



Indian School Al Wadi Al Kabir

Second Rehearsal Examination (2025-2026)

Skill Education

Class: X

Design Thinking and Innovation (422)

Max. marks: 50

Date:02/02/2026

Set- I

Time: 2 hrs.

MARKING SCHEME

SECTION – A

Q.1	Answer any 4 out of the given 6 questions on Employability Skills	(1×4=4)
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Q.NO	ANSWERS	
i.	(b) Active listening	1
ii.	(a) Time management	1
iii.	(d) Self-motivation	1
iv.	(c) Mouse	1
v.	(d) Job seeking	1
vi.	(b) Recycling	1

Q.2	Answer any 5 out of the given 6 questions	(1×5=5)
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i.	(b) Define	1
ii.	(c) Low-fidelity prototype	1
iii.	(c) Generates multiple creative solutions	1
iv.	(b) Storyboarding	1
v.	(a) Listening actively	1
vi.	(b) Minimizing waste	1

Q.3	Answer any 5 out of the given 6 questions	(1×5=5)
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i.	(b) Ideate	1
ii.	(c) Using recyclable and eco-friendly materials	1
iii.	(b) Test animation timing and flow before production	1
iv.	(b) It compares unfamiliar ideas to familiar ones	1

v.	(c) Working model with moving parts	1
vi.	(b) Understanding user problems	1
Q.4	Answer any 5 out of the given 6 questions	(1×5=5)
i.	(b) Circular lifecycle	1
ii.	(b) It helps understand user needs and emotions.	1
iii.	(c) Test and Iterate	1
iv.	(b) Clear typography and icons	1
v.	(b) Save cost and visualize ideas easily	1
vi.	(c) Artificial imagination creativity	1

Q.5	Answer any 5 out of the given 6 questions	(1×5=5)
i.	(b) Introducing something new and useful	1
ii.	(a) To test ideas quickly and improve designs	1
iii.	(a) Green design	1
iv.	(a) Both assertion and reason are correct, and the reason is correct explanation of the assertion.	1
v.	(b) Ideate	1
vi.	(b) Divergent thinking	1

SECTION B: SUBJECTIVE TYPE QUESTIONS

Answer any 3 out of the given 5 questions on Employability Skills (2 x 3 = 6 marks) Answer each question in 20 – 30 words.

6	Interpersonal Communication is the exchange of ideas, feelings, or information between two or a few individuals in a direct and personal manner. It is usually informal and allows for immediate feedback and interaction. For example, a conversation between two colleagues discussing a project is interpersonal communication.	2
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	<p>Public Communication, on the other hand, occurs when a single person communicates with a larger audience, often in a structured or formal setting. The interaction is usually one-way, and feedback from the audience may be limited or delayed. For example, a teacher giving a lecture to a classroom of students is an example of public communication.</p> <p>This shows that interpersonal communication is personal and interactive, while public communication is meant for addressing a broader audience.</p>	
7	<p>Stress is the body’s physical, mental, or emotional response to situations that are perceived as challenging, threatening, or demanding. It can affect your thoughts, feelings, and overall well-being.</p> <p>Three steps required for effective stress management are:</p> <ol style="list-style-type: none"> 1. Identify the stressors – Recognize the situations, people, or events that trigger stress in your life. 2. Develop coping strategies – Use techniques such as time management, relaxation exercises, mindfulness, or physical activity to handle stress effectively. 3. Implement and monitor – Apply the coping strategies consistently and observe their effectiveness, making adjustments as needed to maintain balance and well-being. 	2
8	<p>Green Skills are the abilities, knowledge, and attitudes that enable individuals to support sustainable practices and contribute to protecting the environment. These skills help in reducing environmental impact, promoting resource efficiency, and supporting eco-friendly innovations.</p> <p>Two core requirements for an individual to contribute to environmental outcomes are:</p> <ol style="list-style-type: none"> 1. Environmental Awareness – Understanding ecological issues, sustainability concepts, and the impact of human activities on the environment. 2. Practical Skills for Sustainable Action – Ability to implement eco-friendly practices, such as waste reduction, energy conservation, or using renewable resources effectively. 	2
9	<p>An entrepreneur is a person who identifies business opportunities, takes risks,</p>	2

