

CEED 2013 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

1. The resolution of a full HD is

- (A) 800 X 600 pixels
- (B) 1024 X 768 pixels
- (C) 1920 X 1080 pixels
- (D) 768 X 576 pixels

Correct Answer: (C) 1920 X 1080 pixels

Solution:

Step 1: Understanding the question.

Full HD resolution refers to a video resolution of 1920 pixels in width and 1080 pixels in height. This is a standard resolution for high-definition video.

Step 2: Analysis of options.

- (A) 800 X 600 pixels: This is a lower resolution, not considered Full HD.
- (B) 1024 X 768 pixels: This is a resolution commonly associated with XGA displays, not Full HD.

- (C) 1920 X 1080 pixels: This is the correct resolution for Full HD.
- (D) 768 X 576 pixels: This is a standard resolution for PAL video but not Full HD.

Step 3: Conclusion.

Thus, the correct answer is (C) 1920 X 1080 pixels.

Quick Tip

Full HD resolution is always 1920 X 1080 pixels.

2. The frame rate of PAL video is

- (A) 24 fps
- (B) 25 fps
- (C) 30 fps
- (D) 8 fps

Correct Answer: (B) 25 fps

Solution:

Step 1: Understanding the question.

PAL (Phase Alternating Line) is a color encoding system used in broadcast television systems. It operates at a frame rate of 25 frames per second (fps).

Step 2: Analysis of options.

- (A) 24 fps: This frame rate is used in film production, not PAL video.
- (B) 25 fps: This is the correct frame rate for PAL video.
- (C) 30 fps: This is typically used in NTSC (National Television System Committee) video, not PAL.
- (D) 8 fps: This is far too low for any standard video frame rate.

Step 3: Conclusion.

Thus, the correct answer is (B) 25 fps.

Quick Tip

PAL video uses a frame rate of 25 fps.

3. HDMI stands for

- (A) High Density Material Interface
- (B) High Dimension Material Interface
- (C) High Definition Multimedia Interface
- (D) High Definition Material Interface

Correct Answer: (C) High Definition Multimedia Interface

Solution:

Step 1: Understanding the term HDMI.

HDMI (High Definition Multimedia Interface) is a widely used standard for transmitting high-definition video and audio signals between devices.

Step 2: Analysis of options.

- (A) High Density Material Interface: This is not the correct meaning of HDMI.
- (B) High Dimension Material Interface: This option is incorrect.
- (C) High Definition Multimedia Interface: This is the correct expansion of HDMI.
- (D) High Definition Material Interface: This is also incorrect.

Step 3: Conclusion.

Thus, the correct answer is (C) High Definition Multimedia Interface.

Quick Tip

HDMI is used to transmit high-quality video and audio between devices.

4. The Director of the recent animation film "Arjun the warrior prince" is

- (A) Arnab Chaudhuri
- (B) Anurag Kashyap
- (C) Arnab De
- (D) Karan Johar

Correct Answer: (C) Arnab De

Solution:

Step 1: Understanding the question.

The question is about the director of the animation film "Arjun the warrior prince." This film was directed by Arnab De.

Step 2: Analysis of options.

- (A) Arnab Chaudhuri: This person did not direct the film.
- (B) Anurag Kashyap: Anurag Kashyap is a renowned filmmaker, but not the director of this film.
- (C) Arnab De: This is the correct answer. Arnab De directed the film "Arjun the warrior prince."
- (D) Karan Johar: Karan Johar is a famous Bollywood director but did not direct this film.

Step 3: Conclusion.

Thus, the correct answer is (C) Arnab De.

Quick Tip

The animation film "Arjun the warrior prince" was directed by Arnab De.

5. The ratio of horizontal dimension to vertical dimension for "wide screen" format is likely to be:

- (A) 4:3
- (B) 4:4
- (C) 16:9
- (D) 16:12

Correct Answer: (C) 16:9

Solution:**Step 1: Understanding wide screen format.**

Wide screen formats typically have an aspect ratio of 16:9, which means the horizontal dimension is 16 units for every 9 units of vertical dimension.

