

CEED 2011 Question Paper with Solutions

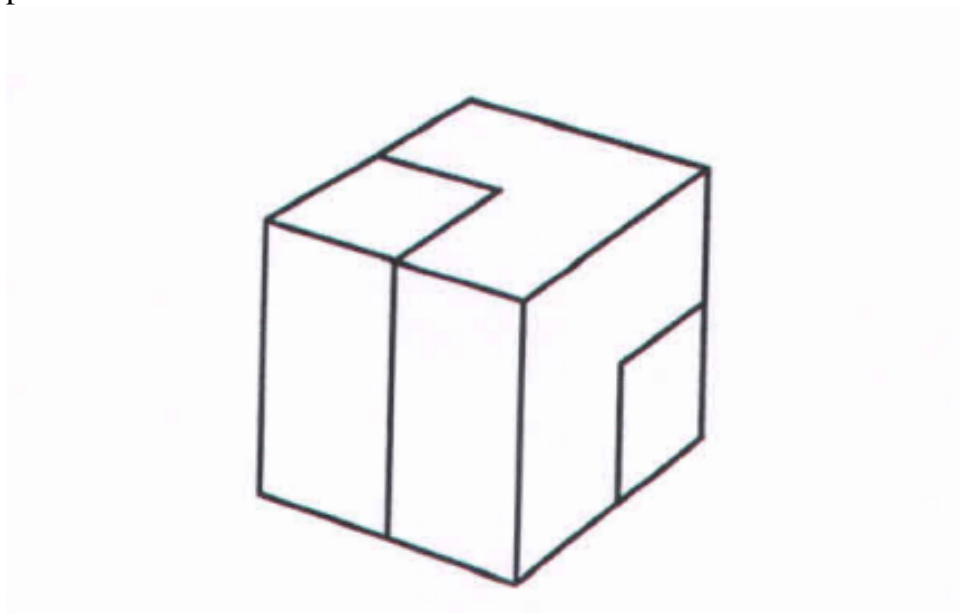
Time Allowed :3 Hours	Maximum Marks :100	Total questions :35
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General Instructions

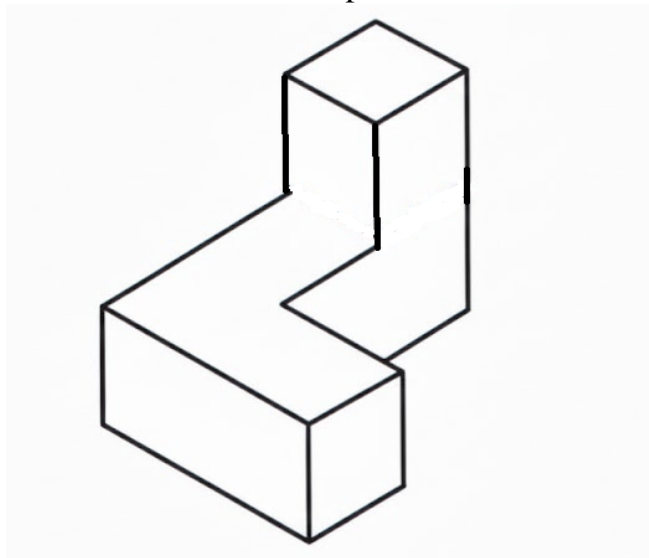
Instruction:

No.	Title	Marks
1.	Part A - MCQs 40 nos.	50 marks
2.	Part B:	
	Drawing Ability	20 marks
	Design Problem Solving	30 marks
3.	Pages for Rough Work	
	Total	100 marks

Q 1.1: The drawing below shows a cube made of two identical pieces. Draw one of these pieces in 3 dimensions.



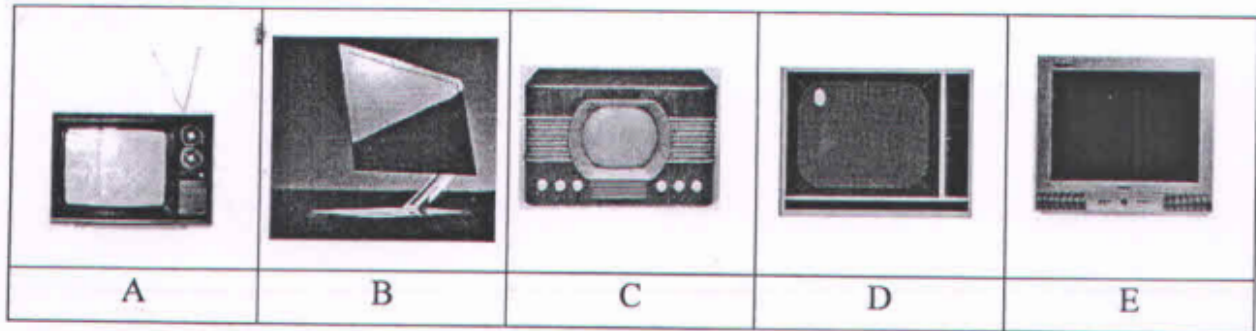
Solution: The cube is made of two identical pieces, and one of these pieces can be visualized as a 3D L-shaped block. Below is a drawing representing one of these pieces:



Quick Tip

To visualize 3D objects in LaTeX, use the 'tikz' package for simple geometric shapes. For more complex 3D modeling, you can use specialized packages like '3dplot'. When drawing shapes like this L-shaped block, focus on one face at a time, and use perspective to connect them properly.

Q 1.2 Below are 5 images of televisions that belong to different time periods, placed in a random order. Write down the correct sequence of the televisions according to the time period, from present to past, in the box provided below.



