

Regular/Supplementary Winter Examination – 2024

Subject Code & Name: BTCOE705C & Design Thinking

Date: 21/02/2025

Duration: 3 Hr.

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. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in () in front of the question.

5. Use of non-programmable scientific calculators is allowed.

6. Assume suitable data wherever necessary and mention it clearly.

		(Level /CO)	Marks
Q. 1	Objective type questions. (Compulsory Question)		12
1	Which of the following is NOT a phase in the Human-Centered Design (HCD) process? a. Empathize b. Define c. Analyze d. Prototype		1
2	Which of the following models is typically associated with the Design Thinking process? a. Waterfall model b. V-Model c. Human-Centered Design (HCD) process d. Agile Model		1
3	What is the main goal of the Empathize phase in the Design Thinking process? a. To create initial design prototypes b. To test the final product with users c. To deeply understand the users' needs, challenges, and experiences d. To define the business		1
4	What is the primary purpose of empathy maps in the Design Thinking process? a. To create detailed prototypes of the design solution b. To understand and visualize the needs, feelings, and experiences of the users		1

	c. To test the effectiveness of a solution with real users d. To analyze market trends and customer demographics		
5	Which of the following is a key activity that should be done prior to empathy mapping? a. Creating user personas b. Defining the business objectives c. Prototyping a solution d. Conducting market research		1
6	What does creating user personas help achieve in the Empathize phase? a. Define design constraints b. Understand user needs c. Develop prototypes d. Conduct testing		1
7	What is the primary goal of root cause analysis in the Analyze phase? a. To generate potential solutions b. To identify the underlying causes of a problem c. To develop prototypes d. To conduct user testing		1
8	Which tool is commonly used for ideation and focuses on considering different possible scenarios and their impacts? a. Silent brainstorming b. What-If tool c. TRIZ d. Function modeling		1
9	What is the main purpose of prototyping in the Design Thinking process? a. To validate the business model b. To create a final, polished product c. To explore and test design ideas through iterative models d. To gather market data		1
10	What is a key benefit of market validation during the design thinking process? a. Reducing development costs b. Ensuring the product aligns with user needs c. Avoiding the need for prototyping d. Finalizing the product design		1
11	What is a primary benefit of iteration in the design thinking process? a. Reducing project timelines b. Refining ideas based on feedback c. Avoiding market validation d. Ensuring a single design solution		1

12	What is the main focus of innovation management in a company? a. Increasing employee productivity b. Streamlining production costs c. Systematically fostering and implementing new ideas d. Avoiding risks in product development		1
Q. 2	Solve the following.		12
A)	What is the difference between design & Engineering Design? How Design turned into Design Thinking?		6
B)	Explain the phases of the Human-Centered Design (HCD) process. How does empathy play a crucial role in the Human-Centered Design (HCD) process?		6
Q.3	Solve the following.		12
A)	What is the purpose of empathy maps, and how do they help in understanding user needs?		6
B)	What are the blocks of Empathy? Define various tools & Methods of Empathy.		6
Q. 4	Solve Any Two of the following.		12
A)	What is root cause analysis, and how does it help in identifying the underlying problems in the Design Thinking process?		6
B)	Explain the silent brainstorming technique. What are its advantages compared to traditional brainstorming methods?		6
C)	What is TRIZ? Identify and explain five of the inventive principles in TRIZ.		6
Q.5	Solve Any Two of the following.		12
A)	What role does prototyping play in the Design Thinking process, and how does it contribute to refining solutions?		6
B)	Explain the use of metaphors and tools like CREATE and What-If in ideation during the Design Thinking process.		6
C)	What is function modeling? How does it contribute to big picture thinking		6
Q. 6	Solve Any Two of the following.		12
A)	What are the key differences between a prototype and a final product in terms of purpose and functionality?		6
B)	How can a company measure the success of its innovation management practices in bringing ideas to market?		6
C)	How does the role of innovation management evolve as a product moves through the development stages?		6
	*** End ***		