1.Explain the term Design Thinking

Ans-

Tim Brown presented a fantastic definition of Design Thinking:
"Design Thinking is a human-centered approach to innovation that draws from the designer's toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success."
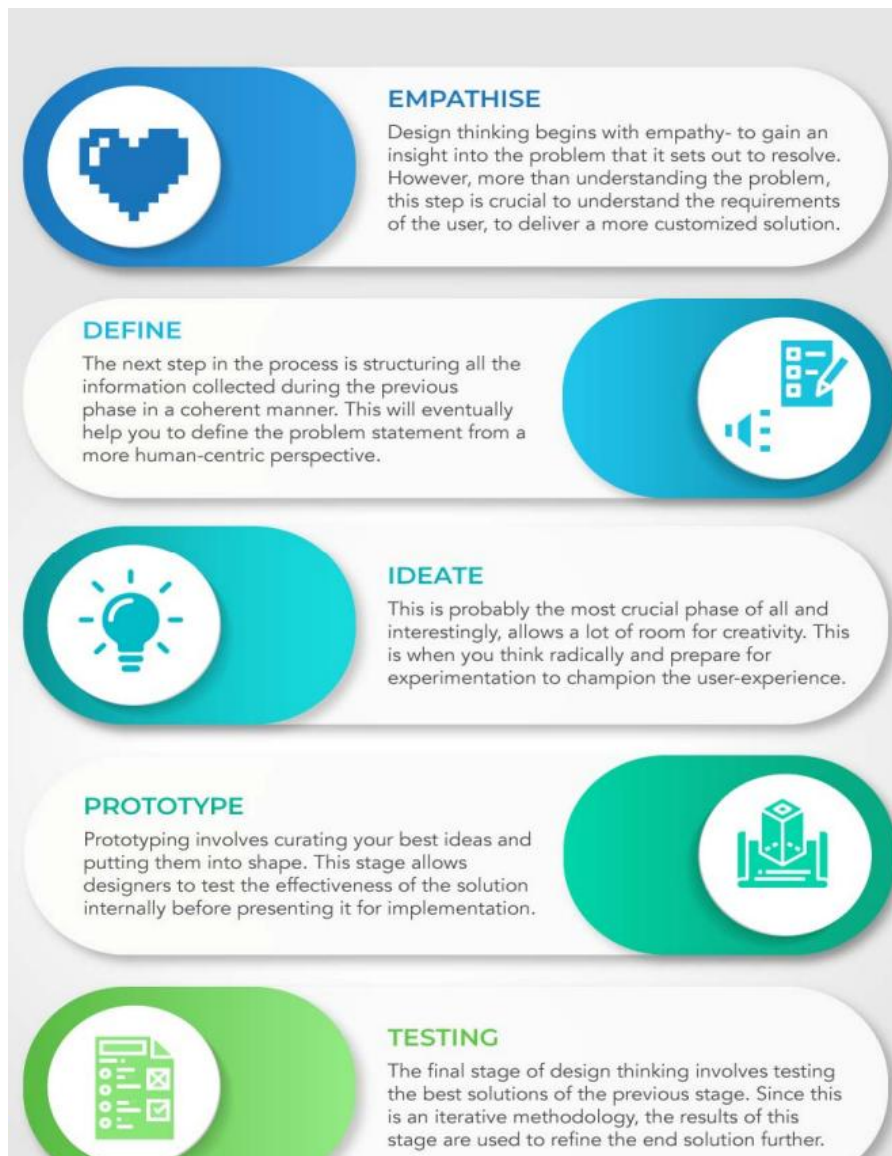
2. State the concept of cognitive empathy.

Ans-

Cognitive empathy involves being able to understand another person's mental state and what they might be thinking in response to the situation. This is related to what psychologists refer to as the theory of mind or thinking about what other people are thinking.

3. Name the 5 phases of Design Thinking.

Ans-

EMPATHISE
Design thinking begins with empathy- to gain an insight into the problem that it sets out to resolve. However, more than understanding the problem, this step is crucial to understand the requirements of the user, to deliver a more customized solution.

DEFINE
The next step in the process is structuring all the information collected during the previous phase in a coherent manner. This will eventually help you to define the problem statement from a more human-centric perspective.

IDEATE
This is probably the most crucial phase of all and interestingly, allows a lot of room for creativity. This is when you think radically and prepare for experimentation to champion the user-experience.

PROTOTYPE
Prototyping involves curating your best ideas and putting them into shape. This stage allows designers to test the effectiveness of the solution internally before presenting it for implementation.

