



COMMON PRE-BOARD EXAMINATION
DESIGN THINKING & INNOVATION-Code No. 422



Class-X-(2025-26)

SET: 1

Time allowed: 2 Hrs.

MARKING SCHEME

Maximum Marks: 50

SECTION – A

Q.1 Answer any 4 out of the given 6 questions on Employability Skills (1×4=4)

| Q.NO | ANSWERS | |
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| i. | (a) Interpersonal Communication | 1 |
| ii. | (c) Psychosomatic disorders | 1 |
| iii. | (b) Life on Land | 1 |
| iv. | (c) It can prevent data from getting corrupted | 1 |
| v. | (b) Ctrl + X | 1 |
| vi. | (d) Marketing | 1 |

Q.2 Answer any 5 out of the given 6 questions (1×5=5)

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| i. | (b) A stop-motion technique using live actors as frame by frame subjects. | 1 |
| ii. | (c) Animatics as prototype | 1 |
| iii. | (a) The evolution of technology in the household. | 1 |

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| iv. | (d) Creative doodling can enhance memory retention and improve focus during learning activities. | 1 |
| v. | (b) install energy-efficient appliances and reduce water consumption. | 1 |
| vi. | (c) Overloading slides with excessive text. | 1 |

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| Q.3 | Answer any 5 out of the given 6 questions | (1×5=5) |
| i. | (b) Stop motion | 1 |
| ii. | (d) Prototyping | 1 |
| iii. | (c) Cultivation of cereals and spice cultivation in the south. | 1 |
| iv. | (c) Spontaneous cognitive creativity | 1 |
| v. | (b) She might be accused of plagiarism and lose credibility. | 1 |
| vi. | (b) Drawing characters from personal observation, like people at a bus stop or street market. | 1 |
| Q.4 | Answer any 5 out of the given 6 questions | (1×5=5) |
| i. | (a) Animating a bouncing ball | 1 |
| ii. | (d) Make adjustments to the cardboard pieces, including fitting them together better and adding colour and sketches for details. | 1 |
| iii. | (c) By redesigning packaging to be easily reusable for other purposes. | 1 |
| iv. | (d) Prototype | 1 |
| v. | (b) Industrialisation in India | 1 |

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| vi. | (d) Chronological and Circular | 1 |
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| Q.5 | Answer any 5 out of the given 6 questions | (1×5=5) |
| i. | (b) First original model | 1 |
| ii. | (c) only (i), (ii) & (iii) | 1 |
| iii. | (b) Start growing avocado locally in Gujarat to bring down transportation costs and provide livelihood locally | 1 |
| iv. | (c) Assertion is correct, but the reason is not correct. | 1 |
| v. | (c) linear lifecycle | 1 |
| vi. | (c) 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.

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| 6 | <p>Think Before You Speak</p> <ul style="list-style-type: none"> • Think about your topic. • Think about the most effective ways to make your listeners understand the topic. | 2 |
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| | <ul style="list-style-type: none"> • Write or note down whatever you plan to say. <p>Concise and Clear</p> <ul style="list-style-type: none"> • Speak clearly, loudly and at moderate speed. • Be sure the information you want to share is to the point. • Do not repeat the same sentences. <p>Confidence and Body Language</p> <ul style="list-style-type: none"> • Be confident. • Maintain eye contact, stand straight and be attentive. • Be friendly | |
| 7 | <p>a. Women Entrepreneurship entrepreneurial activity</p> <p>b. An entrepreneur builds the organization by taking various steps such as hiring employees, organizing the factors of production.</p> | 2 |
| 8 | <p>Ways for stress management (any two):</p> <p>Physical exercise - Physical exercise in the form of walking, skipping or any sports relieves stress by stabilizing mood, improving self-esteem and inducing sleep.</p> <p>Yoga - Yoga includes a series of postures and breathing exercises practiced to achieve control of body and mind. Meditation – By meditation, an individual is able to focus his/her mind to achieve a calm mental state reducing stress.</p> <p>Enjoying - Recreational activities such as watching movies, attending concerts, playing games singing, dancing, sketching etc help individuals transcend to a happier mental state and help manage stress.</p> <p>Nature walks - Taking nature walks brings us a calmness by allowing our over stimulated minds a chance to relax and helps us to relax</p> | 2 |
| 9 | <p>1. Use of fertilisers, pesticides, etc for increasing the production of crops.</p> <p>2. Cutting down of forests for personal use such as construction of buildings, factories etc</p> | 2 |
| 10 | Spam refers to unsolicited and often irrelevant messages sent over the internet, | 2 |