Correct Sequence:

1. B (Present)
2. E
3. D
4. A
5. C(Past)

Quick Tip

B (Present): Modern flat-screen television.

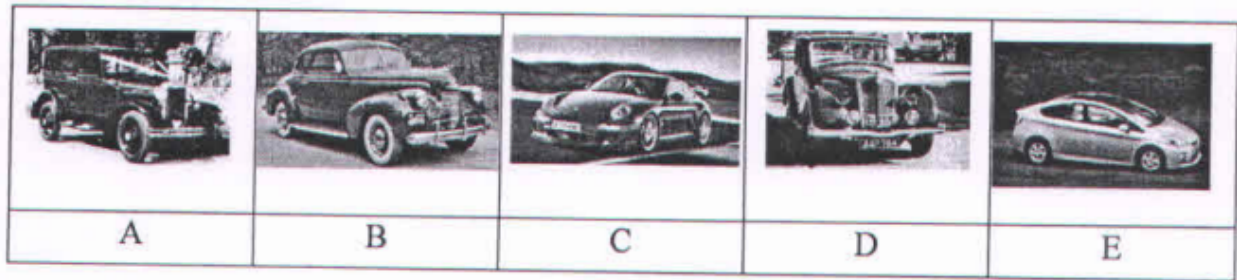
E: Older CRT (Cathode Ray Tube) TV, still in use before flat-screens became popular.

D: CRT TV, an earlier model with a more boxy design.

A: Very early model of a TV, possibly a black-and-white screen with basic technology.

C (Past): A more retro or antique TV, showing an older design with bulky shape and likely no remote control.

Q 1.3 Below are 5 images of cars that belong to different time periods, placed in a random order. Write down the correct sequence of the cars according to the time period, from present to past, in the box provided below.



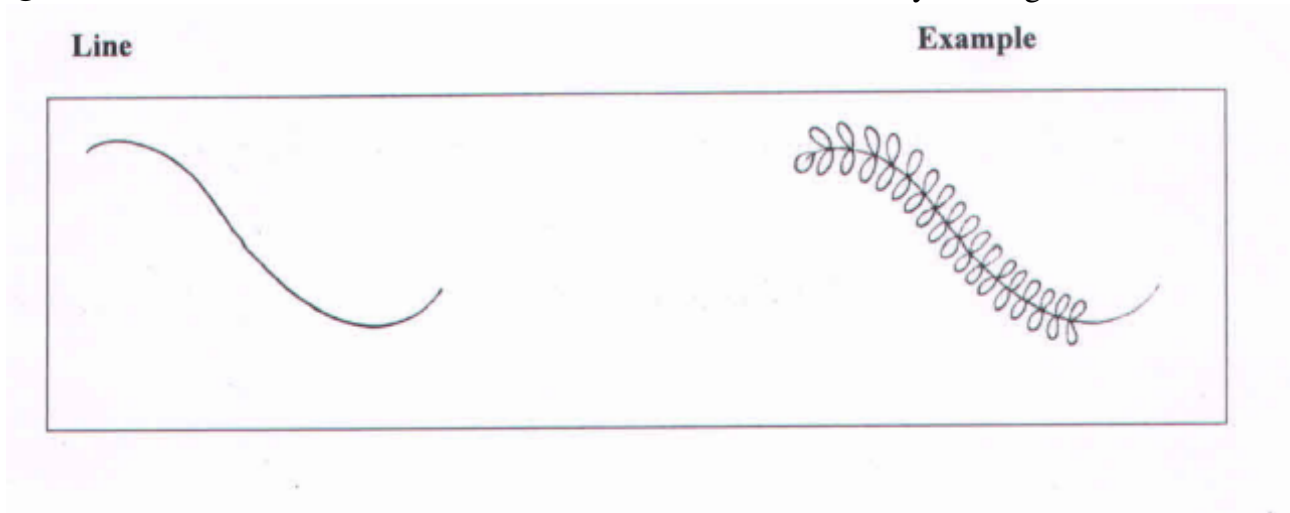
Correct Sequence:

