

 SIES Graduate School of Technology RISE WITH EDUCATION NAGAR (Affiliated to University of Mumbai)		End Semester Examination (R-24) FH 2026		
Branch: All Branches		Course: Critical Thinking and Design		
Year/ Semester: SE/IV		Course code:		
Time: 02 hours		Marks: 60		
Note: 1. All questions are compulsory. 2. Figures to right indicate full marks. 3. Assume suitable data wherever necessary.		Marks	CO	BL
Q. 1	Attempt any THREE. (All questions carry equal marks)	15		
A.	Explain the characteristics of a fair-minded thinker? Definition of fair-minded thinker – 1 mark Openness to different viewpoints – 1 mark Avoidance of bias – 1 mark Application of intellectual standards – 1 mark Conclusion/example – 1 mark	05	CO1	2
B.	Explain how balancing Desirability, Feasibility, and Viability leads to successful innovation. Desirability explanation – 1 mark Feasibility explanation – 1 mark Viability explanation – 1 mark Balance/relationship/diagram – 1 mark Outcome (innovation success) – 1 mark	05	CO4	2
C.	Apply the concept of empathy in Design Thinking to a real-life situation, and illustrate how understanding user needs can improve the final solution. Empathy concept – 1 mark Real-life application – 2 marks Illustration of improvement – 1 mark Outcome/benefit – 1 mark	05	CO5	3
D.	Determine how do metaphors help in broadening ideas during ideation? Support one example. Definition of metaphors in ideation – 1 mark Role in connecting unrelated ideas – 1 mark Broadening perspectives – 1 mark Creative thinking enhancement – 1 mark Example – 1 mark	05	CO6	3
Q.2	Attempt any THREE. (All questions carry equal marks)	30		
A.	Describe hybrid ideation techniques with suitable examples. How do they improve creativity compared to traditional brainstorming. Hybrid ideation concept – 2 marks Techniques/examples – 3 marks Traditional brainstorming (brief) – 2 marks Comparison/improvement – 3 marks (Hybrid Ideation: Combines multiple techniques (brainstorming + SCAMPER + mind mapping). Examples: Brainwriting + mind mapping → silent idea generation + visual linking. SCAMPER + brainstorming → structured idea expansion. Traditional Brainstorming: Verbal, less structured, dominance issues.	10	CO6	3

	Improvements: More diverse and structured ideas. Reduces group bias and dominance. Encourages participation and deeper thinking.)			
B.	Evaluate how empathy mapping helped Airbnb redefine its business model. Empathy mapping concept – 2 marks Application in Airbnb – 3 marks Evaluation (impact) – 3 marks Conclusion – 2 marks. (Empathy Mapping: Understands user thoughts, feelings, pain points. Airbnb Use: Identified trust issues between hosts and guests. Understood emotional concerns (Poor photographs safety, reliability). Impact: Introduced reviews, ratings, verification systems. Shifted focus from space rental → trust-based experience. Result: Improved engagement, growth, and user confidence.)	10	CO5	
C.	Analyze how Critical Thinking and Lateral Thinking differ in their approach to problem-solving, and examine how they work together to improve innovation. Critical Thinking – 2 marks Lateral Thinking – 2 marks Differences – 3 marks Combined role in innovation – 3 marks (Critical Thinking: Logical, analytical, evaluates ideas. Lateral Thinking: Creative, generates unconventional ideas. Differences: Critical → structured, convergent. Lateral → flexible, divergent. Together: Lateral generates ideas → Critical evaluates feasibility. Leads to innovative and practical solutions.)	10	CO4	4
D.	Analyze a situation where a company decides to launch a new product without conducting adequate research. Examine which intellectual standards are violated, leading to poor outcomes. Scenario understanding – 2 marks Identification of standards – 4 marks Analysis – 3 marks Outcome – 1 mark (Issue: Decision made without research. Violated Standards: Clarity → unclear problem understanding. Accuracy → lack of correct data. Relevance → ignoring market needs. Logic → weak reasoning. Analysis: Poor assumptions lead to flawed decisions. Outcome: Product failure, financial loss.)	10	CO3	4
E.	A student realizes she procrastinates and makes careless errors in exams. Using the four stages of development, identify her current stage and suggest how she can progress. Identification of stage – 2 marks	10	CO2	3

	Explanation – 3 marks Progression steps – 3 marks Conclusion – 2 marks. (Current Stage: Challenged Thinker (aware of problem). Reason: Recognizes procrastination and errors. Progression: Move to Beginning Thinker → plan study schedule. Practice self-monitoring and reflection. Apply strategies to reduce errors. Outcome: Becomes Practicing Thinker with improved performance.)			
Q.3	Attempt any THREE. (All questions carry equal marks)	15		
A.	Explain the concept of Rapid Prototyping and why it is preferred in the Design Thinking process. Definition of rapid prototyping – 2 marks Reason for preference (speed, cost, iteration) – 2 marks Outcome/benefit – 1 mark	05	CO6	2
B.	Explain how mind mapping and journey mapping help in understanding customer needs and improving design solutions. Mind mapping explanation – 1.5 marks Journey mapping explanation – 1.5 marks Role in understanding customer needs – 1 mark Improvement in design solutions – 1 mark	05	CO5	2
C.	Describe the relationship between thoughts and feelings. Explanation of thoughts – 1 mark Explanation of feelings – 1 mark Relationship between them – 2 marks Example – 1 mark	05	CO3	2
D.	Explain in detail the Four Stages of Development of a Critical Thinker with examples. Listing four stages – 2 marks Explanation of stages – 2 marks Example(s) – 1 mark	05	CO2	2
***** All the Best*****				