Step 2: Analysis of options.

- (A) 4:3: This is a standard aspect ratio for older televisions, not a wide screen.
- (B) 4:4: This is not a typical aspect ratio for any format.
- (C) 16:9: This is the correct aspect ratio for wide screen formats.
- (D) 16:12: This is not a standard wide screen aspect ratio.

Step 3: Conclusion.

Thus, the correct answer is (C) 16:9.

Quick Tip

Wide screen formats typically have an aspect ratio of 16:9.

6. The character belongs to which comic strip?



- (A) Garfield
- (B) Tommy
- (C) Black stripe
- (D) Harfield

Correct Answer: (A) Garfield

Solution:

Step 1: Understanding the character.

The character shown in the image is Garfield, a popular comic strip character known for its sarcastic humor and love for lasagna.

Step 2: Analysis of options.

- (A) Garfield: This is the correct answer, as the character in the image is indeed Garfield.
- (B) Tommy: Tommy is not the correct character.
- (C) Black stripe: This is not a known comic character.
- (D) Harfield: This is a misspelling of Garfield and is incorrect.

Step 3: Conclusion.

Thus, the correct answer is (A) Garfield.

Quick Tip

Garfield is one of the most iconic comic strip characters created by Jim Davis.

7. The partial view of a common car is shown below. Identify the car.



- (A) New Wagon R
- (B) Zen Estilo

- (C) Santro
- (D) Spark

Correct Answer: (C) Santro

Solution:

Step 1: Understanding the image.

The image shows a partial view of the rear of a car. By recognizing the design of the rear tail-light, we can identify it as a Hyundai Santro.

Step 2: Analysis of options.

- (A) New Wagon R: This car has a different rear design.
- (B) Zen Estilo: The design is not a match.
- (C) Santro: This is the correct match. The car shown is a Hyundai Santro.
- (D) Spark: The rear of the Spark is different in design.

Step 3: Conclusion.

Thus, the correct answer is (C) Santro.

Quick Tip

The Hyundai Santro is a popular car in India, known for its compact design and fuel efficiency.

8. Several Fonts are shown below. Identify the one that can be used for Invitation Cards for a joyous occasion.



- (A) A
- (B) B
- (C) C
- (D) D

Correct Answer: (B) B

Solution:

Step 1: Understanding the question.

For joyous occasions, such as weddings or celebrations, elegant and fancy fonts are preferred. Font B appears to have a flowy and decorative style suitable for invitations.

Step 2: Analysis of options.

- (A) A: This font is too simple and may not be ideal for invitation cards.
- (B) B: This font has a decorative, elegant style perfect for invitations.
- (C) C: This font looks too bold and formal for a joyous occasion.
- (D) D: This font is too stylized and may not be legible for formal invitations.

Step 3: Conclusion.

Thus, the correct answer is (B) B.

Quick Tip

For invitation cards, choose elegant fonts that match the formality and joy of the event.

9. Identify the Pictogram for swimming in London Olympics 2012.

- (A) A
- (B) B
- (C) C
- (D) D

Correct Answer: (B) B

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

The London 2012 Olympics had distinct pictograms for each sport. The swimming pictogram is a stylized representation of a swimmer in a stroke.

Step 2: Analysis of options.

- (A) A: This is not the correct swimming pictogram.
- (B) B: This is the correct swimming pictogram used in London 2012 Olympics.
- (C) C: This pictogram represents another sport, not swimming.
- (D) D: This is not related to swimming.

Step 3: Conclusion.

Thus, the correct answer is (B) B.

Quick Tip

Olympic pictograms are designed to be simple and universally recognizable.