1. E (Present)
2. C
3. B
4. D
5. A (Past)

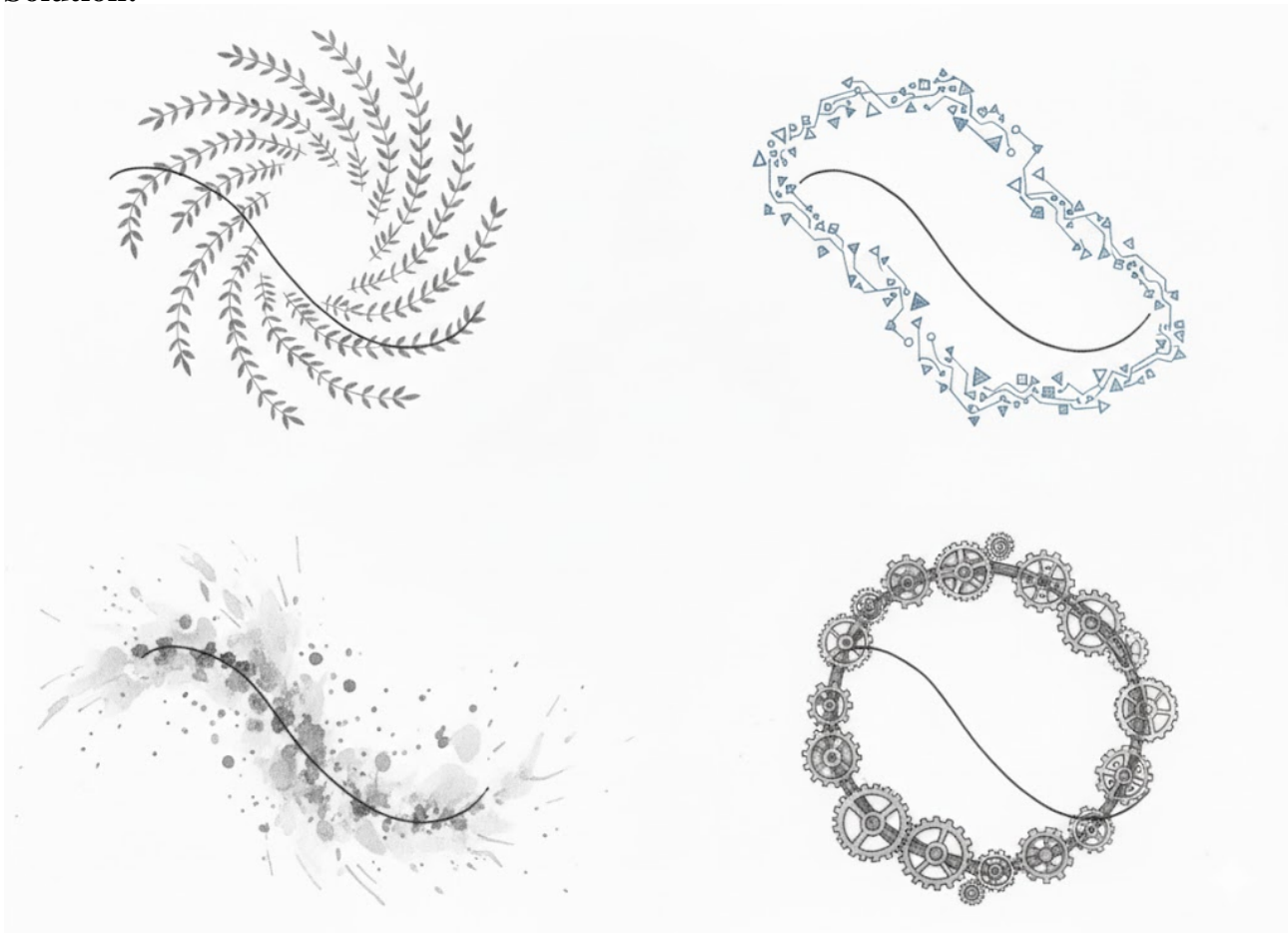
Quick Tip

When identifying the chronological order of cars, observe the evolution of design elements such as body shape, technology, headlights, and wheel design. Modern cars tend to have more aerodynamic shapes, digital interfaces, advanced safety features, and more eco-friendly engines. Older models might have distinct classic styles and simpler mechanical features. Pay attention to these visual and technical cues to identify the correct time period.

Q. 1.4 Below is a line. Visualize and Illustrate 4 different forms by making use of the line.



Solution:



Quick Tip

Line Weight: Use a thicker, darker line for the primary line and the outlines of the surrounding designs. Use lighter, thinner lines for internal details, patterns, and to suggest volume.

Shading/Hatching: Use hatching (parallel lines), cross-hatching, or stippling (dots) to fill areas and define forms. The more densely packed the marks are, the darker the area will appear, creating a sense of three-dimensionality, like on the gears or the leaves.

Pressure: Experiment with the pressure of your pencil. Light pressure for soft, airy elements (like the watercolor-style splash) and firm pressure for sharp, mechanical, or graphic elements (like the geometric patterns).

Q 1.5 In the following sentence, there are some letters that do not match the main letter font (Times New Roman). Identify and circle the 8 odd fonts that do not belong to the letter font Times New Roman.

A QUICK BROWN
FOX JUMPS OVER
THE LAZY DOG

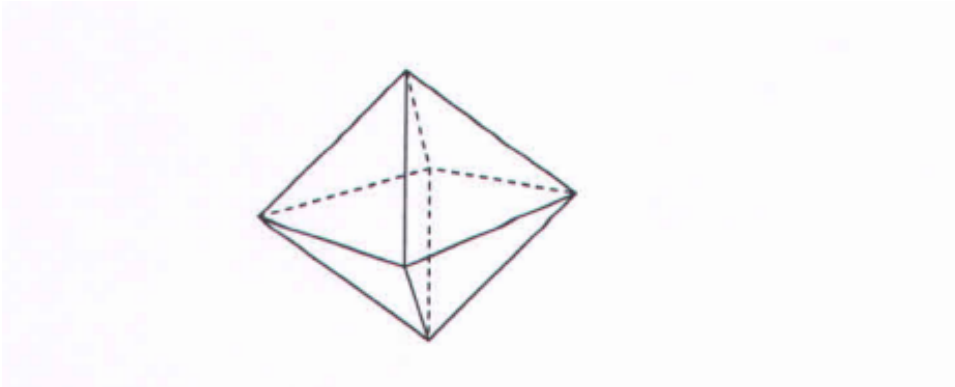
Solution:

A QUICK BROWN
FOX JUMPS OVER
THE LAZY DOG

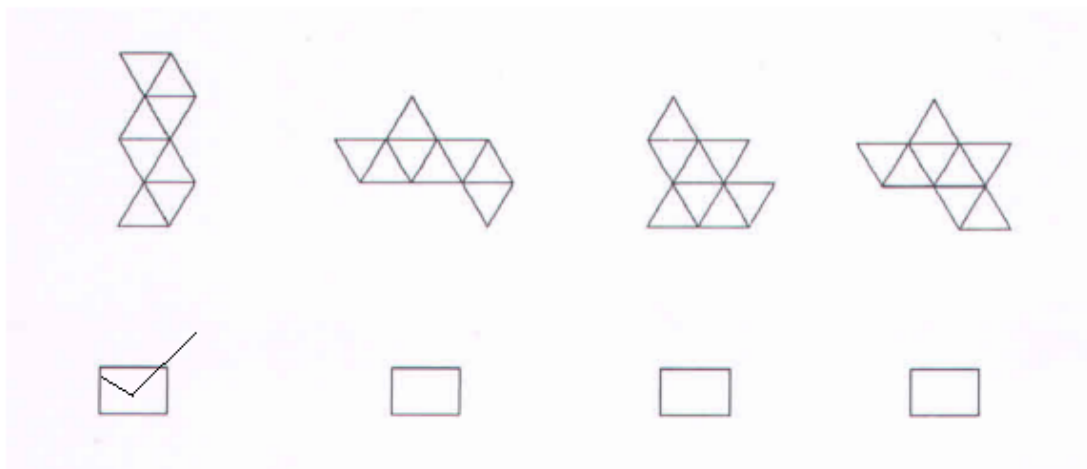
Quick Tip

To spot odd fonts, look for letters that have a different style, thickness, or slant compared to the others. Pay close attention to characters that stand out or seem slightly off in shape, especially in familiar fonts like Times New Roman.

Q 1.6 A tetrahedron is shown below made out of paper and 4 tessellations of the same. One of the 4 tessellations is wrong. **Tick the wrong one.**



Solution:



Quick Tip

When checking a net for a tetrahedron, ensure one triangle is surrounded by the other three — this allows the triangles to fold up and meet at the vertices.

Q 1.7

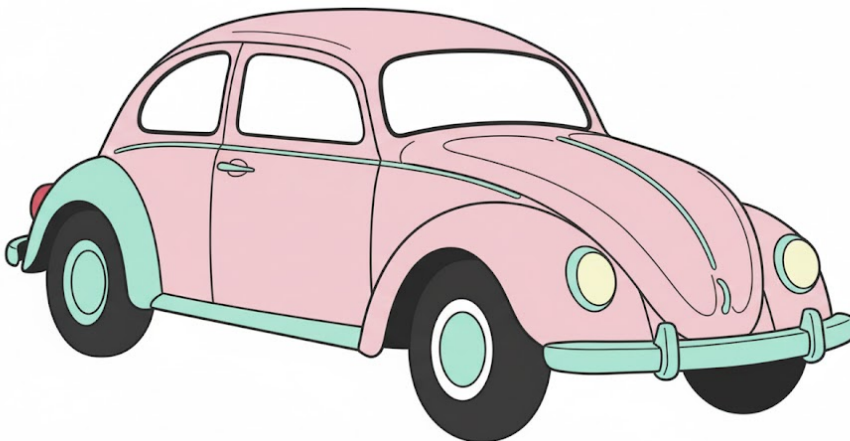
Given below are two images of the same car. Use a **minimum of two colours** in each car to depict the following two expressions:

Solution:

Masculine:



Feminine:



Quick Tip

1. For the Masculine Design (Black and Orange/Red-Orange):

Tip: If you want to increase the intensity and "pop" of the design, consider replacing the current accent color with a high-contrast, vivid color like bright electric blue or lime green to modernize the classic black body.

2. For the Feminine Design (Pink and White/Light Pink):

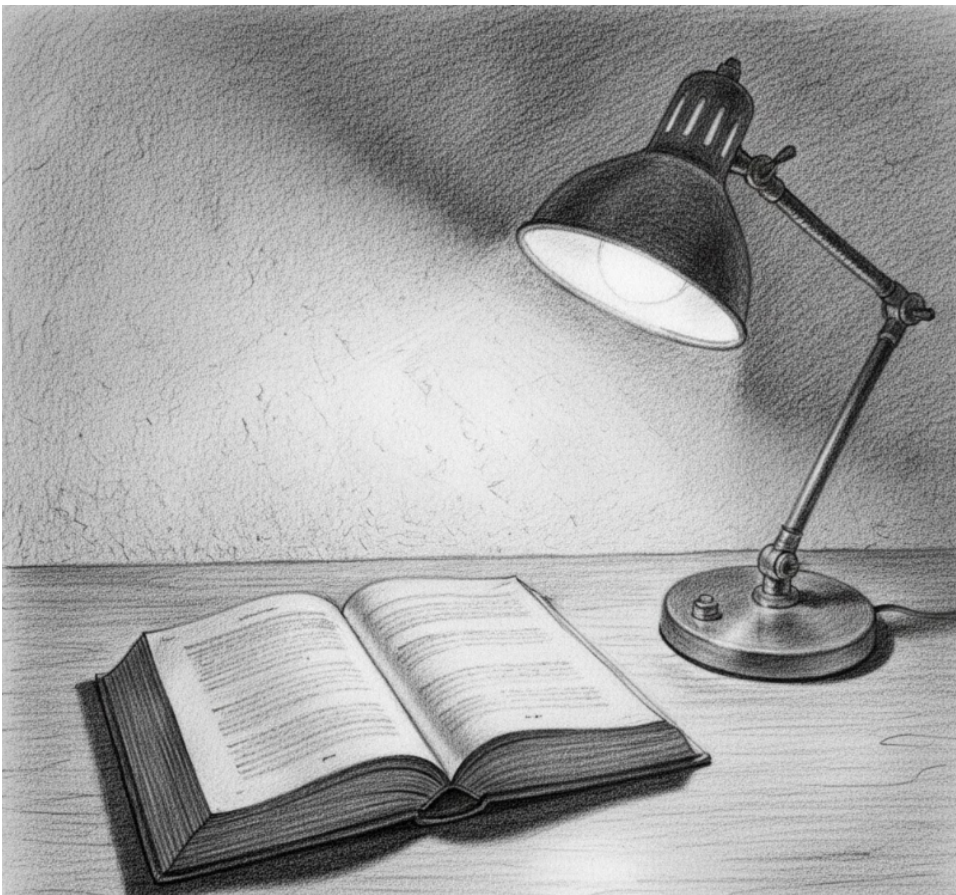
Tip: To give the design more depth and richness, switch the accent color from a light shade to a deep, contrasting jewel tone like burgundy or a dark teal while keeping the main body pink.

