

CEED 2014 Question Paper with Solutions

Time Allowed :3 Hours	Maximum Marks :200	Total Questions :46
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General Instructions

Read the following instructions very carefully and strictly follow them:

1. The test is of 3 hour duration.
2. 1 hour, computer-based, objective questions (NAT, MSQ, MCQ)
3. 2 hours, computer-based screen display, pen-and-paper subjective answers (drawing, design questions)
4. There is negative marking in Part A for MSQ and MCQ questions, while NAT questions have no negative marking.
5. Questions appear on the computer, but answers are to be drawn or written in the answer booklet provided by the invigilator.
6. Assesses drawing skills (products, people, scenes), design aptitude, creativity, and communication skills.
7. No negative marking for questions in Part B.

Part A – Section I: NAT

Q1. The film 'Ship of Theseus' was directed by:

- (a) Anand Patwardhan
- (b) Satyajit Ray
- (c) Karan Johar
- (d) Anand Gandhi

Correct Answer: (d) Anand Gandhi

Solution:

Step 1: Understanding the question.

'Ship of Theseus' is an Indian drama film that explores identity, justice, and life's philosophical aspects.

Step 2: Explanation.

It was written and directed by Anand Gandhi in 2013 and won several awards for its unique concept and cinematography.

Step 3: Conclusion.

Thus, the film 'Ship of Theseus' was directed by Anand Gandhi.

Quick Tip

Anand Gandhi's 'Ship of Theseus' is widely recognized for redefining philosophical cinema in India.

Q2. Author of the book 'India After Gandhi' is:

- (a) V. S. Ramachandran
- (b) Ramachandra Guha
- (c) Jawaharlal Nehru
- (d) M. J. Akbar

Correct Answer: (b) Ramachandra Guha

Solution:**Step 1: Context.**

'India After Gandhi' is a comprehensive historical account of India's development after its independence in 1947.

Step 2: Explanation.

The book was written by historian Ramachandra Guha and published in 2007. It details India's political and social transformation.

Step 3: Conclusion.

Hence, the author of 'India After Gandhi' is Ramachandra Guha.

Quick Tip

Ramachandra Guha is one of India's most respected historians known for modern Indian history and environment studies.

Q3. Zaha Hadid is well known as:

- (a) a fashion photographer
- (b) a fashion designer

- (c) a singer
- (d) an architect

Correct Answer: (d) an architect

Solution:

Step 1: Understanding the person.

Zaha Hadid was an Iraqi-British architect known for her innovative and futuristic architectural designs.

Step 2: Explanation.

She was the first woman to win the Pritzker Architecture Prize (2004). Her famous works include the London Aquatics Centre and Guangzhou Opera House.

Step 3: Conclusion.

Thus, Zaha Hadid is best known as an architect.

Quick Tip

Zaha Hadid is famously called the “Queen of the Curve” for her fluid, curved architectural designs.

Q4. The famous temple that was affected in June-July 2013 floods in Uttarakhand is:

- (a) Badrinath
- (b) Somnath
- (c) Kedarnath
- (d) Bhimashanker

Correct Answer: (c) Kedarnath

Solution:

Step 1: Context of the event.

The 2013 Uttarakhand floods were caused by heavy rainfall and cloudbursts, severely affecting the region.

Step 2: Explanation.

Kedarnath temple, located near the Mandakini river, was one of the most affected religious

sites, though the shrine itself remained mostly undamaged.

Step 3: Conclusion.

Hence, the temple affected was Kedarnath.

Quick Tip

Kedarnath temple, dedicated to Lord Shiva, is one of the twelve Jyotirlingas and part of the Char Dham Yatra.

Q5. is an example of monolithic temple architecture.

- (a) Trimbakeshwar temple
- (b) Meenakshi temple
- (c) Kailashnath temple
- (d) Akshardham temple

Correct Answer: (c) Kailashnath temple

Solution:

Step 1: Understanding monolithic architecture.

Monolithic architecture means carving or constructing an entire structure from a single large stone or rock.

Step 2: Explanation.

The Kailashnath temple at Ellora in Maharashtra is carved out of one rock and is dedicated to Lord Shiva. It is one of the world's largest monolithic temples.

Step 3: Conclusion.

Hence, Kailashnath temple represents monolithic temple architecture.

Quick Tip

Monolithic temples like Kailashnath show India's advanced ancient engineering and stone-carving skills.

Q6. With a 50 mm lens when you change aperture from 2.8 to 8, the depth of field of the image will:

- (a) Increase
- (b) Decrease
- (c) Remain unchanged
- (d) None of the above

Correct Answer: (a) Increase

Solution:

Step 1: Understanding aperture and depth of field.

The aperture controls how much light enters the lens, also affecting the depth of field (the sharp area in focus).

Step 2: Explanation.

Smaller aperture (higher f-number like $f/8$) increases the depth of field, keeping more objects in focus.

Step 3: Conclusion.

Thus, when changing aperture from $f/2.8$ to $f/8$, the depth of field increases.

Quick Tip

Higher f-number $\rightarrow$ more depth of field. Lower f-number $\rightarrow$ shallow depth of field.

Q7. PostScript in digital printing was developed by:

- (a) Apple
- (b) Microsoft
- (c) Google
- (d) Adobe

Correct Answer: (d) Adobe

Solution:

Step 1: Understanding PostScript.

PostScript is a page description language used in desktop publishing to describe text and graphics for printing.

Step 2: Explanation.

It was developed by Adobe Systems in the 1980s and became the standard for professional

printing systems.

Step 3: Conclusion.

Hence, PostScript was developed by Adobe.

Quick Tip

PostScript revolutionized printing by allowing consistent high-quality text and graphics across devices.

Q8. The following lithograph was done by:



- (a) Kathe Kollwitz
- (b) Edvard Munch
- (c) Veng Li Pen
- (d) Wu Tao Zu

Correct Answer: (b) Edvard Munch

Solution:

Step 1: Understanding the artwork.

The given image represents the famous expressionist artwork titled “The Scream.” It is one of

the most iconic paintings in modern art history.

Step 2: Explanation.

“The Scream” was created by Norwegian artist Edvard Munch in 1893. It symbolizes human anxiety, fear, and existential anguish, expressed through swirling lines and vibrant colors.

Step 3: Conclusion.

Thus, the lithograph shown in the question was done by Edvard Munch.

Quick Tip

Edvard Munch’s “The Scream” is considered a pioneering work of expressionism, portraying intense human emotion.

Q9. Which of the following animals is not depicted in Ashoka Pillar?

- (a) Bull
- (b) Horse
- (c) Lion
- (d) Tiger

Correct Answer: (d) Tiger

Solution:

Step 1: Understanding the Ashoka Pillar.

The Ashoka Pillar at Sarnath features four animals — a lion, an elephant, a bull, and a horse — symbolizing different stages of Lord Buddha’s life.

Step 2: Explanation.

The tiger is not depicted on the Ashokan capital. The lions stand back to back representing power, courage, and confidence, and form India’s national emblem.

Step 3: Conclusion.

Therefore, the animal not depicted in the Ashoka Pillar is the tiger.

Quick Tip

The Ashoka Pillar at Sarnath is the national emblem of India; the Dharma Chakra (Wheel of Law) at its base symbolizes righteousness.

Q10. Identify the 'India Design Mark' symbol.



Correct Answer: (d) Option D

Solution:

Step 1: Understanding the 'India Design Mark'.

The 'India Design Mark' (I Mark) is a symbol awarded by the India Design Council to recognize and promote excellence in product design.

