 3

9. Demonstrate prototyping of a smart water bottle that reminds users to stay hydrated throughout the day using the Lean Startup method.

OR

10. Summarize the testing methods of prototypes.

Module 4

11. Discuss the role of engineering ethics in promoting public trust in engineering practices

OR

12. Illustrate the changes in design of a solar powered street light in terms of production, use and sustainability