Q 2 Illustrate in perspective, a composition of an Open Book and a Table Lamp, with the light switched on, placed on a flat surface.

Instructions:

- The drawing must be done **freehand** using only **black pencils**.
- **Do not use** any drawing instruments (like ruler, compass, etc.) or colour pencils.

Solution:



Quick Tip

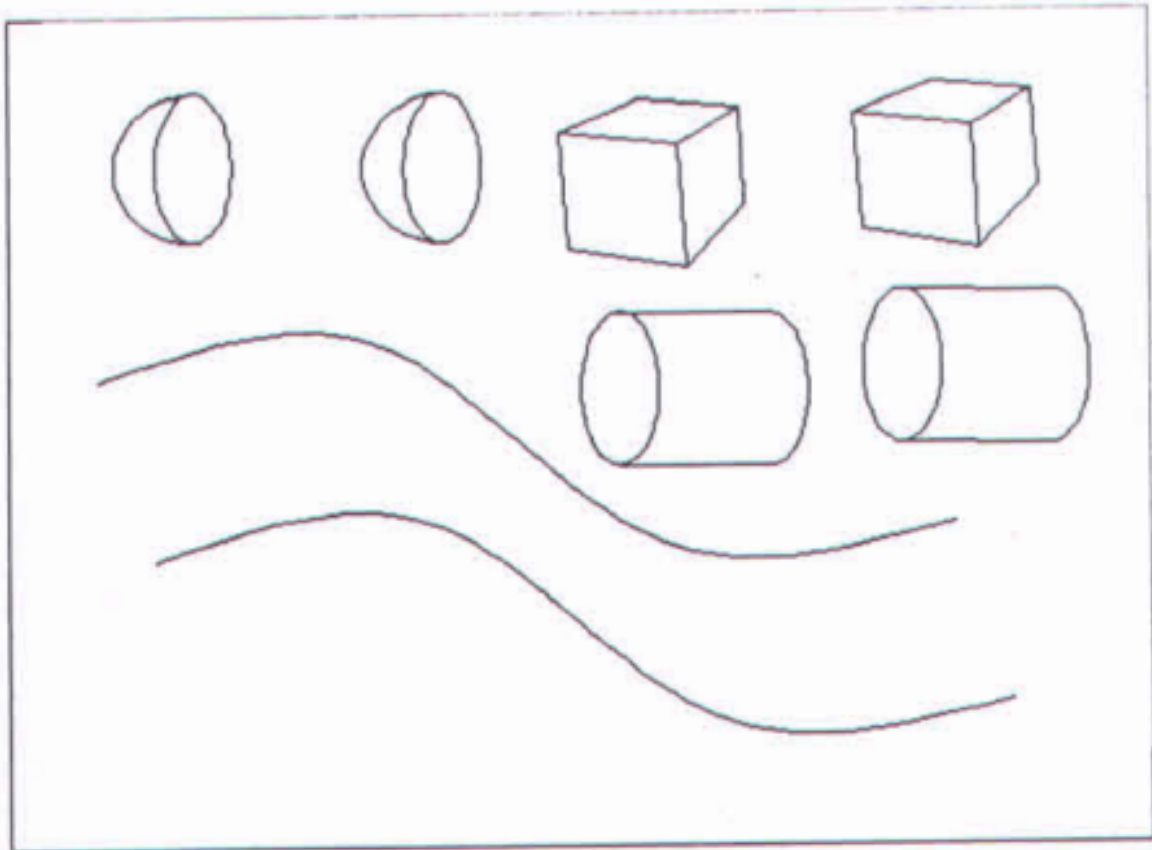
To add more visual depth and convey a stronger sense of late-night atmosphere, slightly deepen the darkest shadow areas (like the interior of the lamp shade and the shadow cast by the book's spine). Then, use a soft eraser or white pencil to slightly brighten the white page edges and the immediate highlight where the light strikes the desk, increasing the contrast between light and shadow (chiaroscuro).

Q 3

[20 Marks]

The following objects are available to you:

- 2 Hemispheres
- 2 Cubes
- 2 Cylinders
- 2 Wires (Flexible Rods)



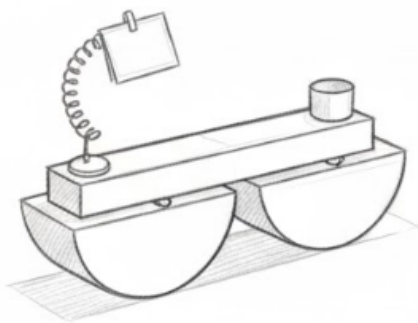
Imagine **5 interesting products** made out of a combination of all 8 objects. You can scale the objects to any size or dimension.