Step 2: Explanation.

It serves as a benchmark for good design and helps consumers identify quality, functional, and aesthetic products. The logo features a stylized human figure forming the letter 'I'.

Step 3: Conclusion.

Thus, the 'India Design Mark' symbol corresponds to Option D.

Quick Tip

The India Design Mark is awarded in collaboration with the Japan Institute of Design Promotion (JDP).

Q11. Identify the famous Indian artist who painted the picture below:



- (a) Ghulam Mohammad Shaikh
- (b) Amrita Shergil
- (c) Raja Ravi Varma
- (d) Abanindranath Tagore

Correct Answer: (c) Raja Ravi Varma

Solution:

Step 1: Understanding the painting.

The given painting shows traditionally dressed Indian women, depicted with realistic proportions and soft colors.

Step 2: Explanation.

This style of painting reflects the realism and mythological subjects often seen in Raja Ravi Varma's works. He is known for combining European techniques with Indian themes. His paintings brought mythological characters closer to common people.

Step 3: Conclusion.

Therefore, the painting shown was created by Raja Ravi Varma.

Quick Tip

Raja Ravi Varma is known as the father of modern Indian art and for introducing oil painting techniques in India.

Q12. Identify the following monument:



- (a) Bharhut Stupa
- (b) Sanchi Stupa

- (c) Kushinagar Stupa
- (d) Bavikonda Stupa

Correct Answer: (b) Sanchi Stupa

Solution:

Step 1: Identifying the structure.

The image shows a large hemispherical dome with ornate gateways (toranas), typical of Buddhist stupas.

Step 2: Explanation.

The Sanchi Stupa, located in Madhya Pradesh, was commissioned by Emperor Ashoka in the 3rd century BCE. It is a UNESCO World Heritage Site and one of the oldest stone structures in India.

Step 3: Conclusion.

Thus, the monument shown in the picture is the Sanchi Stupa.

Quick Tip

The Sanchi Stupa is a key monument in Buddhist architecture symbolizing the burial mound of Lord Buddha's relics.

Q13. One of the methods of 3D printing is called:

- (a) Laser Microscopy
- (b) Surface Scanning Microscopy
- (c) Stereolithography
- (d) Offset Printing

Correct Answer: (c) Stereolithography

Solution:

Step 1: Understanding 3D printing.

3D printing is a process of creating three-dimensional objects layer by layer from a digital file.

Step 2: Explanation.

Stereolithography (SLA) is one of the earliest and most precise 3D printing techniques. It uses

ultraviolet laser light to cure liquid resin into hardened plastic.

Step 3: Conclusion.

Hence, the correct answer is Stereolithography.

Quick Tip

Stereolithography is ideal for making detailed prototypes and models using photopolymerization.

Q14. Boot space of a car refers to:

- (a) Luggage space
- (b) Engine envelope
- (c) Place to keep shoes
- (d) Petrol tank

Correct Answer: (a) Luggage space

Solution:

Step 1: Understanding terminology.

The term “boot” in automobiles refers to the rear compartment of a car used for storage.

Step 2: Explanation.

The boot space is designed to store luggage, bags, and other items while traveling. It is separate from the passenger and engine compartments.

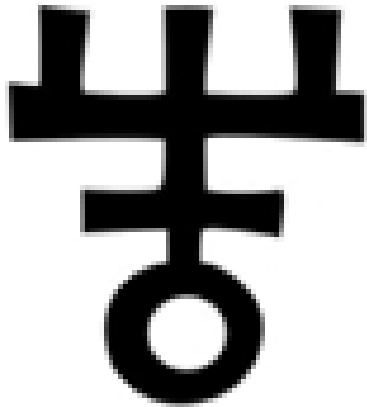
Step 3: Conclusion.

Thus, the boot space of a car means luggage space.

Quick Tip

In American English, the “boot” is known as the “trunk” of a car.

Q15. Identify the organization which uses the symbol shown here:



- (a) Trade Fair Authority of India
- (b) Indian Institute of Foreign Trade
- (c) Indian Institute of Packaging
- (d) Trade Union Federation of India

Correct Answer: (c) Indian Institute of Packaging

Solution:

Step 1: Understanding the logo.

The logo shown in the question belongs to the Indian Institute of Packaging (IIP), which promotes packaging education, research, and technology.

Step 2: Explanation.

The IIP logo is stylized to represent the concept of protection and containment, symbolizing innovation and sustainability in packaging.

Step 3: Conclusion.

Thus, the symbol belongs to the Indian Institute of Packaging.

Quick Tip

The Indian Institute of Packaging is an autonomous body under the Ministry of Commerce and Industry, Government of India.

Q16. What is the maximum number of circular discs of equal size, which can be placed around a similar disc, such that the central disc is touched by all others but there is no overlap between any of the discs?

- (a) 6
- (b) 8
- (c) 12
- (d) 10

Correct Answer: (a) 6

Solution:

Step 1: Understanding the geometric arrangement.

When circular discs of equal radius are arranged around one central disc so that each touches the center disc but not each other, the problem becomes one of circle packing in a plane.

Step 2: Explanation.

In two dimensions, six circles can be arranged around one central circle such that all outer circles touch the central circle without overlapping. This forms a perfect hexagonal pattern.

Step 3: Conclusion.

Hence, the maximum number of discs that can be placed around one disc is six.

Quick Tip

This concept is related to the “kissing number” problem in geometry, where in 2D the kissing number is 6.

Q17. A platonic solid with 12 sides is called:

- (a) Tetrahedron
- (b) Cube
- (c) Icosahedron
- (d) Dodecahedron

Correct Answer: (d) Dodecahedron

Solution:

Step 1: Understanding Platonic solids.

Platonic solids are regular, convex polyhedra with identical faces made of regular polygons. There are only five such solids.

Step 2: Explanation.

A Dodecahedron has 12 regular pentagonal faces, 20 vertices, and 30 edges. Thus, it is the Platonic solid with 12 faces.

Step 3: Conclusion.

Therefore, a Platonic solid with 12 sides is called a Dodecahedron.

Quick Tip

The five Platonic solids are Tetrahedron, Cube, Octahedron, Dodecahedron, and Icosahedron.

Q18. Which among these is not a dance form in India?

- (a) Kathak
- (b) Mohiniyattam
- (c) Odissi
- (d) Thumri

Correct Answer: (d) Thumri

Solution:**Step 1: Understanding dance forms.**

Kathak, Mohiniyattam, and Odissi are all recognized classical dance forms of India.

Step 2: Explanation.

Thumri, however, is not a dance form but a semi-classical vocal music style that originated in North India, characterized by its romantic and devotional themes.

Step 3: Conclusion.

Therefore, Thumri is not a dance form.

Quick Tip

Thumri belongs to Hindustani classical music and is often associated with Kathak dance performances.

Q19. Identify the correct sentence:

- (a) Which of your two colleagues are here
- (b) Which of your two colleagues is here
- (c) Which of two colleagues are here
- (d) Which of the two colleagues are here

Correct Answer: (b) Which of your two colleagues is here

Solution:

Step 1: Understanding subject-verb agreement.

The subject “Which of your two colleagues” is singular because it refers to one person being selected or considered out of two.

Step 2: Explanation.

Hence, the verb must be singular (“is”) instead of plural (“are”).

Step 3: Conclusion.

The correct sentence is: “Which of your two colleagues is here.”

Quick Tip

When “which of” or “one of” is used, the verb usually agrees with the singular subject following it.