TESTING
The final stage of design thinking involves testing the best solutions of the previous stage. Since this is an iterative methodology, the results of this stage are used to refine the end solution further.

4. Elastrate the concept of ideation in design thinking.

Ans-

Ideation is the third phase of the Design Thinking process, and it's all about generating ideas. Now, it's important to remember that Design Thinking is not a strictly linear process. However, the insights and outcomes that come from the Empathise and Define stages (getting to know your users and setting out a clear problem statement) will guide and inform a productive ideation session. The Nielsen Norman Group
defines ideation as "the process of generating a broad set of ideas on
a given topic, with no attempt to judge or evaluate them."
In the ideation phase, you'll explore and come up with as many ideas as possible. Some of these ideas will go on to be potential solutions to your design challenge; some will end up on the reject pile.
At this stage, the focus is on the number of ideas rather than quality. The main aim of an ideation session is to uncover and explore new angles and avenues—to think outside the box.
For the sake of innovation and creativity, it is essential that the ideation phase is a judgment-free zone.
Ideation comes in many different shapes and sizes. We'll take a look at some of the most popular ideation techniques used by designers a little later on.

4. Discuss the concept of Doodling.

Ans-

Doodling originally means 'to draw, sketch or scribble idly'. Generally, doodling is an activity that people take up unknowingly when not able to pay attention to something else. For instance, you are sitting in a meeting and bored. Then, you start scribbling different shapes and patterns on the paper. That is a doodle. This is the reason that doodles are simple random sketches with abstract shapes.

But when you are listening to someone, you can make doodles of the information, as some sort of a record that you can visit later. So, while doodling is the result of some boredom, it is also useful when done creatively.

5. Discuss the term empathy.

Ans-

Empathy is the ability to emotionally understand what other people feel, see things from their point of view, and imagine yourself in their place. Essentially, it is putting yourself in someone else's position and feeling what they are feeling.
Empathy means that when you see another person suffering, such as after they've lost a loved one, you are able to instantly envision yourself going through that same experience and feel what they are going through.

6. Write short notes on principles of design thinking.

Ans-

PRINCIPLES OF DESIGN THINKING

Iterative
Realizing that a non-linear repetitive process will work best to eliminate failures and reach towards an effective end goal.

Ambiguity
Design thinking aims at resolving the wicked or an ill-defined problem and it starts by accepting the obscurity of the problem.

Creative
The crux of design thinking is innovation- the ability to think like a creator rather than executor and create solutions that are predictive.

Curiosity
The next step entails a curiosity towards understanding the requirement and ideating along those lines.

7. Discuss the importance of ideation stage in design thinking.

Ans-

The ideation phase represents a key transitional step from learning about your users and the problem to coming up with solutions.
If carried out properly, an ideation session is where innovation thrives; it should help you stumble upon that groundbreaking solution that your users have been missing!
As Don Norman explains in "Rethinking Design Thinking", ideation is crucial in getting us to question the obvious, challenge the norm, and come up with new ideas.
"It is by questioning the obvious that we make great progress. This is where breakthroughs come from. We need to question the obvious, to reformulate our beliefs, and to redefine existing solutions, approaches, and beliefs," he writes. As a designer, the ideation phase is your safe space in which to come up with novel, perhaps unconventional, ideas. It doesn't matter if these ideas turn out to be plausible or not; what's
important is that you venture beyond the obvious, already-been-done solutions. Ideation sessions will help you to focus on your users (as any good designer should!); to
accumulate the unique perspectives and creativity of different people, ensure diversity of ideas. And ultimately, to innovate in ways that you never thought possible.

8.Discuss the goal oriented personas & fictional personas.

Ans-

Goal-directed Personas -
This persona cuts straight to the nitty-gritty. "It focusses on: What does my typical user want to do with my product?". The objective of a goal-directed persona is to examine the process and workflow that your user would prefer to utilize to achieve their goals in interacting with your product or service. There is an implicit assumption that you have already done enough user research to recognize that your product has value to the user and that by examining their goals, you can bring their requirements to life. The goal-directed personas are based upon the perspectives of Alan Cooper, an American software designer and programmer who is widely recognized as the "Father of Visual Basic."