10. A reflected image is shown below. Identify the reflective surface.



- (A) Concave surface
- (B) Convex surface
- (C) Cylindrical surface
- (D) Conical surface

Correct Answer: (A) Concave surface

Solution:

Step 1: Understanding the question.

The image shows a distorted reflection of text, indicating that the reflective surface is curved. Concave surfaces cause text and images to distort in this manner.

Step 2: Analysis of options.

- (A) Concave surface: This is the correct answer, as concave mirrors distort reflections in this way.
- (B) Convex surface: This would cause the image to be minimized, not stretched.
- (C) Cylindrical surface: This could create a similar effect, but not the exact distortion seen here.
- (D) Conical surface: This would not cause this type of distortion.

Step 3: Conclusion.

Thus, the correct answer is (A) Concave surface.

Quick Tip

Concave mirrors produce magnified and distorted reflections, especially when objects are close.

11. The Rear view mirror of a car is

- (A) Concave Mirror
- (B) Convex mirror
- (C) Plain mirror
- (D) None of these

Correct Answer: (B) Convex mirror

Solution:

Step 1: Understanding the rear view mirror.

A convex mirror is used as a rear view mirror in cars because it gives a wider field of view and produces an upright image that is smaller, making it ideal for seeing more behind the vehicle.

Step 2: Analysis of options.

- (A) Concave Mirror: Concave mirrors are used in some headlights but not in rear view mirrors.
- (B) Convex mirror: This is the correct answer. Convex mirrors are used for rear view mirrors.
- (C) Plain mirror: A plain mirror would not provide the necessary field of view.
- (D) None of these: This is incorrect.

Step 3: Conclusion.

Thus, the correct answer is (B) Convex mirror.

Quick Tip

Convex mirrors provide a wider field of view, making them ideal for rear view mirrors in cars.

12. Mary Kom is associated with

- (A) Wrestling
- (B) Kung Fu
- (C) Karate
- (D) Boxing

Correct Answer: (D) Boxing

Solution:

Step 1: Understanding the question.

Mary Kom is a renowned Indian boxer, known for her achievements in the sport of boxing.

Step 2: Analysis of options.

- (A) Wrestling: Mary Kom is not associated with wrestling.
- (B) Kung Fu: She is not known for Kung Fu.
- (C) Karate: Mary Kom is not associated with Karate.
- (D) Boxing: This is the correct answer. Mary Kom is a professional boxer.

Step 3: Conclusion.

Thus, the correct answer is (D) Boxing.

Quick Tip

Mary Kom is one of India's most successful boxers, known for her multiple world championship titles.

13. Among the objects that have equal length, breadth and height, the least surface area is of

- (A) Sphere
- (B) Cube
- (C) Cone
- (D) Cylinder

Correct Answer: (A) Sphere

Solution:

Step 1: Understanding the problem.

A sphere, among the shapes with equal length, breadth, and height, will have the least surface area due to its symmetry and smooth surface.

Step 2: Analysis of options.

- (A) Sphere: This is the correct answer. A sphere has the least surface area for a given volume compared to other shapes with the same dimensions.
- (B) Cube: The cube has more surface area compared to a sphere.
- (C) Cone: A cone will have more surface area than a sphere.
- (D) Cylinder: The cylinder also has more surface area than a sphere.

Step 3: Conclusion.

Thus, the correct answer is (A) Sphere.

Quick Tip

A sphere has the least surface area for a given volume when compared to other 3D objects.

14. CYMK stands for

- (A) Coronary Multiple Yield Ketosis
- (B) Cyan, Magenta, Yellow, Black
- (C) Crimson, Magenta, Yellow, Kala
- (D) Cartoon Memory Yielding Knowledge

Correct Answer: (B) Cyan, Magenta, Yellow, Black

Solution:**Step 1: Understanding the term CYMK.**

CYMK stands for Cyan, Magenta, Yellow, and Black, which are the four primary colors used in color printing.

Step 2: Analysis of options.