Q20. Complete the sentence: *his carelessness our car was ruined.*

- (a) Cause of
- (b) Since
- (c) For
- (d) Due to

Correct Answer: (d) Due to

Solution:

Step 1: Understanding the preposition use.

The phrase “Due to” is used to indicate the cause or reason for something.

Step 2: Explanation.

Here, the sentence refers to the car being ruined because of his carelessness. Thus, “Due to his carelessness” correctly completes the sentence.

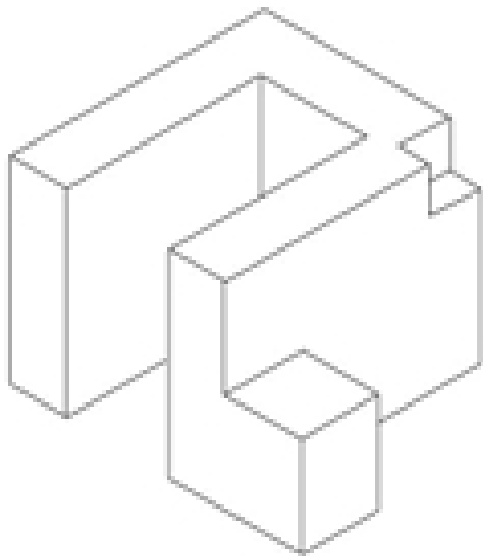
Step 3: Conclusion.

Hence, the correct sentence is: “Due to his carelessness, our car was ruined.”

Quick Tip

Use “due to” for causes and “because of” for explanations; both imply reason but differ grammatically in placement.

Q21. How many surfaces are there in the illustration shown?



- (a) 14
- (b) 16
- (c) 17
- (d) 15

Correct Answer: (b) 16

Solution:

Step 1: Understanding the figure.

The given illustration is a 3D geometric structure composed of interlocking rectangular prisms. Each rectangular face contributes to the total surface count.

Step 2: Explanation.

By carefully visualizing all the visible and hidden rectangular faces, we observe that each block adds a specific number of surfaces. After combining and eliminating overlapping internal faces, the total number of distinct surfaces equals 16.

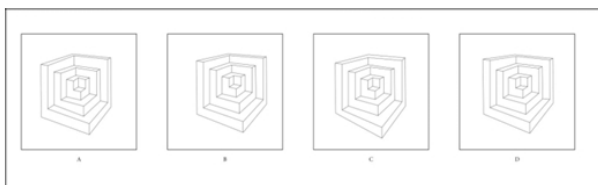
Step 3: Conclusion.

Hence, the total number of surfaces in the given figure is 16.

Quick Tip

When counting surfaces in 3D figures, visualize each block and remember to subtract common internal faces that merge.

Q22. Identify the drawing with correct perspective.



Correct Answer: (c) Option C

Solution:**Step 1: Understanding perspective drawing.**

Perspective drawings represent 3D objects on a 2D plane, showing depth and spatial relationships through converging lines.

Step 2: Explanation.

In the given options, Option C correctly maintains the convergence of parallel lines toward a common vanishing point, creating a realistic sense of depth. Other options either distort the angles or fail to meet at a consistent vanishing point.

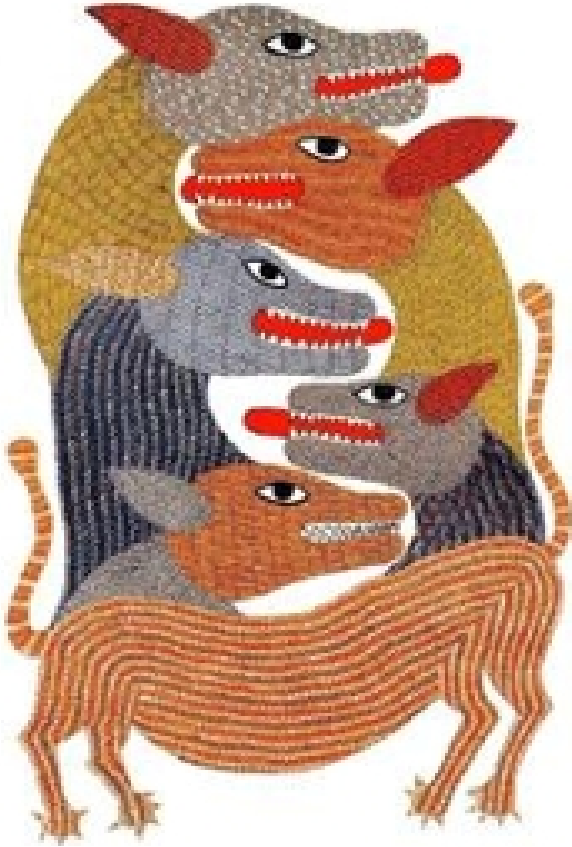
Step 3: Conclusion.

Therefore, the drawing with the correct perspective is Option C.

Quick Tip

In a one-point perspective, all parallel lines converge to a single vanishing point on the horizon line.

Q23. Identify this tribal art form of India.



- (a) Warli
- (b) Saura
- (c) Madhubani
- (d) Gond

Correct Answer: (d) Gond

Solution:

Step 1: Understanding the visual clues.

The image shows animals drawn using bright natural colors, dotted patterns, and intricate line work. This style is symbolic of tribal life and nature.

Step 2: Explanation.

This art belongs to the Gond tribe of Madhya Pradesh. Gond art is known for its use of vibrant colors, fine lines, and repeated patterns that create a sense of movement. The themes often revolve around animals, folklore, and daily tribal life.

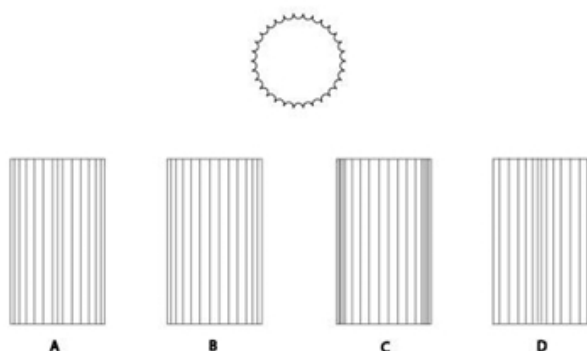
Step 3: Conclusion.

Hence, the given image represents the Gond tribal art form of India.

Quick Tip

Gond art uses dots, dashes, and natural colors to depict harmony between humans and nature.

Q24. Plan of a three-dimensional object is shown here. Identify the correct front view of the object from amongst the four images shown below.



Correct Answer: (a) Option A

Solution:**Step 1: Understanding the plan.**

The top view (plan) shows a circular shape with a serrated or toothed edge, which suggests a cylindrical gear or toothed wheel-like object.

Step 2: Explanation.

From the given front view options, Option A correctly represents the vertical projection of such a serrated cylindrical shape, where the vertical lines indicate the gear-like pattern extending along its length.

Step 3: Conclusion.

Therefore, the correct front view corresponding to the given plan is Option A.

Quick Tip

When interpreting plans and elevations, remember — circular shapes in plan usually translate to cylindrical forms in front or side views.

Q25. What is the meaning of 'latent'?

- (a) Worthy
- (b) Veiled
- (c) Latterly
- (d) Flanking

Correct Answer: (b) Veiled

Solution:

Step 1: Understanding the word.

The term 'latent' means something that exists but is not yet developed or visible — hidden or concealed.

Step 2: Explanation.

When a quality or condition is latent, it is present but not active or apparent. The closest synonym among the options given is "Veiled," which also means hidden or not clearly seen.