Represent your ideas with neat sketches. **Name each product** and add a brief description (if necessary) in the space provided below.

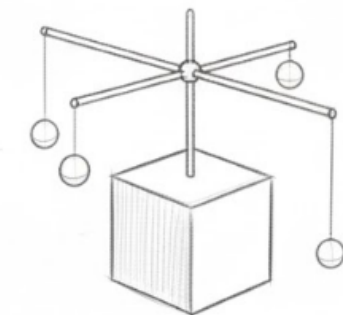
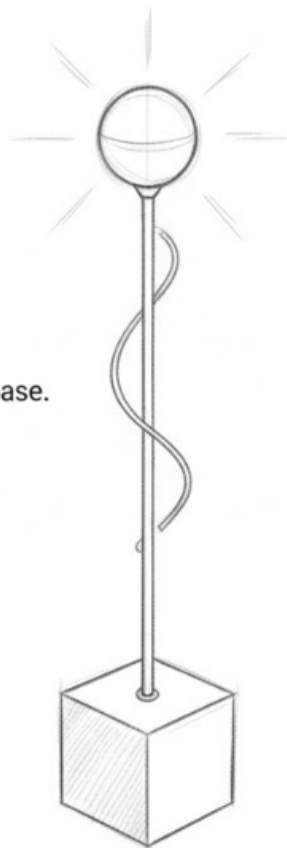
Evaluation Criteria

1. Creativity in combining the given elements
2. Clarity and neatness of sketches
3. Use of all 8 elements
4. Naming and brief explanation of each idea

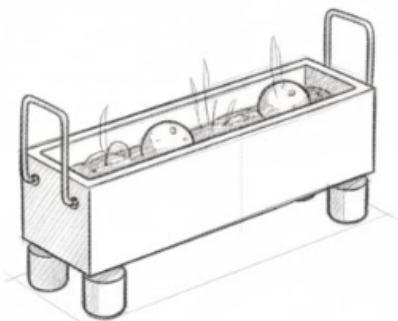
Solution:



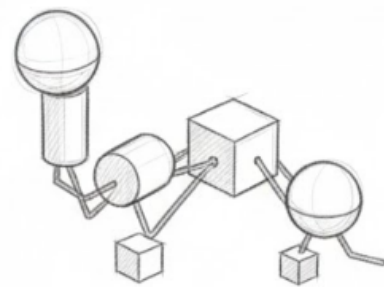
Lunar Desk Organizer
Modern organizer with floating base.



Geo-Balance Mobile
Abstract kinetic sculpture.



Mod Quad Planter
Portable planter with wire handles



Rattlesnake Toy
Multi-material articulated desk toy

Quick Tip

To enhance visual coherence across the products, introduce one secondary material (like polished wood or transparent acrylic) for all the 'wire/rod' components. This unifies the diverse products while maintaining the clean, geometric structure of the cubes, cylinders, and hemispheres.

Q 4

Below is an image of a typical Bus Stop in India.



Instructions:

1. Identify **five unique problems** from the point of view of bus stop users (e.g., passengers, pedestrians, elderly).
2. For each problem:
 - (a) Write a brief description of the problem.
 - (b) Illustrate your solution with a neat sketch in the space provided.

Evaluation Criteria

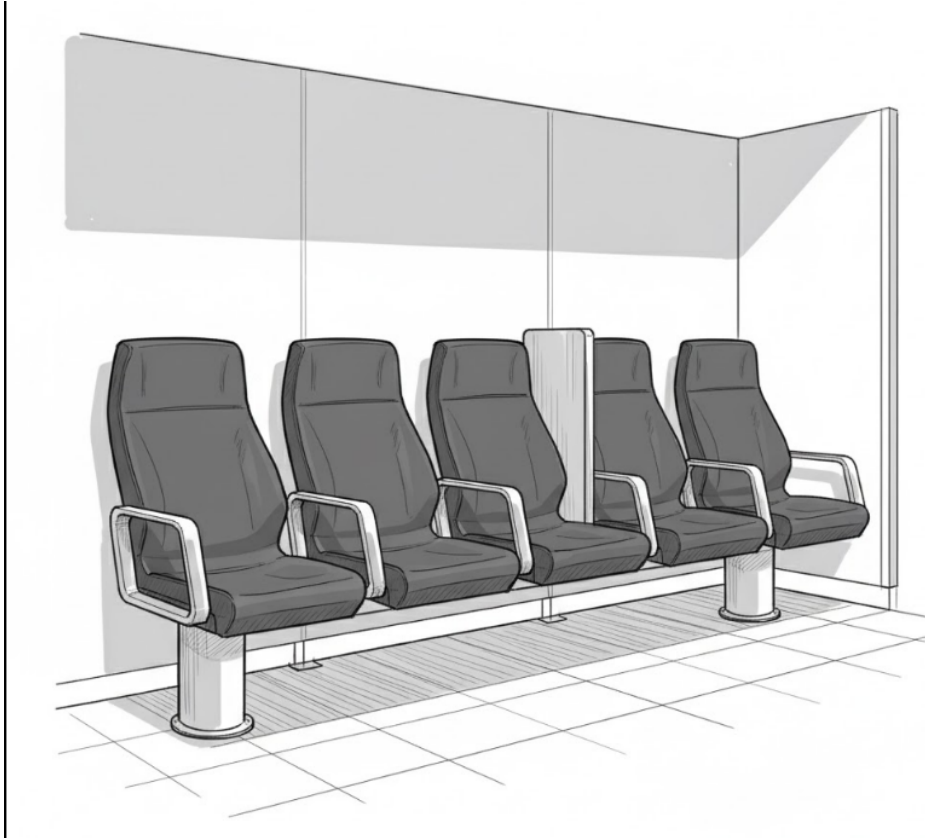
- Identification of each unique problem
- Appropriateness and clarity of your solutions