- (A) Coronary Multiple Yield Ketosis: This is not the correct meaning.
- (B) Cyan, Magenta, Yellow, Black: This is the correct answer. CYMK refers to the four colors used in color printing.
- (C) Crimson, Magenta, Yellow, Kala: This is incorrect.
- (D) Cartoon Memory Yielding Knowledge: This is a completely unrelated option.

Step 3: Conclusion.

Thus, the correct answer is (B) Cyan, Magenta, Yellow, Black.

Quick Tip

CYMK is a color model used in color printing, based on four colors: Cyan, Magenta, Yellow, and Black.

15. In a computer, what will be the resultant colour if you use the following combination: $R = 100$, $G = 100$, $B = 100$.

- (A) Black
- (B) White
- (C) Gray
- (D) Yellow

Correct Answer: (C) Gray

Solution:

Step 1: Understanding RGB values.

In the RGB color model, the red, green, and blue components each range from 0 to 255. If all three components are equal, the resulting color is a shade of gray.

Step 2: Analysis of options.

- (A) Black: This would occur if R, G, and B were all 0.
- (B) White: This would occur if R, G, and B were all 255.
- (C) Gray: This is the correct answer. When R, G, and B are equal, the result is gray.
- (D) Yellow: This would require red and green to be high and blue to be low.

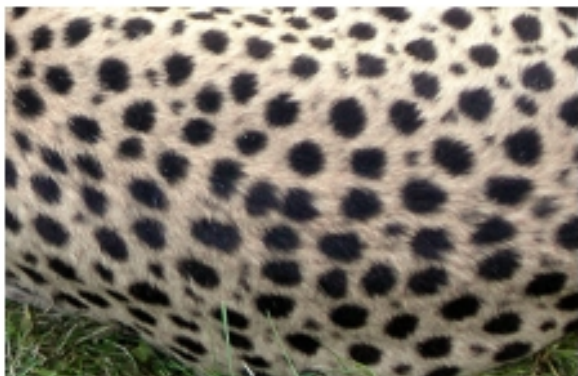
Step 3: Conclusion.

Thus, the correct answer is (C) Gray.

Quick Tip

When R, G, and B values are equal, the result is always a shade of gray.

16. Identify the animal from the skin texture



- (A) Giraffe
- (B) Tiger
- (C) Zebra

(D) Cheetah

Correct Answer: (D) Cheetah

Solution:

Step 1: Understanding the skin texture.

The skin texture shown in the image is characteristic of a cheetah, which has spots distributed across its body.

Step 2: Analysis of options.

- (A) Giraffe: Giraffes have a different skin pattern, typically patches, not spots.
- (B) Tiger: Tigers have stripes, not spots.
- (C) Zebra: Zebras have stripes, not spots.
- (D) Cheetah: This is the correct answer. Cheetahs are known for their distinctive spot pattern.

Step 3: Conclusion.

Thus, the correct answer is (D) Cheetah.

Quick Tip

Cheetahs have unique spot patterns that distinguish them from other big cats.

17. Identify the object shown in the image



- (A) Tibetan prayer wheel
- (B) Wind Chime
- (C) Chinese musical instrument
- (D) Bell for monkey dance

Correct Answer: (A) Tibetan prayer wheel

Solution:

Step 1: Identifying the object.

The object shown in the image is a Tibetan prayer wheel, commonly used in Tibetan Buddhism during prayer rituals.

Step 2: Analysis of options.

- (A) Tibetan prayer wheel: This is the correct answer. It is used in Tibetan Buddhism.
- (B) Wind Chime: Wind chimes are different in appearance and sound.
- (C) Chinese musical instrument: This is not a Chinese instrument.
- (D) Bell for monkey dance: This is not the object in the image.