Step 3: Conclusion.

Therefore, the correct meaning of 'latent' is "Veiled."

Quick Tip

'Latent talent' means hidden potential that is not yet discovered or expressed.

Q26. What is the full form of MPEG?

- (a) Motion Pictures Experts Group
- (b) Magnetic Prism Exposure Grid
- (c) Motion Picture Entertainment Guild
- (d) Media Protocol Entertainment Guild

Correct Answer: (a) Motion Pictures Experts Group

Solution:

Step 1: Understanding MPEG.

MPEG is a working group that develops standards for audio and video compression and transmission.

Step 2: Explanation.

The full form of MPEG is “Motion Pictures Experts Group.” It was established by ISO and IEC to set standards such as MPEG-1, MPEG-2, and MPEG-4, used in video formats and streaming technologies.

Step 3: Conclusion.

Hence, MPEG stands for Motion Pictures Experts Group.

Quick Tip

MPEG standards are the basis of widely used formats like MP3 (audio) and MP4 (video).

Q27. The film that Eisenstein is associated with is:

- (a) Blow up
- (b) Bicycle Thieves
- (c) Battleship Potemkin
- (d) Roshomon

Correct Answer: (c) Battleship Potemkin

Solution:

Step 1: Understanding the director.

Sergei Eisenstein was a Soviet film director and film theorist known for pioneering montage editing techniques.

Step 2: Explanation.

His most famous film, “Battleship Potemkin” (1925), is celebrated for its innovative editing and dramatic storytelling, especially the “Odessa Steps” sequence.

Step 3: Conclusion.

Hence, Eisenstein is associated with the film “Battleship Potemkin.”

Quick Tip

Eisenstein's montage theory revolutionized cinema editing, influencing filmmakers worldwide.

Q28. Identify the famous graphic designer from the list.

- (a) Sabyasachi Mukherjee
- (b) Sudarshan Dheer
- (c) Dilip Chhabria
- (d) Hafeez Contractor

Correct Answer: (b) Sudarshan Dheer

Solution:

Step 1: Recognizing the field.

Among the listed names, only Sudarshan Dheer is a renowned graphic designer. The others are associated with fashion design, automobile design, and architecture.

Step 2: Explanation.

Sudarshan Dheer is known as the “Father of Indian Graphic Design.” He designed several corporate logos and visual identities for major Indian companies, including Hindustan Petroleum.

Step 3: Conclusion.

Hence, the correct answer is Sudarshan Dheer.

Quick Tip

Sudarshan Dheer's most iconic creation is the “HP Flying Drop” logo for Hindustan Petroleum.

Q29. Identify the car manufacturer based on the visual shown here.



- (a) Rolls Royce
- (b) BMW
- (c) Maruti Suzuki
- (d) Land Rover

Correct Answer: (b) BMW

Solution:

Step 1: Observation of visual details.

The image shows a front grille with two vertically divided oval sections — a hallmark feature of BMW's "kidney grille" design.

Step 2: Explanation.

BMW (Bayerische Motoren Werke AG) uses this iconic dual grille pattern across all its models, symbolizing brand identity and aerodynamic functionality.

Step 3: Conclusion.

Hence, the car manufacturer shown in the image is BMW.

Quick Tip

BMW's signature kidney grille was first introduced in 1933 and remains one of the most recognizable car design elements.

Q30. Identify the car brand from the visual shown.



- (a) Cadillac
- (b) Vauxhall

- (c) Citroen
- (d) Dacia

Correct Answer: (a) Cadillac

Solution:

Step 1: Observation of the logo.

The image shows a shield-shaped emblem surrounded by a wreath, with multi-colored patterns (red, blue, black, and gold).

Step 2: Explanation.

This is the logo of Cadillac, an American luxury automobile brand owned by General Motors. The crest and wreath symbolize prestige, craftsmanship, and innovation.

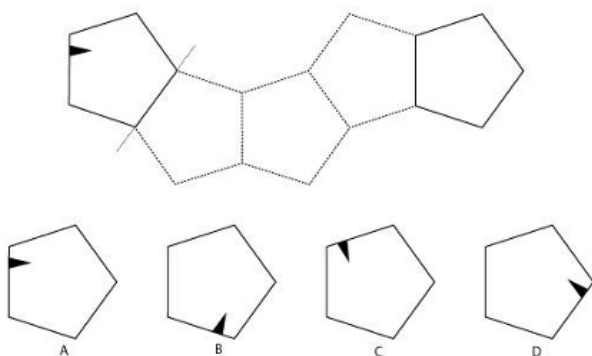
Step 3: Conclusion.

Hence, the car brand shown in the visual is Cadillac.

Quick Tip

Cadillac's crest was inspired by the coat of arms of Antoine de la Mothe Cadillac, the founder of Detroit.

Q31. A pentagon is mirrored four times. What will the final image seen in the last pentagon be?



Correct Answer: (b) Option B

Solution:

Step 1: Understanding mirror reflections.

Each mirror reflection reverses the orientation of the shape across the reflecting edge. After multiple reflections, the position alternates with each step.

Step 2: Explanation.

Since the pentagon is reflected four times, the final image will have the arrow pointing in the same direction as after the second reflection (even number of reflections restore orientation). Among the given options, Option B matches this final orientation.

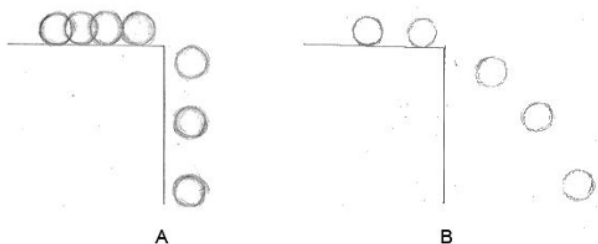
Step 3: Conclusion.

Hence, the final image seen in the last pentagon will be as shown in Option B.

Quick Tip

In geometry, an even number of mirror reflections restores the original orientation, while an odd number reverses it.

Q32. You are shown two animation sequences (A and B) of a ball falling off a surface. Assuming that they were pushed with the same force, identify which animation sequence depicts the heavier ball.



- (a) Ball in image A is heavier
- (b) Ball in image B is heavier
- (c) Ball in image A and B are of equal weight
- (d) Can't say

Correct Answer: (a) Ball in image A is heavier

Solution:**Step 1: Understanding motion of balls.**

Both balls are pushed with the same force; the difference in motion depends on their mass. A heavier ball will travel a shorter horizontal distance and fall faster due to greater inertia.

Step 2: Explanation.

In the images, the ball in sequence A travels a shorter distance horizontally before falling straight down, indicating it has more mass. The lighter ball (in B) moves farther horizontally when pushed with the same force.

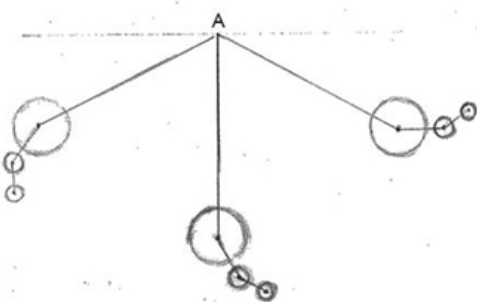
Step 3: Conclusion.

Hence, the ball in image A is heavier.

Quick Tip

In animation physics, heavier objects accelerate less horizontally when equal force is applied, creating realistic weight depiction.

Q33. In the image shown, identify the direction of the swinging pendulum around pivot point A.