Problem 1: _____

Sketch / Solution:

1. Problem: Lack of Clear Seating Arrangement and Comfort Conceptual Solution:

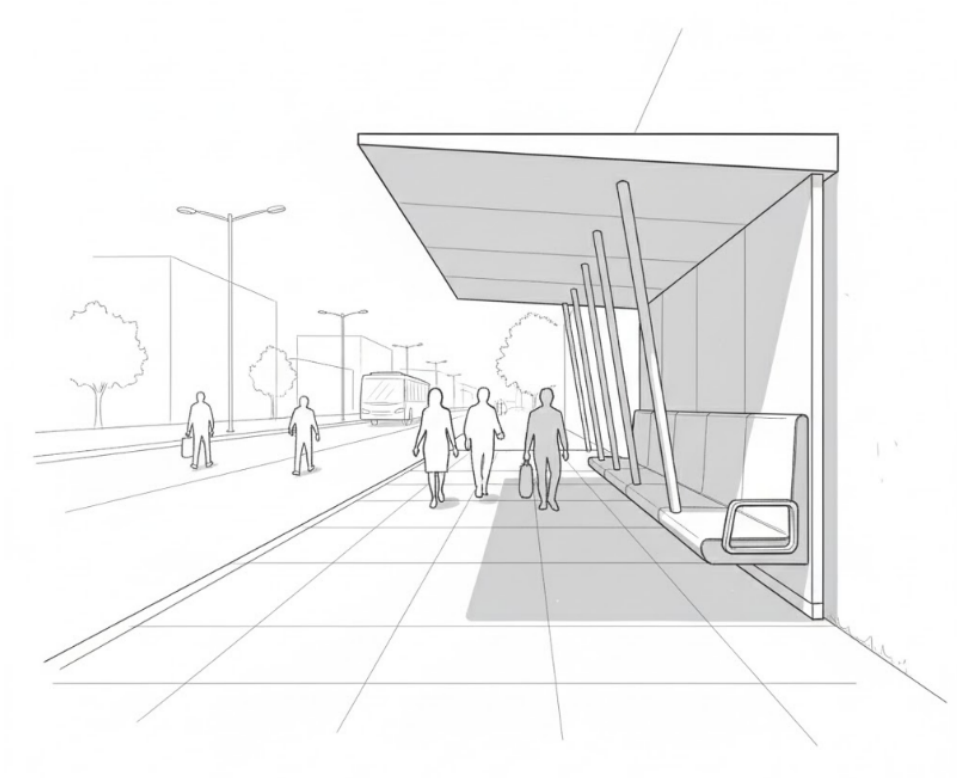
Individual, molded seats with backrests, vertical dividers, and armrests.



Problem 2: _____

Sketch / Solution: 2. Problem: Pedestrian Obstruction and Unsafe Walking Space

Conceptual Solution: Recessed or cantilevered shelter with vertical bench seating, maximizing clear floor space.



Problem 3: _____

Sketch / Solution: 3. Problem: Absence of Real-Time Information and Route Clarity

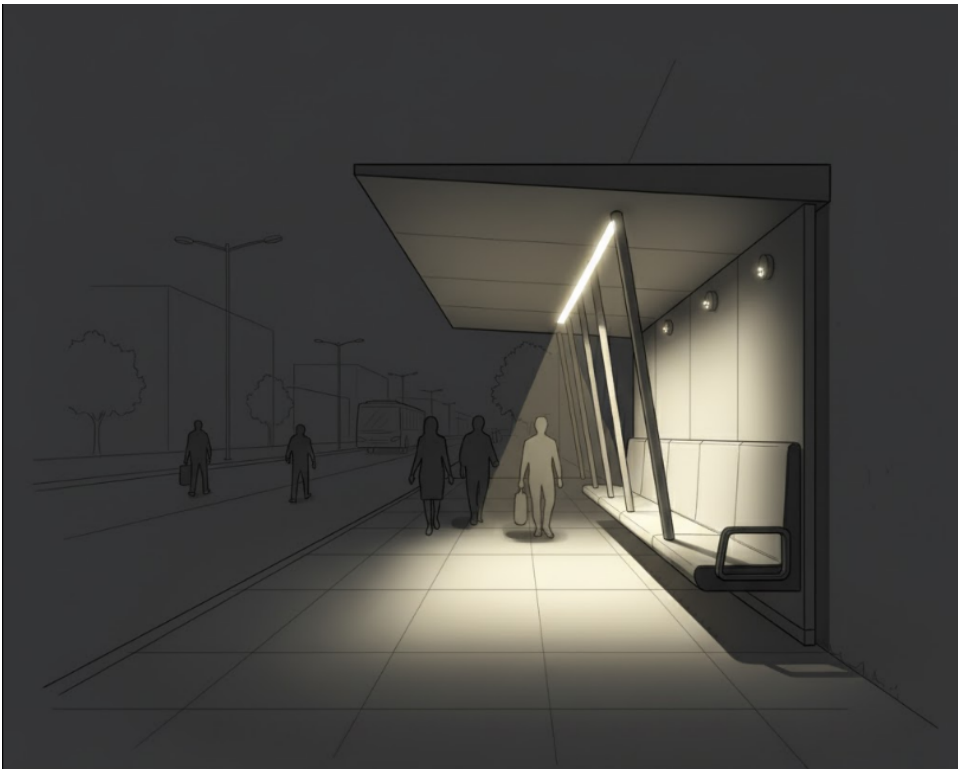
Conceptual Solution: Dedicated display panel with real-time arrival estimates and a static route map.