. Fictional Personas –

The fictional persona does not emerge from user research (unlike the other personas), but it emerges from the experience of the UX design team. It requires the team to make assumptions based upon past interactions with the user base and products to deliver a picture of what, perhaps, typical users look like. There's no doubt that these personas can be deeply flawed (and there are endless debates on just how flawed). You may be able to use them as an initial sketch of user needs. They allow for early involvement with your users in the UX design process, but they should not, of course, be trusted as a guide for your development of products or services.

9. Demonstrate the importance of different stages in design thinking.

Ans-

If you think like a designer, it can transform how your organization develops products, services, processes, and strategies. It brings together the desirability from the customer's perspective with what is technologically feasible and economically viable. It also provides various opportunities for people who aren't trained as designers to utilize creative tools so that they can tackle a vast range of problems/challenges.
There are also some essential aspects in which design thinking helps, and they are:

• The main objective is to solve the customer's requirements

• Helps in tackling ambiguous and challenging problems

• Drives people to create innovative solutions

• It helps organizations to run faster with more efficiency

10. Illustrate how design thinking impact value proposition.

Ans-

Design thinking, with its human-centered approach, greatly enhances the development and delivery of a value proposition by focusing on understanding customer needs, empathizing with their challenges, and iteratively designing solutions. Here's how design thinking impacts value proposition creation:

1. Empathy for Customer Needs

- **Impact**: Design thinking starts with understanding the customer's perspective. By using techniques like interviews, observations, and personas, businesses gain deep

insights into customer pain points, desires, and behaviors. This leads to crafting a value proposition that truly resonates with real customer needs, rather than assumptions.

- **Example**: A company might discover through empathy exercises that customers prioritize convenience over price. This insight helps design a value proposition that emphasizes ease of use rather than cost savings.

2. Problem Definition (Define Phase)

- **Impact**: In the "Define" phase of design thinking, the focus is on clearly articulating the problem. A well-defined problem ensures the value proposition is targeted and addresses a core issue rather than superficial challenges.
- **Example**: If a business realizes that the real problem is not "low product awareness" but "frustration with complex user interfaces," the value proposition will shift to emphasizing simplicity and user-friendliness.

3. Ideation for Innovation

- **Impact**: During the ideation phase, multiple solutions are brainstormed, allowing for creative and innovative approaches to enhance the value proposition. Design thinking encourages divergent thinking, enabling the exploration of unconventional solutions.
- **Example**: A business may generate ideas like offering a subscription model for flexibility, which leads to a value proposition of "affordable access anytime, anywhere."

4. Rapid Prototyping and Testing

- **Impact**: Prototyping and testing help refine the value proposition by validating it with real users before full-scale launch. Continuous feedback from users ensures that the value proposition aligns with their evolving needs and reduces the risk of launching a solution that doesn't connect.
- **Example**: After testing a prototype, a company may discover that customers prefer a mobile app over a web interface. This leads to refining the value proposition to emphasize mobile-first convenience.

5. Iteration and Adaptation

- **Impact**: Design thinking promotes iteration, which means the value proposition is not static. As new insights emerge, businesses can adapt and refine their value propositions to stay relevant in changing markets.
- **Example**: A company might initially offer "speed of service" as a key value but, through iterative testing, realize customers value "personalization" more. The value proposition is then updated to focus on custom solutions.

Visualization of the Process:

1. **Empathize**: Understanding customers → **Accurate Insights**.
2. **Define**: Clarifying the real problem → **Targeted Value Proposition**.
3. **Ideate**: Generating ideas → **Innovative and Customer-Centric Solutions**.

4. **Prototype**: Creating testable versions → **Refinement Based on Feedback**.
5. **Test**: Validating with users → **Iterating for Best Fit**.

Conclusion

By incorporating design thinking into the process of creating a value proposition, businesses can better align their offerings with customer needs, ensuring that their value proposition is relevant, differentiated, and compelling. It helps move beyond assumptions to truly understand and solve problems that matter to the customers.

11. Discuss the testing phase importance.

Ans-

The testing phase is critical for ensuring a product's quality, functionality, and reliability. It helps identify and fix bugs early, ensuring that the product meets user expectations and works as intended. Testing also validates the user experience, optimizes performance, and ensures security and compliance with regulations. By minimizing risks, avoiding future failures, and ensuring compatibility across platforms, testing leads to a higher-quality product. Additionally, user feedback during testing allows for improvements before launch, enhancing customer satisfaction and reducing the chance of errors post-release.

12.Discuss different signs of empathy.