- (a) Left to Right
- (b) Both the directions
- (c) None of the above
- (d) Right to Left

Correct Answer: (a) Left to Right

Solution:**Step 1: Understanding pendulum motion.**

A pendulum swings in a periodic motion about its pivot point. The sequence of circular paths represents its oscillation.

Step 2: Explanation.

In the given diagram, the larger motion arc starts from the left and moves towards the right side, showing increasing displacement in that direction. Therefore, the pendulum is moving from left to right.

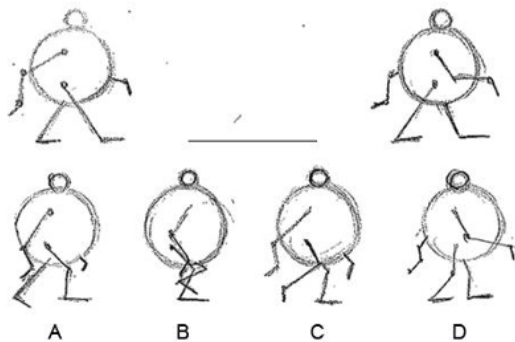
Step 3: Conclusion.

Hence, the pendulum swings from left to right around pivot point A.

Quick Tip

Pendulum motion is governed by gravity and restoring force; the path always repeats symmetrically on both sides of the equilibrium position.

Q34. Choose the correct mid-point image to complete the walk cycle.



Correct Answer: (b) Option B

Solution:**Step 1: Understanding walk cycle motion.**

A walk cycle is the sequence of frames showing how a character's legs and body move during a step. The midpoint represents the passing position, where one leg passes the other while the body is balanced.

Step 2: Explanation.

In the given set of options, Option B correctly depicts the mid-position with one leg lifted and crossing the other while the arms are in opposite swing motion, maintaining balance.

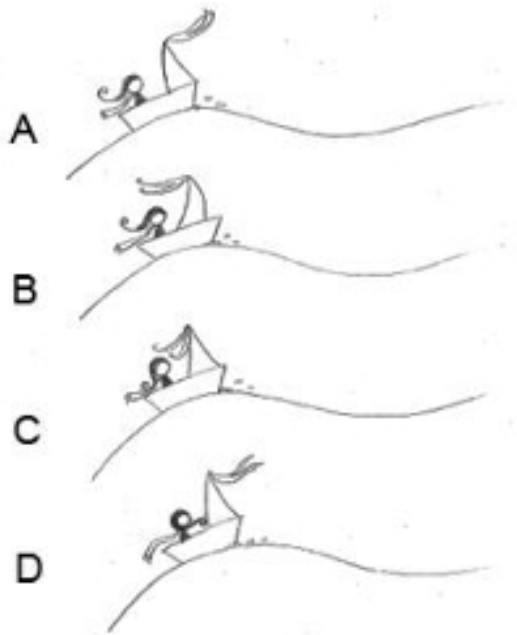
Step 3: Conclusion.

Thus, Option B correctly completes the walk cycle.

Quick Tip

In animation, a complete walk cycle includes contact, recoil, passing, and high-point positions for smooth and realistic movement.

Q35. A girl in a boat is riding a wave. Identify the correct drawing.



Correct Answer: (b) Option B

Solution:

Step 1: Understanding the motion of the boat on the wave.

When a boat rides a wave, it tilts upward as it climbs and slightly downward as it descends. The girl should remain balanced and aligned with the boat's motion.

Step 2: Explanation.

In the given figures, Option B shows the most natural depiction — the girl leaning back slightly as the boat ascends the wave, maintaining realistic balance and gravity effect.

Step 3: Conclusion.

Hence, the correct drawing representing a realistic wave-riding motion is Option B.

Quick Tip

In animation, always align the character's body posture with the direction of motion to achieve natural movement.

Q36. Lost wax process is used in:

- (a) Turning
- (b) Casting
- (c) Forging
- (d) Welding

Correct Answer: (b) Casting

Solution:

Step 1: Understanding the process.

The lost wax process, also known as “investment casting,” is a technique used to create detailed metal components using a wax model.

Step 2: Explanation.

In this method, a wax model is coated with a refractory material to form a mold. Once the mold hardens, the wax is melted and drained away, leaving a cavity into which molten metal is poured.

Step 3: Conclusion.

Hence, the lost wax process is used in casting.

Quick Tip

The lost wax process is often used in jewelry making and sculpture for intricate designs.

Q37. How many A4 size paper sheets will make A0 size?

- (a) 3
- (b) 4
- (c) 16
- (d) 8

Correct Answer: (c) 16

Solution:

Step 1: Understanding ISO paper sizes.

Each successive paper size (A0 to A4) is obtained by halving the previous size along the larger dimension.

Step 2: Explanation.

$A0 \rightarrow A1 \rightarrow A2 \rightarrow A3 \rightarrow A4$ represents 4 successive halvings. Thus, $2^4 = 16$. Therefore, sixteen A4 sheets equal one A0 sheet in area.

Step 3: Conclusion.

Hence, 16 A4 sheets make one A0 size sheet.

Quick Tip

Each smaller ISO 'A' paper size has half the area of the previous one, maintaining the same aspect ratio (1:2).

Q38. As per DIN standards, the dimension of A4 size paper is:

- (a) 210 by 297 mm
- (b) 297 by 268 mm
- (c) 236 by 278 mm
- (d) 210 by 297 inches

Correct Answer: (a) 210 by 297 mm

Solution:**Step 1: Understanding DIN standards.**

The DIN (Deutsches Institut für Normung) standard defines international paper sizes under ISO 216.

Step 2: Explanation.

According to ISO 216, A4 paper dimensions are 210 mm $\times$ 297 mm, maintaining an aspect ratio of 1:2, ideal for scaling.

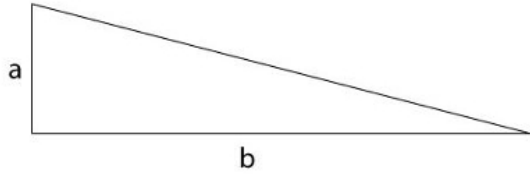
Step 3: Conclusion.

Thus, the standard dimension of A4 paper is 210 by 297 mm.

Quick Tip

A4 paper is the most commonly used document size globally for letters, reports, and printing.

Q39. Maximum acceptable slope (a:b) for wheelchair ramp is in the ratio of:



- (a) 1:8
- (b) 1:12
- (c) 1:3
- (d) 1:20

Correct Answer: (b) 1:12

Solution:

Step 1: Understanding the wheelchair ramp.

A wheelchair ramp is designed to provide access to people using wheelchairs, and the slope needs to be gentle for safety and comfort.

Step 2: Explanation.

According to accessibility standards, the maximum acceptable slope for a wheelchair ramp is 1:12. This means for every 1 unit of vertical rise, the ramp should extend 12 units horizontally.

Step 3: Conclusion.

Thus, the maximum acceptable slope ratio is 1:12.

Quick Tip

A slope of 1:12 is the standard for wheelchair ramps to ensure safe access for people with mobility impairments.

Q40. What is the material used commonly in the manufacture of household plastic buckets?

- (a) ABS
- (b) PVC
- (c) Nylon
- (d) HDPE

Correct Answer: (d) HDPE

Solution:

Step 1: Identifying the materials.

Common plastics include ABS (Acrylonitrile Butadiene Styrene), PVC (Polyvinyl Chloride), Nylon, and HDPE (High-Density Polyethylene).

Step 2: Explanation.

