



International Institute of Health Management Research (IIHMR), New Delhi

PGDM (HOSPITAL AND HEALTH MANAGEMENT)

(2024-2026 PGDM Batch)

SUPPLEMENTARY EXAM (4th Semester)

HIT 716-Design Thinking and implementation of Digital Interventions (DTIDI)

Date: 20-06-2026 Timing & Duration: 02:30 – 05:30 P.M. (3 Hrs.) Max. Marks: 100

Instructions:

- Budget your time as per the marks given for each question and write your answer accordingly.
 - Don't write anything on the Question Paper except writing your Registration No.
 - Mobile Phones are not allowed even for computations.
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Part-A: Q.1 to Q.10 (10 questions x 2 Marks = 20 Marks) – One liner, MCQs, True/False

1. Design Thinking is:

- (a) Thinking about Design
- (b) Designing ways in which people think
- (c) Asking users to solve problems
- (d) Defining, framing, and solving problems from users' perspectives

2. What are the steps of the design thinking process?

- (a) Understand > Draw > Ideate > Create > Test
- (b) Empathise > Define > Ideate > Prototype > Test
- (c) Empathise > Design > Implement > Produce > Test
- (d) Understand > Define > Ideate > Produce > Try

3. Design Thinking is a Linear Process. True or False

- (a) True
- (b) False

4. A medical college is redesigning its website. Current students are the main users of the website. Which one of the elements below should be on the website?

- (a) College rules and regulations
- (b) Information on faculty members
- (c) Information about courses
- (d) Alumni details

Contd...2..

5. Aravind Eye Care System (AECS), an Indian eye care provider for millions of low-income people, has long used design thinking in its approach. Which of the following statements are examples of design thinking at AECS?

- (a) AECS provides buses from remote locations to the AEC centre to provide transportation to its users, the poor people, as they can't afford these
- (b) AECS has developed a manufacturing facility that enables providing lenses at a fraction of the cost of the market price
- (c) AECS has been using telemedicine trucks to enable expert advice from doctors at hospitals
- (d) All of the above

6. Design Thinking typically helps in _____

- (a) Innovation
- (b) Data Analytics
- (c) Financial Planning
- (d) Operational Efficiency

7. You would interview people to gain an understanding of how they feel during the ... Stage of Design thinking

- (a) Prototype
- (b) Define
- (c) Ideate
- (d) Empathise

8. The “Diverge” phase in Design Thinking is related to:

- a) Analyzing data
- b) Narrowing down ideas
- c) Generating multiple ideas
- d) Testing prototypes

9. In Design Thinking, what does the “Prototype” stage involve?

- a) Finalizing the design for production
- b) Developing a working model of the solution
- c) Conducting user testing
- d) Collecting feedback from stakeholders

10. During the “Test” stage in Design Thinking, what should be evaluated?

- a) The efficiency of the team
- b) The project’s timeline and budget
- c) The feasibility of the prototype
- d) The performance of the product in the market

Part-B: Q.11 to Q.15 (4 questions x 5 Marks = 20 Marks) Attempt any four – Short Notes

11. Explain the Empathize stage of Design Thinking. Why is it important in healthcare innovation? Describe the methods that can be used to understand the needs, experiences, and challenges of users.

12. The government plans to develop a digital application for monitoring the Integrated Management of Neonatal and Childhood Illness (IMNCI) program.

Which approach would be more suitable for developing this application—User-Centered Design (UCD) or Design Thinking? Justify your answer with reasons.

13. Compare and contrast User Centered Design and Design Thinking?

14. An antibiotic stewardship mobile application has been developed to support nurses in improving antibiotic use. Before implementation, the app needs to be tested for usability, efficiency, and user satisfaction.

15. A healthcare organization seeks to become a leader in precision medicine by integrating genomic testing, AI analytics, telehealth, EHRs, and connected healthcare technologies. What should be the features of the prototype to be developed.

Part-C: Q.16 to Q.20 (4 questions x 15 Marks = 60 Marks) Attempt any four – Long Notes

Background

Diabetes is a growing public health concern, particularly among older adults and people living in rural and semi-urban areas. Many patients struggle with regular blood glucose monitoring, medication adherence, dietary control, physical activity tracking, and timely communication with healthcare providers.

A healthcare technology startup, HealthTrack Innovations, has identified these challenges and plans to develop a Smart Diabetes Self-Management Device. The device will integrate a glucose monitoring sensor, medication reminders, lifestyle tracking, voice-based guidance, and mobile connectivity. The aim is to empower patients to manage their condition independently while enabling healthcare providers to monitor patient progress remotely.

User Research Findings

The development team conducted interviews and focus group discussions with patients, caregivers, physicians, and diabetes educators. The following issues were identified:

- Patients frequently forget to take medications on time.
- Many older adults find existing health apps difficult to use.
- Patients often fail to recognize early warning signs of poor glycemic control.
- Rural patients have limited access to diabetes specialists.
- Caregivers want alerts when patients miss medications or report abnormal readings.
- Healthcare providers require summarized patient data rather than large volumes of raw information.

Proposed Features

The proposed device should:

1. Monitor blood glucose levels.
2. Provide medication and appointment reminders.
3. Offer personalized diet and exercise recommendations.
4. Generate alerts for abnormal glucose readings.
5. Allow data sharing with healthcare providers and caregivers.
6. Support multiple languages and voice commands.
7. Ensure privacy and security of patient information.

The company decides to use a Design Thinking Approach to develop a patient-centered solution.

16. Based on the case study, explain how the development team can conduct the Empathize stage of Identify the key stakeholders involved.

- Describe suitable methods for understanding user experiences (e.g., interviews, observations, focus groups).
- Analyze the needs, expectations, and challenges faced by patients, caregivers, and healthcare providers.
- Explain how empathy findings can guide the development of a patient-centered self-management device.

17. Using the findings from the empathy stage, perform the Define stage of Design Thinking.

- Categorize the major problems identified by users.
- Develop a clear problem statement (Point of View statement).
- Formulate at least three “How Might We” questions.
- Identify the functional and non-functional requirements of the proposed device.

18. Assume you are part of the product development team. Generate innovative ideas and features that could improve patient self-management beyond those already proposed. Explain how brainstorming, mind mapping, and user journey mapping can be used during the ideation process.

19. Develop a prototype plan for the Smart Diabetes Self-Management Device. Describe the key components of the prototype and explain how usability testing with patients, caregivers, and healthcare providers can be conducted to refine the design.

20. Critically evaluate the factors that should be considered before implementing the device on a large scale. Discuss issues related to usability, accessibility, data privacy, regulatory compliance, cost-effectiveness, and long-term sustainability. Propose suitable evaluation metrics to measure the success of the device.