Ans-

Signs of Empathy: For many, seeing another person in pain and responding with indifference or even outright
hostility seems utterly incomprehensible. But the fact that some people do respond in such a way clearly demonstrates that empathy is not necessarily a universal response to the suffering of others.
If you are wondering whether you are an empathetic person, here are some signs that show that you have this tendency:

• You are good at really listening to what others have to say.

• People often tell you about their problems.

• You are good at picking up on how other people are feeling.

• You often think about how other people feel.

• Other people come to you for advice.

• You often feel overwhelmed by tragic events.

• You try to help others who are suffering.

• You are good at telling when people aren't being honest.

• You sometimes feel drained or overwhelmed in social situations.

 • You care deeply about other people.

• You find it difficult to set boundaries in your relationships.

13.Differentiate empathy to sympathy.

Ans-

sympathy is often thought to be more of a passive connection, while empathy generally involves a much more active attempt to understand another person.

14. How mind mapping is impactful in design thinking.

Ans-

Mindmapping:-
Developed by Tony Buzan in 1972, mindmapping is a visual ideation technique that encourages you to draw connections between different sets of ideas or information. You'll start by writing a keyword in the middle of the page (normally related to your problem statement). On the same piece of paper, you then surround this word with any and all ideas that come to mind.
Finally, you'll think about how these ideas are connected, depicting said connections with lines and curves—resulting in a visual map.

15.Demonstrate the 4W & 5Y's are associated with problem statement.

Ans-

The **4W's** (What, Why, Who, Where) and **5Y's** (Five Whys) are methods often used to deeply understand and define a problem statement. Both techniques help in diagnosing the core issue and identifying the root cause of the problem. Here's how they are associated with a problem statement:

1. The 4W's (What, Why, Who, Where)

These questions help in defining and framing the problem clearly.

What (What is the problem?)

- **Purpose**: Clearly define the issue at hand.
- **Example**: What is causing a delay in product delivery?

Why (Why is it a problem?)

- **Purpose**: Understand the significance and the impact of the problem.

- **Example**: Why is the delay affecting customer satisfaction and revenue?

- **Purpose**: Identify the stakeholders or people impacted by the problem.
- **Example**: Who are the customers experiencing the delay?

- **Purpose**: Pinpoint the location, environment, or department where the issue arises.
- **Example**: Where in the supply chain is the delay happening?

2. The 5Y's (Five Whys)

The **Five Whys** technique digs deeper into the root cause of a problem by asking "Why?" repeatedly until the fundamental issue is revealed.

Example:

- **Problem**: The product delivery is delayed.

1. **Why** is the product delivery delayed?
   → Because the shipment is always leaving late.
2. **Why** is the shipment leaving late?
   → Because the production process takes longer than planned.
3. **Why** does the production process take longer?
   → Because there are machine breakdowns frequently.
4. **Why** are machines breaking down frequently?
   → Because maintenance checks are not done regularly.
5. **Why** are maintenance checks not done regularly?
   → Because there is no scheduled maintenance plan in place.

Association with Problem Statement

- **4W's** help in **defining and framing the problem** comprehensively.
- **5Y's** help in **diagnosing the root cause** of the problem, allowing for a solution that addresses the underlying issue.

16. Write short note on problem statement.

Ans-

A problem statement is a concise description of an issue that needs to be addressed. It clearly outlines the gap between the current state and the desired state, helping to focus efforts on solving the core problem. A well-defined problem statement includes the What, Why, Who, and Where of the issue, ensuring clarity on the impact and the stakeholders involved. Additionally, techniques like the 5 Whys can be used to identify the root cause of the problem. A good problem statement is the foundation for effective problem-solving and decision-making.

17. Discuss the role based personas and engaging personas.

Ans-

The role-based perspective is also goal-directed, and it also focuses on behavior. The personas of the role-based perspectives are massively data-driven and incorporate data from both qualitative and quantitative sources. The role-based perspective focuses on the user's role in the organization. In some cases, our designs need to reflect upon the part that our users play in their organizations or wider lives. An examination of the roles that our users typically play in real life can help inform better product design decisions. Where will the product be used? What's this role's purpose? What business objectives are required of this role? Who else is impacted by the duties of this role? What functions are served by this role?

Engaging personas can incorporate both goal and role-directed personas, as well as the more traditional rounded personas. These engaging personas are designed so that the designers who use them can become more engaged with them. The idea is to create a 3D rendering of a user through the use of personas. The more people engage with the persona and see them as 'real', the more likely they will be to consider them during the process design and want to serve them with the best product. These personas examine the emotions of the user, their psychology, backgrounds and make them relevant to the task at hand. The perspective emphasizes how stories can engage and bring the personas to life. One of the advocates for this perspective is Lene Nielsen.