HDPE is widely used in making durable, lightweight, and impact-resistant items like plastic buckets. It is chemically resistant and can withstand high temperatures, making it ideal for household use.

Step 3: Conclusion.

Thus, HDPE is the material commonly used in the manufacture of plastic buckets.

Quick Tip

HDPE is commonly used for packaging and household goods due to its strength and resistance to chemicals.

Q41. Jiggering Jollyng process is associated with:

- (a) Ceramics
- (b) Mild steel
- (c) Aluminum
- (d) Bakelite

Correct Answer: (a) Ceramics

Solution:

Step 1: Understanding the jiggering and jollyng process.

Jiggering and jollyng are processes used in the ceramics industry to shape clay into symmetrical objects, like plates or bowls, using mechanical tools.

Step 2: Explanation.

The jiggering process involves rotating a mold and pressing clay onto it, while jollyng shapes the clay by applying pressure. These methods are commonly used in mass production of ceramic products.

Step 3: Conclusion.

Therefore, jiggering and jollyng processes are associated with ceramics.

Quick Tip

Jiggering and jollying are automated processes used to quickly produce large quantities of ceramic items like pottery and dinnerware.

Q42. Carbon Footprint refers to:

- (a) Environment Pollution
- (b) Photosynthesis in Plants
- (c) Carbon dating technique
- (d) Carbon Fiber Footwear

Correct Answer: (a) Environment Pollution

Solution:

Step 1: Understanding Carbon Footprint.

A carbon footprint refers to the total amount of greenhouse gases emitted into the atmosphere as a result of human activities, measured in terms of CO₂ equivalents.

Step 2: Explanation.

It includes emissions from transportation, energy use, manufacturing, and other activities. Reducing carbon footprints is crucial in combating climate change.

Step 3: Conclusion.

Thus, carbon footprint is directly related to environment pollution.

Quick Tip

Reducing your carbon footprint can be achieved through energy efficiency, renewable energy, and sustainable consumption practices.

Q43. Pet bottles are best made using

process.

- (a) Vacuum Forming
- (b) Injection molding
- (c) Blow molding
- (d) Roto-molding

Correct Answer: (c) Blow molding

Solution:

Step 1: Understanding plastic bottle manufacturing.

Blow molding is the most common process for making hollow plastic products such as bottles. It involves inflating hot plastic inside a mold to form the desired shape.

Step 2: Explanation.

For PET bottles, blow molding is the standard because it can efficiently form large quantities of bottles with consistent size and shape.

Step 3: Conclusion.

Hence, PET bottles are best made using blow molding.

Quick Tip

Blow molding allows the creation of hollow plastic items by inflating heated plastic into a mold.

Q44. Tyeb Mehta is a well-known

- (a) Animator
- (b) Painter
- (c) Automobile Designer
- (d) Fashion Designer

Correct Answer: (b) Painter

Solution:

Step 1: Identifying Tyeb Mehta.

Tyeb Mehta is a celebrated Indian artist, known for his work in the modern art movement. His paintings often reflect the themes of human suffering, violence, and social injustice.

Step 2: Explanation.

Mehta's works include both figurative and abstract paintings, with his most famous piece being "Mahishasura". He is recognized as one of the pioneers of contemporary Indian art.

Step 3: Conclusion.

Thus, Tyeb Mehta is a well-known painter.

Quick Tip

Tyeb Mehta's work is celebrated for its emotional intensity and innovative use of colors.

Q45. The symbol shown is associated with:



- (a) Amul
- (b) Life Insurance Corporation of India
- (c) Food Corporation of India
- (d) Nabard

Correct Answer: (d) Nabard

Solution:

Step 1: Identifying the symbol.

The logo shown in the image is the emblem of NABARD (National Bank for Agriculture and Rural Development), a financial institution focused on promoting sustainable agriculture and rural development.

Step 2: Explanation.

NABARD's logo features a green plant, symbolizing growth and prosperity in rural

India.

Step 3: Conclusion.

Thus, the symbol is associated with NABARD.

Quick Tip

NABARD plays a key role in promoting agricultural and rural development through financing and support services.

Q46. Identify the odd one out from the list:



- (a) A
- (b) B
- (c) C
- (d) D

Correct Answer: (a) A

Solution:

Step 1: Analyzing the options.

In this question, we are asked to identify the one that does not belong to the same category. A, B, C, and D could represent various items, shapes, or characteristics. The odd one out typically differs in an obvious way (shape, structure, or features).

Step 2: Explanation.

Without seeing the visual of A, B, C, and D, the odd one would be the element that deviates from the common characteristic shared by the rest (e.g., a shape that doesn't match the others).

Step 3: Conclusion.

Thus, the odd one out is A.

Quick Tip

When identifying the odd one out, focus on the visual similarities and differences in features like shape, color, or size.

Q47. The symbol shown is associated with:



- (a) National Savings Scheme
- (b) National Textile Corporation
- (c) Aadhar
- (d) National Literacy Mission

Correct Answer: (c) Aadhar

Solution:

Step 1: Identifying the symbol.

The symbol shown in the image, featuring a sun and the multi-colored arcs with a fingerprint design, is the logo for the Aadhar scheme. Aadhar is India's national identity system.

Step 2: Explanation.

Aadhar is a unique identification number provided by the government of India, and the logo represents the concept of identity verification based on biometric data.

Step 3: Conclusion.

Hence, the symbol is associated with Aadhar.

Quick Tip

Aadhar helps in ensuring secure and verified access to various government services.

Q48. Identify the musical instrument shown in this picture.



- (a) Sarangi
- (b) Guitar
- (c) Sarod
- (d) Sitar

Correct Answer: (c) Sarod

Solution:

Step 1: Identifying the instrument.

The image shows an Indian classical musician playing a string instrument. The instrument has a distinct design with a large resonating body, fretless neck, and multiple strings.

Step 2: Explanation.

The Sarod is a popular Indian classical instrument known for its deep, rich tones, and is similar in shape to a guitar but differs in its fretless design. The other instruments do not match the Sarod's appearance.

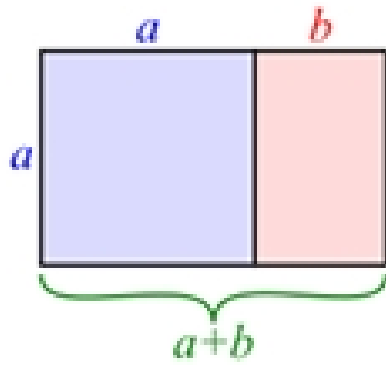
Step 3: Conclusion.

Thus, the instrument shown is a Sarod.

Quick Tip

The Sarod is one of the prominent string instruments used in Hindustani classical music.

Q49. The visual shown here represents the golden proportion. Identify the correct ratio.



- (a) $a:b = 1:1.618$
- (b) $a:b = 1:6.182$
- (c) $a:b = 1:4.352$
- (d) $a:b = 1:1.928$

Correct Answer: (a) $a:b = 1:1.618$

Solution:

Step 1: Understanding the golden proportion.

The golden ratio, also known as the divine proportion, is a mathematical ratio that occurs frequently in nature and art. It is approximately equal to 1.618.

Step 2: Explanation.

The golden ratio is often denoted as " $a:b = 1:1.618$ ". This ratio is used in design, art, and architecture due to its aesthetically pleasing properties.