	<p>and organizes resources to create and manage a new business venture with the goal of making a profit and/or creating value.</p> <p>Two qualities of an entrepreneur are:</p> <ol style="list-style-type: none"> 1. Risk-taking ability – Willingness to take calculated risks to achieve business goals. 2. Innovativeness – Ability to come up with new ideas, solutions, or products to meet market needs. 	
10	<p>The core purpose of computer security is to protect computer systems, networks, and data from unauthorized access, damage, or theft, ensuring the confidentiality, integrity, and availability of information.</p> <p>Two specific measures taken to protect data are:</p> <ol style="list-style-type: none"> 1. Using strong passwords and authentication methods – Ensures only authorized users can access sensitive information. 2. Installing antivirus and firewall software – Protects systems from malware, viruses, and unauthorized network access. 	2

Answer any 4 out of the given 6 questions in 20 – 30 words each (2 x 4 = 8 marks)

Q.11	<p>The “Empathize” stage in Design Thinking is the first step where designers deeply understand the users’ needs, experiences, and challenges. It involves observing, engaging, and interacting with users to gain insights into their problems and perspectives. This stage helps ensure that the solutions developed later are user-centered and truly address real needs rather than assumptions.</p> <p>For example, a designer creating a new chair might observe how people sit, ask about their comfort preferences, and note any difficulties they face.</p>	2
Q.12	<p>Sustainability is the practice of using resources in a way that meets present needs without compromising the ability of future generations to meet their needs. It focuses on balancing environmental, social, and economic factors for long-term well-being.</p> <p>Example from daily life: Using a reusable water bottle instead of single-use plastic bottles helps reduce plastic waste and conserve resources, promoting a</p>	2

	sustainable lifestyle.	
Q.13	<p>Feedback in the prototyping process is crucial because it helps designers understand how users interact with a product and whether it meets their needs. By gathering feedback, designers can identify flaws, usability issues, or areas for improvement before final production, saving time and resources.</p> <p>It ensures that the final product is user-centered, functional, and effective, increasing the likelihood of its success in the real world. For example, testing a prototype of a mobile app with users can reveal confusing navigation, which can then be fixed before the official launch.</p>	2
Q.14	<p>Divergent thinking and convergent thinking are two complementary approaches used in problem-solving and creativity:</p> <ul style="list-style-type: none"> • Divergent Thinking is the process of generating multiple, diverse ideas or solutions without immediate judgment. It encourages creativity, exploration, and brainstorming. <i>Example:</i> Listing as many possible uses for a paperclip as you can think of. • Convergent Thinking is the process of narrowing down ideas to find the single best or most practical solution. It focuses on analysis, evaluation, and decision-making. <i>Example:</i> Choosing the most feasible design for a new product from several brainstormed options. 	2
Q.15	<p>Low-fidelity prototyping involves creating simple and quick models of a product, often using paper, cardboard, or basic digital sketches.</p> <p>Two advantages of low-fidelity prototyping are:</p> <ol style="list-style-type: none"> 1. Quick and Cost-Effective – It can be created rapidly with minimal resources, allowing designers to test ideas without significant investment. 2. Encourages Feedback and Iteration – Its simplicity makes it easier for users to suggest changes, helping designers refine concepts before investing in high-fidelity prototypes. 	2
Q.16	<p>A story is a structured account of events or experiences, real or imaginary, that is shared to convey a message, idea, or emotion to an audience.</p> <p>Two key purposes of storytelling in communication are:</p> <ol style="list-style-type: none"> 1. To engage and captivate the audience – Stories make information more 	2

	<p>interesting, memorable, and relatable.</p> <p>2. To convey ideas or values effectively – Stories help communicate complex concepts, lessons, or cultural values in a simple and impactful way.</p>	
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Answer any 3 out of the given 6 questions in 50– 80 words each (4 x 3 = 12 marks)