18.Discuss the different types of empathy.

Ans-

Types of Empathy:
There are several types of empathy that a person may experience. The three types of empathy are:
• Affective empathy involves the ability to understand another person's emotions and respond appropriately. Such emotional understanding may lead to someone feeling concerned for another person's well-being, or it may lead to feelings of personal distress. •
Somatic empathy involves having a physical reaction in response to what someone else is experiencing. People sometimes physically experience what another person is feeling. When you see someone else feeling embarrassed, for example, you might start to blush or have an upset stomach. •
Cognitive empathy involves being able to understand another person's mental state and what they might be thinking in response to the situation. This is related to what psychologists refer to as the theory of mind or thinking about what other people are thinking.

19. Illastrate how to write a value propositional statement.

Ans-

Writing a **value proposition statement** involves clearly articulating the unique benefits and value your product or service provides to customers. A value proposition should address what makes your offering different or better than competitors and why customers should choose you. Here's a step-by-step guide to writing a strong value proposition:

1. Identify the Customer Problem

- Start by understanding the key pain points or challenges your target audience is facing.

- **Example**: Customers struggle to find high-quality, affordable workout gear.

2. Define the Solution (What You Offer)

- Describe the product or service you provide that solves this problem.
- **Example**: We offer durable, stylish, and affordable workout apparel for active individuals.

3. Highlight Unique Benefits

- Focus on what makes your solution unique. This could be a feature, quality, price, or something that sets you apart.
- **Example**: Our workout gear combines premium materials with affordability, backed by a satisfaction guarantee.

4. Quantify the Value

- Where possible, quantify the benefits to make the value clear. Show how your product saves time, reduces costs, or improves efficiency.
- **Example**: Save up to 30% on workout gear compared to leading brands without sacrificing quality.

5. State Why You Are Different

- Explain why customers should choose your product over others. This might include your unique process, technology, or customer service.
- **Example**: Unlike other brands, we offer a lifetime warranty on all workout gear, ensuring peace of mind with every purchase.

Example of a Value Proposition Statement:

For active individuals looking for affordable, high-quality workout apparel, our brand offers durable and stylish gear at 30% less than leading competitors, with a lifetime warranty that ensures long-lasting performance.

Key Components of a Value Proposition:

1. **Target Audience**: Who will benefit?
2. **Problem**: What pain point are you addressing?
3. **Solution**: How does your product/service solve the problem?
4. **Benefits**: What value or benefits will customers gain?
5. **Differentiation**: Why choose you over others?

By following these steps, you create a compelling value proposition that resonates with your audience and clearly communicates the unique value your product or service delivers.

20. Write a note on application of design thinking of different sphares of real life.

Ans-

Applications of Design Thinking-
Design thinking has its applications in a range of professions. In sports, education, study, and research to business and management, design thinking is widely used by several organisations around the world.

Business: -

Design thinking is most popular in businesses. It helps them in optimization processes, especially with respect to product creation, marketing, and contract renewal. Considering that these processes require a good amount of focus on their customers, design
thinking proves to be immensely useful in their assistance. In businesses, design thinking helps design thinkers not only develop deep empathy for their customers but also to create solutions that tend to their specific needs.

Information Technology:-
The IT industry makes a lot of products that require trials and proof of concepts. The industry needs to empathize with its users and not simply deploy technologies. IT is not only about technology or products, but also processes. The developers, analysts, consultants, and managers have to brainstorm possible ideas for solving the problems of the clients. This is where design thinking helps a lot.

Education:-
The education sector in our economy demands the most when it comes to creative solutions. It essentially can make the best use of design thinking through student feedback. Feedback from students on their requirements, goals, and challenges in the classroom can prove to be useful in easy problem-solving. That is, by working on their feedback, the design thinks can come up with relevant and creative solutions to address their issues. For instance, Michael Schurr, a 2nd-grade teacher in New York realized that his students
would be more comfortable with lowered bulletin boards. He also came up with the idea of creating a comfortable semi-private lounge for working students as a space to study. As a result, his students not only became more engaged with each other but also had a good amount of space to store books and study.

Healthcare :-
Design thinking plays a vital role in the healthcare industry as well. The expenditure in this sector is healthcare is continuing to increase by the day. A major concern of the experts worldwide is about bringing quality healthcare to people at lower costs.