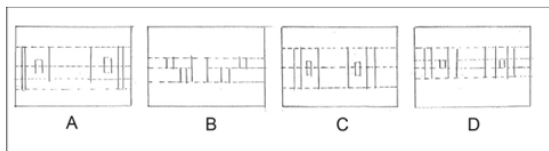
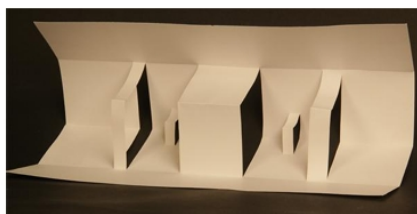
Step 3: Conclusion.

Thus, the correct ratio for the golden proportion is 1:1.618.

Quick Tip

The golden ratio can be derived from a rectangle, where the ratio of the longer side to the shorter side is 1.618.

Q50. Identify the correct cut and fold drawing to create the shown image.



Correct Answer: (c) Option C

Solution:

Step 1: Analyzing the image.

The image shows a folded and cut paper design, with multiple interlocking panels and spaces. The cut-and-fold structure must match the given pattern.

Step 2: Explanation.

Option C is the correct cut-and-fold design that, when folded in the right way, will replicate the given three-dimensional form shown in the image.

Step 3: Conclusion.

Thus, Option C is the correct cut and fold drawing to create the image.

Quick Tip

In paper folding and cut designs, ensure that the edges and folds are correctly aligned to achieve the desired 3D form.

PART B

Question No. 1

Marks 20

Draw a freehand perspective drawing of a person opening the refrigerator door in the kitchen.

OR

Draw a freehand perspective drawing of a person standing next to a scooter parked on the street.

Note:

- DO NOT USE ANY DRAWING INSTRUMENTS LIKE RULER, COMPASS, SET-SQUARE etc.
- DO NOT USE ANY FORM OF COLOUR.
- USE ONLY PENCILS.

Evaluation Criteria:

- Abilities in perspective drawing.
- Light and shade and shadow.
- Quality of lines.
- Sense of scale and proportions.
- Sense of composition.

Solution:

Step 1: Understanding the task.

The task requires a freehand perspective drawing of either a person opening a refrigerator door in the kitchen or a person standing next to a scooter. The goal is to capture the perspective accurately without using any drawing aids. The focus is on capturing proportions, the play of light and shadows, and a balanced composition.

Step 2: Drawing the scene.

For both options, the drawing should begin with basic shapes and volumes that define the position of the human figure and the objects in the scene. For the kitchen scene, start by drawing the refrigerator, then focus on illustrating the figure interacting with the door. For the street scene, focus on the figure standing next to the scooter, with careful attention to perspective angles.

Step 3: Detailing.

Add shading to show the light source direction. Since no colors are allowed, shading will play an important role in bringing the drawing to life. The lines should be clean and clear, showing depth and volume.

Step 4: Final adjustments.

Ensure proper proportion, placement, and angle of all elements in the drawing to reflect the true perspective. Make final enhancements by adjusting shadows and refining line quality for the best representation.

Quick Tip

When drawing in perspective, always consider the vanishing point and horizon line to ensure all elements in the scene align correctly with the viewpoint.





Question 2

Marks 15

The illustration above is an artist's impression of an incident in a club house. Narrate the incident in your own words, based on your creative imagination.

Limit your description to less than 250 words.



Solution:

Narrative:

It was a warm Saturday afternoon at a local club house where the usual crowd had gathered for an evening of fun. The scene was lively, with people of all ages sitting around, some playing cards, while others chatted. The air was filled with the aroma of freshly brewed coffee, adding to the vibrant atmosphere. In the center of the room, a group of friends was gathered near a low table, sharing stories and laughter. There was a woman sipping tea while gesturing animatedly, her friends listening intently, adding to the contagious energy.

On one side, a man was trying to fix an old music player that was acting up, while his friend watched curiously, a sense of impatience building up in the room. Suddenly, someone entered the room, and everyone turned to look. It was a member who had been missing for weeks, and the crowd went silent for a moment. He smiled, waved, and walked toward the group. The awkward silence turned into a warm reception as they invited him to join the conversation. Laughter soon filled the room again, and the old music player finally came to life, adding a rhythm to the moment.

Quick Tip

When narrating incidents, make sure to incorporate sensory details (smells, sounds, and sights) to make the scene feel alive and immersive.

Question 3

Marks 15

Umbrellas are used mainly during the rainy season and usually remain unused during the rest of the year.

Creatively generate 3 alternative uses of the umbrella other than just protection from rain or sunshine. Illustrate your ideas in the form of sketches with short descriptions.

Solution:

Alternative 1: Umbrella as a Mobile Garden

Imagine transforming the umbrella into a mini garden. By attaching small planters to the frame, the umbrella could act as a moving garden. This could be an innovative way for people living in apartments or city dwellers to enjoy greenery even during the rainy season. The plants could be watered and sheltered, providing an eco-friendly solution while being portable.

Alternative 2: Umbrella as a Shade for Outdoor Activities

Rather than just using the umbrella for protection against sunlight, it can be used as a shade for children playing in the park, artists painting in outdoor spaces, or as a temporary shelter for outdoor events. This use could enhance comfort for those engaged in different outdoor hobbies by providing easy access to portable shade.

Alternative 3: Umbrella as a Personal Shelter from Wind in the Winter

During the colder months, an umbrella could be used as a personal wind shelter. By using an umbrella with a stronger and more durable frame, it could act as a shield from strong winds and even snow. This would be especially useful for

those commuting in windy areas or traveling to places where cold gusts of wind are frequent.

Quick Tip

Think of everyday objects and their potential to serve dual or alternative purposes, making them more versatile and resource-efficient.

Question 4

Marks 50

Design a graphical user interface (GUI) for a website of a movie theatre complex named 'Navrang Chitrapat' for booking movie tickets online. The complex has 3 theatres with each theatre screening a different film, three shows per day.

Present your design solutions in the form of screen shots. Draw a minimum of six screen shots explaining the booking procedure in a sequence.

Support your design solution with a brief note on the design decisions.

The web interface should present the following information to the user:

- Basic Information about the theatre complex
- Name of film
- Date
- Time
- Availability of ticket
- Price of tickets
- Payment Options
- Confirmation of Booking

Evaluation Criteria:

- Usability of the Interface
- Structure and clarity of Information
- Visual quality of icons and overall screens
- Logic of design decisions

Solution:

The GUI for the movie theatre complex is designed to be intuitive and user-friendly with the following key features:

Screen Shot 1: Homepage

- The homepage displays basic information about the theatre complex including its name and address. A banner shows the featured movies for the day with showtimes.

Screen Shot 2: Movie Selection

- The user can select a movie from the list of available films shown. Each movie will have a brief description, its poster, and available showtimes.

Screen Shot 3: Show Time Selection

- After selecting the film, the user is prompted to choose a specific date and showtime. The available options are displayed based on the selected film.

Screen Shot 4: Seat Selection

- The user selects their seats in the chosen theatre. Available seats are shown in a visual layout of the cinema hall, and unavailable seats are grayed out.

