Reg. No. :

Question Paper Code: U9471

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2024

Open Elective

Electronics And Communication Engineering

21UEC971-DESIGN THINKING FOR INNOVATIONS

(Common To All Branches)

(Regulations 2021)

Duration: Three hours   Maximum: 100 Marks

Answer All Questions

PART A - (5 x 1 = 5 Marks)

1. _____ was IDEO'S first expression of design thinking.   CO1- U

   (a) Deep-Design   (b) Deep-Dive   (c) Deep-Structure   (d) Study-Dive

2. --------- is the last process in design thinking   CO1- U

   (a) Test   (b) Ideate   (c) Prototype   (d) Sales

3. Brain storming is a based on -----------   CO1- U

   (a) Memory   (b) Individual   (c) Register   (d) Group of people

4. Innovation plays a key role in introducing --------to existing   CO1- U
   product

   (a) Novelty   (b) Economical   (c) Adoptability   (d) All of the mentioned

5. _____is not a process of design thinking   CO1- U

   (a) Idea   (b) Protocol   (c) Empathy   (d) Meet

PART – B (5 x 3= 15 Marks)

6. Differentiate Convergent and Divergent Thinking.   CO1-U

7. Given a scenario where you need to understand the needs of elderly users for a   CO3-App
   new healthcare app, outline a plan for conducting empathetic research. Include
   at least three empathy methods.

8. Compare and contrast Ideathons and Hackathons in terms of their objectives and outcomes. CO1-U

9. Apply innovative materials to the design of a new ergonomic office chair. CO3-App
Explain how the use of these materials would improve comfort, durability, and overall user satisfaction.

10. Infer how design thinking can be applied to test new business strategies. CO1-U

PART – C (5 x 16= 80 Marks)

11. (a) Apply the principles of design thinking and choose which one is better for business and innovation CO4-App (16)

Or

(b) Design thinking can be used to identify opportunities for innovation in regenerative farming practices. Analyze and justify how Design Thinking has been used in improvement of innovations. CO4-App (16)

12. (a) Apply the principles of Human-Centered Design to the development of an online learning platform for remote education. Describe how you would integrate empathy, involvement, and iteration into each stage of the design process to ensure the platform meets the needs of both students and educators. CO2-App (16)

Or

(b) Design a simple empathy map for a hypothetical user scenario. Use the components of the map to outline what the user says, thinks, does, and feels. CO2-App (16)

13. (a) Inspect the causes of the 2024 Wayanad landslide using a design thinking approach, focusing on empathizing with affected communities and identifying root problems. Assess the impact on local livelihoods and ecosystems, and evaluate the effectiveness of response strategies. Propose human-centered design solutions to mitigate future risks, emphasizing resilience and sustainable development in the region. CO5-Ana (16)

Or

(b) Analyze the impact of COVID-19 on Tamil Nadu's education sector, focusing on the digital divide and access to education. Assess the effectiveness of online learning and government interventions. Suggest strategies to improve educational equity and quality in the post-pandemic era. CO5-Ana (16)

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14. (a) Apply the concept of ideathons as an innovation platform by explaining how they bring together diverse minds to generate new ideas. Provide an example of how a business successfully leveraged an ideathon to solve a critical challenge.   CO3-App   (16)

Or

(b) Apply the concepts of product classification to Amul Butter. Categorize this product based on its features (dairy spread, rich in flavor) and target market (households and foodservice in India). Analyze how innovations such as improved packaging, extended shelf life, and enhanced taste profiles influence its classification within the dairy products sector.   CO3-App   (16)

15. (a) Discover the application of design thinking principles in the invention of the RedBus app. Explain how the design thinking process identified and tackled the challenges of booking bus tickets in India, and describe how these innovations addressed the needs of both travelers and bus operators.   CO6-Ana   (16)

Or

(b) Analyze how Cirque di Soleil used design thinking to innovate in live entertainment. Explain how the process addressed key challenges and led to unique performances that enhanced audience experience and operational efficiency.   CO6-Ana   (16)

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