

# CBSE | DEPARTMENT OF SKILL EDUCATION

## DESIGN THINKING & INNOVATION (SUBJECT CODE - 422)

### MARKING SCHEME FOR CLASS X (SESSION 2023-2024)

Max. Time: 2 Hours

Max. Marks: 50

#### General Instructions:

1. Please read the instructions carefully.
2. This Question Paper consists of **22 questions** in two sections – Section A & Section B.
3. Section A has Objective type questions whereas Section B contains Subjective type questions.
4. **Out of the given (5 + 17 =) 22 questions, a candidate has to answer (5 + 10 =) 15 questions in the allotted (maximum) time of 2 hours.**
5. All questions of a particular section must be attempted in the correct order.
6. **SECTION A - OBJECTIVE TYPE QUESTIONS (24 MARKS):**
  - i. This section has 05 questions.
  - ii. There is no negative marking.
  - iii. Do as per the instructions given.
  - iv. Marks allotted are mentioned against each question/part.
7. **SECTION B – SUBJECTIVE TYPE QUESTIONS (26 MARKS):**
  - i. This section contains 17 questions.
  - ii. A candidate has to do 10 questions.
  - iii. Do as per the instructions given.
  - iv. Marks allotted are mentioned against each question/part.

### SECTION A: OBJECTIVE TYPE QUESTIONS

Q. No.	QUESTION	Source Material (NCERT/PSSCIVE/ CBSE Study Material)	Unit/Chap. No.	Page no. of source material	Marks
<b>Q. 1</b>	<b>Answer any 4 out of the given 6 questions on Employability Skills (1 x 4 = 4 marks)</b>				
i.	Self-Motivation	NCERT	2	52	1
ii.	(c) Hover	NCERT	3	67	1
iii.	(a) Both A and R are correct and R is the correct explanation of A	NCERT	4	100	1
iv.	(d) Tracking	NCERT	2	60	1
v.	(d) Linguistic barrier	NCERT	1	21	1
vi.	(c) Affordable and clean energy	NCERT	5	111	1
<b>Q. 2</b>	<b>Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)</b>				
i.	d) ends in a high crisis.	Facilitator Handbook	2-Fundamentals of Story Creation		1
ii.	Drawings	Facilitator Handbook	5 – Fundamentals of Animation		1
iii.	(c) Options I, III and IV are correct while II is incorrect	Facilitator Handbook	1– Fundamentals of Communication Skills		1
iv.	(d) All of the above	Facilitator Handbook	3 – Introduction to Creativity		1

v.	d) Prototype	Facilitator Handbook	7-Introduction to Prototyping methods		1
vi.	b) Industrialisation in India	Facilitator Handbook	6-Fundamentals of Sustainability and Design		1
<b>Q. 3</b>	<b>Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)</b>				
i.	b) A preliminary version of the product or solution	Facilitator Handbook	7-Introduction to Prototyping method		1
ii.	a) flexibility and adding more life and energy in the motion.	Facilitator Handbook	5-Fundamentals of Animation		1
iii.	d) Chronological and Circular	Facilitator Handbook	2-Fundamentals of Story Creation		1
iv.	b) Testing and refining ideas	Facilitator Handbook	7-Introduction to Prototyping method		1
v.	c) Time Period 3	Facilitator Handbook	6-Fundamentals of Sustainability and Design	57	1
vi.	b) first original model	Facilitator Handbook	7-Introduction to Prototyping Methods	64	1
<b>Q. 4</b>	<b>Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)</b>				
i.	d) live actors	Facilitator Handbook	5-Fundamentals of Animation		1
ii.	c) only i, ii, iii	Facilitator Handbook	6-Fundamentals of Sustainability and Design	58	1
iii.	a) place your subject in the left or right third of an image, leaving the other two thirds more open.	Facilitator Handbook	1- Fundamentals of Communication Skills		1
iv.	b) Start growing avocado locally in Gujarat to bring down transportation cost and provide livelihood locally	Facilitator Handbook	6-Fundamentals of Sustainability and Design		1
v.	d) Fixation of ideas	Facilitator Handbook	3 – Introduction to Creativity		1
vi.	c) Assertion is correct but the reason is not correct	Facilitator Handbook	6-Fundamentals of Sustainability and Design		1
<b>Q. 5</b>	<b>Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)</b>				
i.	b) Options II, III and IV are correct while I is incorrect	Facilitator Handbook	2-Fundamentals of Story Creation		1
ii.	c) linear lifecycle	Facilitator Handbook	7- Introduction to Prototyping Methods		1
iii.	b) verbal	Facilitator Handbook	1- Fundamentals of Communication Skills	8	1
iv.	b) fractured	Facilitator Handbook	2-Fundamentals of Story Creation	24	1
v.	c) Divergent Thinking	Facilitator Handbook	3 – Introduction to Creativity	30	1
vi.	c) Spontaneous cognitive creativity	Facilitator Handbook	3 – Introduction to Creativity	30	1