Screen Shot 5: Payment Options

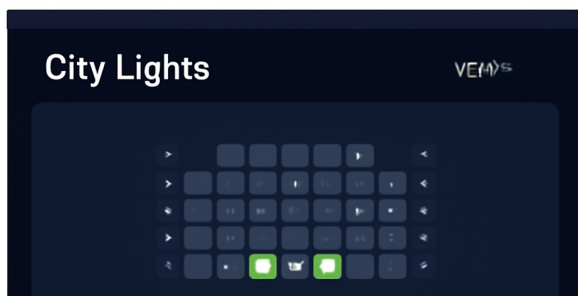
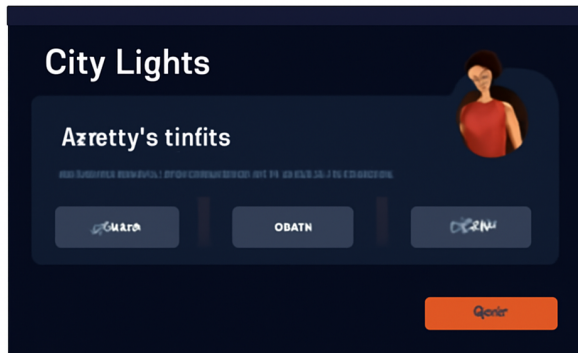
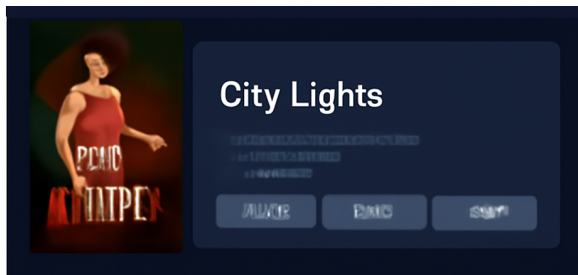
- After seat selection, the user proceeds to the payment page, where different payment methods (credit card, UPI, net banking) are offered.

Screen Shot 6: Booking Confirmation

- A confirmation screen shows the booking details, including film name, time, seats selected, and total cost. A confirmation number and ticket are generated.

Design Decisions:

- The design ensures a seamless, intuitive flow from movie selection to booking confirmation. The interface is clean, with minimal text, and large icons for ease of navigation.
- A color scheme with dark backgrounds and vibrant accents is used to focus attention on important elements such as film names and booking actions.
- The system includes both visual cues and textual information to ensure accessibility for all users.



Quick Tip

When designing booking interfaces, it's important to make sure that information is presented in a clear, step-by-step manner. Each step should be visually distinct to avoid confusion and enhance user experience.

Question 5

Marks 50

A woman is walking on a crowded railway platform. A train pulls in and people alight. A man suddenly comes up behind the woman, snatches her bag and runs away. The woman shouts for help.

A policeman standing near a vendor's cart looks up and immediately gives chase. Two women standing by, try to console the shocked woman. The thief runs towards the stairs to the overhead bridge. The policeman smartly throws his baton at the thief's legs. The thief stumbles and comes crashing down on the platform. A group of men pounce on the thief and catch him. They retrieve the bag as the cop reaches and pins the thief down.

A loud cheer goes up amongst the watching public.

Assumption: You are one of the characters in this story. Visually illustrate the

story as you see it unfolding in front of you through a sequence of minimum 20 frames.

Tell this story from the point of view of any one of the following characters:

- The woman or
- The thief or
- The policeman or
- A bystander standing on the platform

Evaluation criteria:

- Visual narrative structure
- Quality of illustrations
- Character and Environment development

Solution:

In this illustration, I will present the sequence from the perspective of the *policeman*, who witnesses the crime and takes immediate action. The frames will depict the following:

Frame 1: The woman is walking on the crowded platform. People are standing on either side. The train is about to pull in.

Frame 2: The man snatches the woman's bag and runs past her.

Frame 3: The woman screams for help, and the people on the platform look alarmed.

Frame 4: The policeman looks up from the vendor's cart, his eyes fixed on the thief.

Frame 5: The thief continues running towards the stairs of the overhead bridge.

Frame 6: The policeman takes out his baton and starts running after the thief.

Frame 7: The thief trips on the policeman's baton thrown at his legs.

Frame 8: The thief stumbles and falls onto the platform, with people looking on in shock.

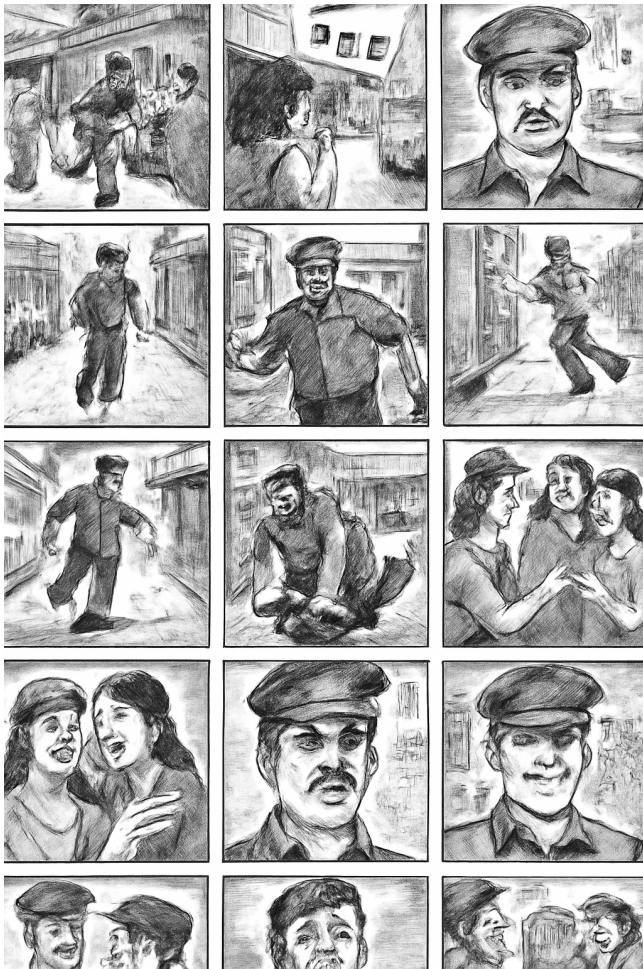
Frame 9: A group of men runs toward the thief and captures him.

Frame 10: The policeman reaches the thief and helps hold him down.

Frame 11: The bag is handed back to the woman, who is now standing with the two women who had been consoling her.

Frame 12: The crowd cheers as the policeman stands tall, proud of his quick actions.

Frame 13–20: These frames show further details of the environment: close-ups of the woman's relief, the thief's expressions, the crowd's reactions, and the police officer being congratulated by bystanders.



Quick Tip

When illustrating a sequence, make sure each frame flows logically into the next, maintaining consistency in character design and environment. Keep the action dynamic to enhance the storytelling.

Q6. Present road side waste containers are normally dirty, stinking and spilling over. Design waste container bin(s) to be used in public places for segregation of the following categories of waste:

- (a) Different types of packaging
- (b) Wet and Dry organic waste
- (c) Organic food waste
- (d) All other kinds of leftover.

Solution:

Step 1: Understand the problem.

The waste containers need to be designed with features that will allow them to

store and segregate different categories of waste. These bins should be rugged and movable to allow easy transportation for disposal.

Step 2: Design considerations.

- Containers should be compartmentalized to separate different waste types: packaging, organic waste, food waste, and other leftovers.
- Each bin must be clearly labeled for specific waste types, making it easy for people to use.
- The design must prevent waste from spilling over, with secure lids or covers for waste containment.
- The container should have wheels for easy movement to the disposal site.
- Materials should be durable, weather-resistant, and easy to clean to maintain hygiene and avoid odor buildup.

Final Answer:

Design the container(s) to be rugged and movable so that the waste can be transported for disposal.



Quick Tip

Design waste containers with consideration for ease of use, portability, and hygiene. Segregating waste and labeling bins correctly is key to keeping waste management effective.