Q.17	<p>Design Thinking can be applied to reduce food wastage in school canteens by following its user-centered, iterative process:</p> <ol style="list-style-type: none"> 1. Empathize: Observe students, canteen staff, and kitchen operations to understand why food is wasted. For example, some students may take more food than they can eat, or certain items may be unpopular. 2. Define: Clearly identify the problem, such as “A large portion of cooked food is thrown away daily due to over-serving or unappealing menu choices.” 3. Ideate: Brainstorm solutions, like offering smaller portion options, creating a “share table” for extra food, or adjusting the menu based on students’ preferences. 4. Prototype: Implement small-scale solutions, such as trialing half-portion meals or a food feedback system where students indicate which items they prefer. 5. Test and Iterate: Monitor the impact of these solutions, gather feedback from students and staff, and make improvements to further reduce waste. <p>By applying design thinking, the canteen can create practical, student-focused solutions that minimize food wastage while improving satisfaction and efficiency.</p>	4
Q.18	<p>Linear and circular lifecycles are two approaches to how products and resources are used and managed:</p> <ul style="list-style-type: none"> • Linear Lifecycle: This follows a “take, make, dispose” approach. Resources are extracted, used to create a product, and eventually discarded as waste. <i>Example:</i> Single-use plastic bottles are manufactured, used once, and thrown away, contributing to environmental pollution. • Circular Lifecycle: This focuses on reusing, recycling, and regenerating resources to minimize waste and extend the product’s life. <i>Example:</i> Plastic waste is collected and recycled to make furniture, keeping materials in use longer and reducing environmental impact. 	4

Q.19	<p>A great gadget-free family activity that promotes creativity and togetherness is collaborative storytelling with drawing.</p> <p>How it works:</p> <ul style="list-style-type: none"> • Each family member takes turns adding a sentence to a story, building it together. • After each sentence, someone sketches a small illustration of that part of the story. • Continue alternating between storytelling and drawing until the story is complete. <p>Benefits:</p> <ul style="list-style-type: none"> • Encourages imagination and creative thinking. • Strengthens communication and teamwork among family members. • Creates a fun, shared keepsake of the story and drawings. <p>This activity is simple, engaging, and doesn't require any gadgets, making it perfect for quality family time.</p>	4
Q.20	<p>The statement “Recycling and reuse are the foundation of sustainability” is justified because sustainability aims to meet present needs without compromising future resources, and recycling and reuse help achieve this by reducing waste, conserving resources, and minimizing environmental impact.</p> <p>Examples:</p> <ol style="list-style-type: none"> 1. Recycling plastic bottles into new products – Used plastics can be converted into furniture, bags, or other items, reducing the need for new raw materials and preventing pollution. 2. Reusing glass jars for storage – Instead of discarding glass jars, they can be cleaned and used to store food or organize household items, saving resources and reducing waste. <p>By continuously recycling and reusing materials, we close the resource loop, which is a key principle of sustainable living.</p>	4
Q.21	<p>One innovative product I recently came across is the solar-powered water purifier bottle.</p> <p>Problem it solves: In many areas, access to clean drinking water is limited, and boiling or chemical treatment methods can be inconvenient, costly, or energy-intensive. Contaminated water can lead to waterborne diseases.</p> <p>How it works: The bottle uses solar energy to power a filtration and UV</p>	4

	<p>purification system, making water safe to drink anywhere, even in remote locations.</p> <p>Impact:</p> <ul style="list-style-type: none"> • Provides a portable and sustainable solution for safe drinking water. • Reduces reliance on bottled water, cutting plastic waste. • Promotes health and hygiene, especially in areas lacking clean water infrastructure. <p>This product is a good example of design thinking and green innovation addressing a real-world problem in a practical, eco-friendly way.</p>	
Q.22	<p>A storyboard is a sequence of sketches or frames that visually represents the flow of a story, idea, or process. It is used to plan and communicate how a product, animation, or user experience will unfold over time.</p> <p>Use in the prototyping stage:</p> <ul style="list-style-type: none"> • In prototyping, a storyboard maps out each step of user interaction or a sequence of events before creating a functional model. • It helps designers visualize the flow, identify potential issues, and gather feedback early, saving time and resources. • For example, when designing a mobile app, a storyboard can show how a user navigates from the home screen to completing a task, guiding the development of a low- or high-fidelity prototype. <p>Essentially, storyboards bridge the gap between ideas and tangible prototypes, making it easier to test and refine solutions.</p>	