Problem 4: _____

Sketch / Solution: 4. Problem: Poor Illumination and Night-time Security Conceptual

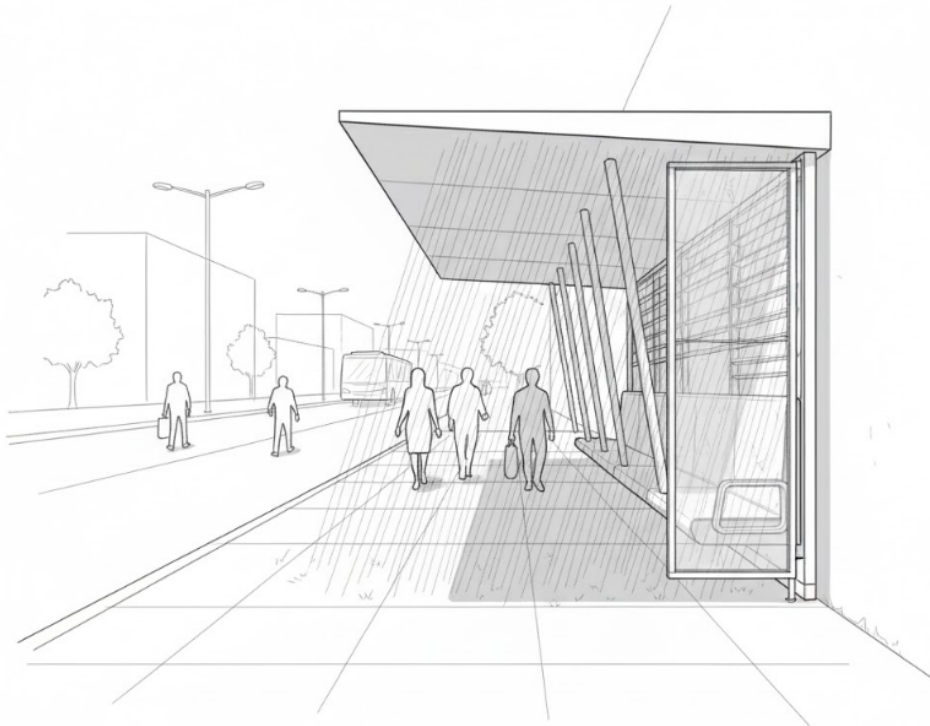
Solution: Integrated LED strip lighting in the roof and solar-powered, motion-sensor lighting on the rear wall.



Problem 5: _____

Sketch / Solution: 5. Problem: Limited Weather Protection (Rain and Sun) Conceptual

Solution: Extended roof overhang and partial, slanted louvers/translucent panels on the side walls.



Quick Tip

When observing the image, don't just focus on the structure. Also, analyze how the human element interacts with the physical environment. Look for issues related to crowding, access, safety (both traffic and personal), and comfort to ensure your five identified problems are truly unique and user-centric (i.e., not just structural flaws, but user experience flaws).

[A]

Problem Area: Product Design

[30 Marks]

Context: Mobile phones have become quite popular as communication devices. Mobile phones do have great potential to address the special needs of the elderly.

Task: Design a new mobile phone for the elderly.

(a) Identify at least five distinct factors essential for designing a mobile phone for the elderly. Write briefly in the space provided.

Factors to Consider

1. **Large Buttons:** Easy to press and well-spaced to avoid misdials.
2. **High Contrast Display:** Bigger fonts with good backlight for low vision.
3. **Emergency SOS Button:** One-press access to emergency services or family.
4. **Loud and Clear Audio:** Amplified speaker and hearing-aid compatibility.
5. **Simple User Interface:** Minimal icons and steps; voice feedback if possible.

(b) Generate at least three concepts through pencil sketches based on the above factors. Present these sketches below. Add brief notes if necessary.

Concept 1: Flip Phone with Dedicated SOS Button

- Big tactile keypad with backlight.
- Large emergency button on the outer shell.
- Secondary screen shows time and incoming call.



Concept 2: Bar Phone with Voice Assistant

- Simple bar-shaped form.
- One-touch voice command button.
- Loudspeakers placed on top for better clarity.



Concept 3: Touchscreen + Physical Key Hybrid

- Half-screen for video call / text.
- Half with large number pad and shortcuts.
- Visual icons + text labels for every action.



(c) Synthesize your final concept and present this through a detailed drawing. Show the overall form and design of its interface.

Final Concept Name: _____

Final Sketch with Interface Design:



Evaluation Criteria

- Identification of distinct factors – **5 marks**
- Originality of your alternate concepts – **10 marks**
- Appropriateness of your final solution – **10 marks**
- Quality of your presentation – **5 marks**

Quick Tip

When designing for the elderly, always prioritize:

- **Visibility:** Use large fonts and high contrast screens for easy reading.
- **Accessibility:** Keep the interface simple with minimal steps.
- **Tactility:** Use physical buttons with feedback instead of full touchscreens.
- **Audibility:** Ensure loud and clear speakers with adjustable volume.
- **Safety:** Include emergency buttons and easy access to help.

Consider both physical (ergonomic) and emotional (comfort, familiarity) needs!