

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Bachelor of Technology (Computer Engineering) SEMESTER - 7 Winter 2025 (Regular)

Course :Bachelor of Technology (Computer Engineering) Branch : Engineering and Technology

Semester : SEMESTER - 7

Subject Code & Name: BTCOE705C - DESIGN THINKING

Time : 3 Hours]

[Total Marks : 60

Instructions to the Students:

1. Each question carries 12 marks.
 2. Question No. 1 will be compulsory and include objective-type questions.
 3. Candidates are required to attempt any four questions from Question No. 2 to Question No.6
 4. Use of non-programmable scientific calculators is allowed.
 5. Assume suitable data wherever necessary and mention it clearly.
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Q1. Objective type questions. (Compulsory Question)

12

- 1 Design Thinking is mainly focused on:
 - a) Technology
 - b) Cost reduction
 - c) Human needs
 - d) Marketing
- 2 Which organization popularized Design Thinking in business?
 - a) Google
 - b) Microsoft
 - c) IDEO
 - d) IBM
- 3 Which is the first phase of Design Thinking?
 - a) Define
 - b) Ideate
 - c) Empathize
 - d) Prototype
- 4 Double Diamond model consists of how many phases?
 - a) 3
 - b) 4
 - c) 5
 - d) 6
- 5 Empathy map is mainly used to:
 - a) Generate ideas
 - b) Test prototype
 - c) Understand users
 - d) Reduce cost

- 6 Root cause analysis helps to:
- a) Find symptoms
 - b) Ignore problem
 - c) Find actual cause
 - d) Design prototype
- 7 Silent brainstorming is used to:
- a) Avoid ideas
 - b) Reduce creativity
 - c) Encourage equal participation
 - d) Increase conflicts
- 8 TRIZ is related to:
- a) Market research
 - b) Inventive problem solving
 - c) Prototyping
 - d) Empathy mapping
- 9 Prototype is best described as:
- a) Final product
 - b) Marketing plan
 - c) Sample model
 - d) Business strategy
- 10 Validation in market means:
- a) Idea rejection
 - b) User testing in real market
 - c) Internal discussion
 - d) Cost analysis
- 11 Iteration in design thinking means:
- a) One-time process
 - b) Continuous improvement
 - c) Final testing
 - d) Market launch
- 12 Innovation management in a company focuses on:
- a) Employee attendance
 - b) Managing creative ideas
 - c) Reducing salaries
 - d) Advertising only

Q2. Solve the following.

- A) Define Design Thinking. Draw and explain the five stages of the Design Thinking process with a suitable example. 6
- B) Compare Design vs. Design Thinking with examples. Explain the two models of Design Thinking. 6

Q3. Solve the following.

- A) Explain the role of empathy in the Design Thinking process. What is an Empathy Map? 6
- B) Explain the steps involved in creating user personas. Describe Customer Journey Mapping with a real-life example. 6

Q4. Solve Any Two of the following.

- A) Explain Root Cause Analysis with a suitable example. Describe how the 5 Whys technique helps identify the real cause of a problem. 6
- B) What is Conflict of Interest in the design process. Explain how conflicting user requirements can affect the final product design with an example. 6
- C) Describe any two inventive principles of TRIZ. Explain how they can be applied to create innovative solutions in real-world problems. 6

Q5. Solve Any Two of the following.

- A) Describe the steps involved in the prototyping process. Why is iteration essential during prototype development? 6
- B) Discuss the importance of validating assumptions during designing a product. Give an example of a failed assumption and its impact. 6
- C) Compare prototype testing and market validation. How do both contribute differently to improving a design solution? 6

Q6. Solve Any Two of the following.

- A) What is iteration in design thinking? Explain how iteration contributes to innovation and improved design solutions. 6
- B) Describe the steps involved in taking an idea to the market. Why is this process challenging for new startups? 6
- C) Explain innovation management in a company. Discuss the role of Design Thinking in business innovation. 6

*** End ***