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| | typically to a large number of users, for the purposes of advertising, phishing or spreading malware. It is considered a problem because it clutters inboxes, consumers' bandwidth, and can pose security risks. | |
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Answer any 4 out of the given 6 questions in 20 – 30 words each (2 x 4 = 8 marks)

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| Q.11 | This study helps in identifying the resources consumed, potential waste generated, and the overall environmental impact, allowing for an assessment of whether the breakfast process is sustainable or if there are areas for improvement. | 2 |
| Q.12 | Steps include identifying by public transportation options, collecting data on usage and efficiency, interviewing commuters and officials, analyzing strengths and weaknesses, and writing a report with suggestions for improvement. | 2 |
| Q.13 | Low-fidelity Prototyping is a process where you can visualize your concepts quickly using simple and rapid methods. These prototypes can demonstrate the concept in tangible form so that one can make use of this to get immediate feedback and consider suggestions for improvements. The low-fidelity prototypes after modifications and finalization can be made into high-fidelity prototypes. The following low fidelity prototyping techniques: a. Paper Prototype – low fidelity b. Scenario as prototype – low fidelity c. Animatics as prototype –low fidelity d. 3D form prototype – low fidelity | 2 |
| Q.14 | Sustainability is ability to maintain or support a process over time. Sustainability is often broken into three core concepts: economic, environmental, and social. Many businesses and governments have committed to sustainable goals, such as reducing their environmental footprints and conserving resources | 2 |
| Q.15 | Bright and warm colours (happy and optimistic) / dull, dark colours (gloomy) / Congested spaces like a forest (suffocating), a wide, open space (lost or lonely) / flowing stream (calmness) / thunder, lightning (anger) / flood in a river (stress, despair) or any other relevant example | 2 |
| Q.16 | Yes, I agree with this statement — “ Animatics is very much like scenario prototyping. ” Animatics and scenario prototyping serve the same purpose in different fields — to test, communicate, and refine ideas at an early stage. That’s why the statement is valid. | 2 |

Answer any 3 out of the given 6 questions in 50– 80 words each (4 x 3 = 12 marks)

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| Q.17 | <p>The chronological narrative structure tells a story in the order of events as they occur, creating a straight forward and linear progression from beginning to end. This structure allows readers to follow the story easily and understand the sequence of events. An example is “The tortoise and the Hare” where events unfold in a clear ordered fashion, highlighting the moral of the story through a linear plot.</p> <p>In contract, the fractured narrative structure presents the story out of chronological order, often jumping between different time periods or perspectives. This approach can create a sense of mystery, build suspense, or highlight thematic connections between disparate elements.</p> <p>An example is “Alice in wonderland”, where the story shifts abruptly between fantastical episodes, creating a non-linear experience that mirrors the whimsical and unpredictable nature of Alice’s adventures.</p> | 4 |
| Q.18 | <p>Eco-concrete is made from recycled materials such as glass and industrial by-products, which reduce the need for virgin raw materials and lower environmental impact compared to traditional concrete.</p> <p>Traditional concrete production is associated with high carbon emissions due to cement manufacturing, which contributes to greenhouse gas emissions. Eco-concrete reduces these emissions by incorporating recycled components and often uses less energy during production.</p> <p>The motivation for developing eco-concrete includes reducing construction waste, conserving natural resources, and lowering the carbon footprint of the construction industry. This product addresses sustainability issues such as resource depletion, waste management, and pollution.</p> | 4 |
| Q.19 | <p>(a) Using Low-fidelity Prototyping Methods :</p> <p>Effective Use : Sachin can create a scaled-down version of his ergonomic chair using cardboard to represent the structure and foam for cushioning. He can use markers to highlight different features such as adjustable components or ergonomic curves. This approach allows him to quickly visualize and test the basic functionality and form of the chair.</p> <p>Advantages : Cardboard is easy to cut, shape and assemble, making it ideal for quickly iterating design ideas. Foam provides a simple way to simulate cushioning and comfort. Both materials are inexpensive and readily available, enabling Sachin to create multiple iterations without significant cost or time investment.</p> <p>(b) Gathering Feedback and Making Improvements :</p> <p>Feedback Collection : By presenting his cardboard and foam prototype to peers and instructors, Sachin can gather feedback on the design’s ergonomics, inability and aesthetics. Observations and suggestions can be</p> | 4 |