## SECTION B: SUBJECTIVE TYPE QUESTIONS

Q. No.	QUESTION	Source Material (NCERT/ PSSCIVE/ CBSE Study Material)	Unit/Chap. No.	Page no. of source material	Marks
<b>Answer any 3 out of the given 5 questions on Employability Skills in 20 – 30 words each (2 x 3 = 6 marks)</b>					
<b>Q. 6</b>	1. Use simple language 2. Be respectful of others' opinions 3. Do not form assumptions on culture, religion or geography 4. Try to communicate in person as much as possible 5. Use visuals 6. Take help of a translator to overcome differences in language (2 marks for any two correct points from the above)	NCERT	1	22	<b>2</b>
<b>Q. 7</b>	1. The process of goal setting in your life helps you decide on how to live your life, where you want to be, and how you want to be in the future. 2. It helps you to focus on the end result instead of less important work. 3. This will make you successful in your career and personal life. (2 marks for any one valid justification given above or any relevant answer)	NCERT	2	55	<b>2</b>
<b>Q. 8</b>	A Trojan Horse is a type of malware which disguises itself i.e., it appears to be a useful software program but once it reaches a computer it starts behaving like a virus and destroys data.  (1 mark for acting like useful program and, 1 mark for the words destroying/corrupting/deleting data) or (only ½ marks will be allotted if only malware/harmful program/virus/ term is mentioned)	NCERT	3	81	<b>2</b>
<b>Q. 9</b>	Society is helping entrepreneurs by 1. Creating needs 2. Providing raw material 3. buying/selling of items 4. making money (2 marks for any two valid points)	NCERT	4	85	<b>2</b>
<b>Q. 10</b>	1. Use of fertilisers, pesticides, etc for increasing the production of crops. 2. Cutting down of forests for personal use such as construction of buildings, factories etc (1 mark for each valid point, or any two relevant answers other than the above)	NCERT	5	103	<b>2</b>

Q. No.	QUESTION	Source Material (NCERT/ PSSCIVE/ CBSE Study Material)	Unit/Chap. No.	Page no. of source material	Marks
<b>Answer any 4 out of the given 6 questions in 20 – 30 words each (2 x 4 = 8 marks)</b>					
<b>Q. 11</b>	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	Facilitator Handbook	7- Introduction to Prototyping Methods	66	2
<b>Q. 12</b>	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	Facilitator Handbook	6-Fundamentals of Sustainability and Design	54	2
<b>Q. 13</b>	In Stop Motion Animation objects are manipulated in small increments with a bit of change successively one after another. Each of these successive images are photographed and when played back, the objects will be seen in motion. Its possible to do Stop Motion Animation with all kinds of objects. Use of Puppet is called Puppet Animation.	Facilitator Handbook	5-Fundamentals of Animation	50	2
<b>Q. 14</b>	Imagination, observation skills, gathering accurate information, ability to articulate, pick up nuances (Any 2)	Facilitator Handbook	2-Fundamentals of Story Creation		2
<b>Q. 15</b>	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	Facilitator Handbook	3 – Introduction to Creativity	34	2
<b>Q. 16</b>	Practice at least three times (rehearsal). Rehearsal makes you familiar with the content, makes you aware of where to emphasize and where to pause and will make you more confident.	Facilitator Handbook	1– Fundamentals of Communication Skills	14	2