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| | <p>easily incorporated into subsequent version of the prototype.</p> <p>Iterative Improvements : Low-fidelity prototypes allow Sachine to make quick changes based on feedback. For instance, if users find the chair uncomfortable, he can modify the foam cushioning or adjust the cardboard structure to better meet user needs.</p> | |
| Q.20 | <p>Empathize- Understanding the needs and pain points of individuals and businesses who use single-use plastic, as well as the marine ecosystem and the fishing and tourism industries that are affected by plastic pollution. To gain a deep understanding, research can be conducted through surveys, interviews, and observation. By understanding the responses of the users, we can develop tailored solutions.</p> <p>Define - Based on the research conducted, the problem that was identified was "How can we reduce the use of single-use plastic in Japan and protect the marine ecosystem and the fishing and tourism industries?" This problem statement is specific and clearly defined, which allows us to understand the scope of the problem and develop solutions that address it directly.</p> <p>Ideate - Through brainstorming sessions, we can look at a variety of potential solutions including new technologies such as bioplastics, redesigning existing systems, and creating new incentives. One idea can be integration of biodegradable plastics in single-use packaging. Another idea can be to create a system of rewards or incentives for individuals and businesses that reduce their use of single-use plastic. (loyalty programs)</p> <p>Prototype - Create a prototype of biodegradable plastic packaging and a mobile app that rewards users for reducing their use of single-use plastic.</p> <p>Test - The prototypes of the biodegradable plastic packaging and the mobile app can be tested with businesses and consumers. The feedback gathered will help understand the potential of the prototypes to reduce harm to marine life and encourage users to reduce their use of single-use plastic.</p> | 4 |
| Q.21 | <p>Create a prototype called "Happy Healing" that not only map and monitor emotions and behavioural pattern of patients and doctors at Hospitals with the help of AI but also provides training to doctors and medical staff in holding comforting and empathic communications with patients and their caregivers. The end product is a national rating system that will assess hospitals based on the health outcomes and happy patient experiences. The prototype to be tested by 1000 patients and the exact areas of pain points. It would then be analysed to create tools to provide targeted trainings to Human Resources at hospitals. The rating system to be governed by Ministry of Health and Family Welfare and the hospitals with higher rating to be felicitated by the Health Minister of India or Any other relevant</p> | 4 |

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| | response. | |
| Q.22 | The product is a paid subscription monthly plan designed by experts like psychologists, academia, doctors, researchers, family coaches, that offers every family a customized solution designed by a group of experts based on their social, financial and cultural background. The product owner will create an advisory council comprising of experts and you reach out around 200 parents to understand their concerns. The solution also provides a bunch of tools like an induction session, board games, cultural expeditions happening in the city, enrichment projects that give a truly exciting experience to children and their parents. Parents will also have access to a toll-free number that will enable them to get the right counsel or guidance for unanticipated situations. Prototype - The advisory board will work with a certain number of families with different circumstances for a free trial period of 90 days. | |