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

<p><b>Q. 17</b></p>	<p><b>Empathize-</b> 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><b>Define</b> - 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><b>Ideate</b> - 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><b>Prototype</b> - Create a prototype of biodegradable plastic packaging and a mobile app that rewards users for reducing their use of single-use plastic.</p> <p><b>Test</b> - 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>	<p>Linkedin.com</p>	<p>6-Fundamentals of Sustainability and Design</p>		<p>4</p>
<p><b>Q. 18</b></p>	<p>Characters are the key elements in an animated film as they are the most important part of a story and the audience identifies themselves with them. [1 mark]</p> <p>The imaginary alien by the door-</p> <ol style="list-style-type: none"> <li>Attributes - their characteristics- A child/ grown up/old person/male/female/animal (or any other relevant)</li> <li>Proportion – exaggerating some of the features- big head/ears/nose/legs/fingers (or any other relevant)</li> <li>Expressions- their personality- smiling/ angry/ confused/ scared (or any other relevant)</li> </ol>	<p>Facilitator Handbook</p>	<p>5-Fundamentals of Animation</p>		<p>4</p>

	<p>4. Poses and Gestures – spinning head/ jumping/ leaning against door/running (or any other relevant)</p> <p>5. Colours and shades – skin tone/clothes/accessories color/ texture.</p> <p>[Any 3 of the above 5 for 1 mark each]</p>				
<b>Q. 19</b>	<p><b>Empathise</b> – 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><b>Define</b> - Based on the research conducted, the problem can be identified as non-environment friendly plastic and crude oils and how we can replace them. This will help to understand the scope of the problem and develop solutions that address it directly.</p> <p><b>Ideate</b> – Through brainstorming sessions, we can look at a variety of potential replacements such as bio-based feedstock, bio-based polymers made out of living microorganisms that can save the environment.</p> <p><b>Prototype</b> - Create a prototype of biodegradable bio-plastic polymers with the help of medical experts.</p> <p><b>Test</b> - Collaborate with a hospital for free trials to use them on patients who lost their limbs. The feedback gathered will help understand the potential of the prototypes.</p>	Facilitator Handbook	3- Introduction to Creativity		<b>4</b>
<b>Q. 20</b>	<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</p> <p>or</p> <p>Any other relevant response</p>	Facilitator Handbook	1– Fundamentals of Communication Skills		<b>4</b>

<b>Q. 21</b>	<p>Students may connect to any popular fable Eg hare and Tortoise, Monkey and the crocodile and applies parallel structure using imagination Unit 2 Pg 24-26</p> <p>Choice of fable/story and inclusion of its characters in the storyline – 1 mark</p> <p>Imagination and creativity - 1 mark</p> <p>Flow of ideas and connectivity of events – 1 mark</p> <p>Written expression – 1 mark</p>	Facilitator Handbook	2-Fundamentals of Story Creation		<b>4</b>
<b>Q. 22</b>	<p>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.</p> <p>The product owner will create an advisory counsel comprising of experts and you reach out around 200 parents to understand their concerns.</p> <p>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.</p> <p>Parents will also have access to a toll-free number that will enable them to get the right counsel or guidance for unanticipated situations.</p> <p>Prototype - The advisory board will work with a certain number of families with different circumstances for a free trial period of 90 days.</p>	<a href="https://www.bqprime.com/nation/a-survey-reveals-how-bad-is-internet-addiction-among-indian-children">https://www.bqprime.com/nation/a-survey-reveals-how-bad-is-internet-addiction-among-indian-children</a>	7- Introduction to Prototyping Methods		<b>4</b>