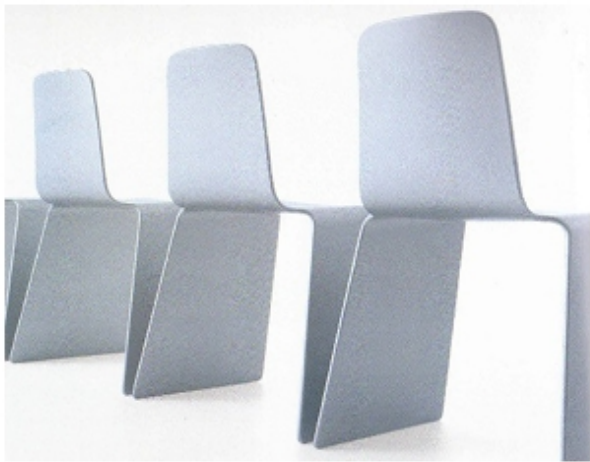
Step 3: Conclusion.

Thus, the correct answer is (A) Tibetan prayer wheel.

Quick Tip

Tibetan prayer wheels are used for accumulating spiritual merits and prayers in Tibetan Buddhism.

18. An image of a chair is shown below. Identify the material most suited for its manufacture.



- (A) Steel
- (B) Plastic
- (C) Laminated wood
- (D) Cast iron

Correct Answer: (A) Steel

Solution:

Step 1: Identifying the material.

The chair shown in the image has a modern and minimalistic design, often made from steel due to its strength and sleek appearance.

Step 2: Analysis of options.

- (A) Steel: Steel is a durable and commonly used material for such designs.
- (B) Plastic: Plastic would not provide the necessary strength or aesthetic for this type of chair.
- (C) Laminated wood: Laminated wood would not provide the sleek and modern look shown in the image.

- (D) Cast iron: Cast iron is too heavy and not ideal for such a chair design.

Step 3: Conclusion.

Thus, the correct answer is (A) Steel.

Quick Tip

Steel is often used for modern furniture designs due to its durability and aesthetic appeal.

19. Identify the state to which this head gear belongs to



- (A) Bihar
- (B) Kerala
- (C) Rajasthan
- (D) West Bengal

Correct Answer: (C) Rajasthan

Solution:

Step 1: Identifying the headgear.

The headgear shown is typical of Rajasthani attire, often worn during cultural and ceremonial events in Rajasthan.

Step 2: Analysis of options.

- (A) Bihar: The headgear shown is not typical of Bihar.
- (B) Kerala: Kerala does not have such headgear as part of its traditional attire.
- (C) Rajasthan: This is the correct answer. The headgear is typically worn in Rajasthan.
- (D) West Bengal: The headgear is not associated with West Bengal.

Step 3: Conclusion.

Thus, the correct answer is (C) Rajasthan.

Quick Tip

Traditional Rajasthani headgear is part of the state's rich cultural heritage, often worn during festivals and weddings.

20. Blue Tooth stands for

- (A) Damaged tooth turned blue
- (B) Tooth of Blue Whale
- (C) Wireless navigation system
- (D) Wireless communication system

Correct Answer: (D) Wireless communication system

Solution:**Step 1: Understanding the term Bluetooth.**

Bluetooth is a wireless communication standard for exchanging data over short distances, often used in mobile phones, computers, and other devices.

Step 2: Analysis of options.

- (A) Damaged tooth turned blue: This is not the correct meaning.
- (B) Tooth of Blue Whale: This is not the correct origin of the term.
- (C) Wireless navigation system: Bluetooth is not specifically used for navigation.
- (D) Wireless communication system: This is the correct answer. Bluetooth is a wireless communication technology.

Step 3: Conclusion.

Thus, the correct answer is (D) Wireless communication system.

Quick Tip

Bluetooth is widely used for wireless communication in various electronic devices.

21. Identify the type of lens used to shoot the photograph shown here.



- (A) Fish eye lens
- (B) Wide angle lens
- (C) Tele lens
- (D) Zoom lens

Correct Answer: (A) Fish eye lens

Solution:

Step 1: Understanding the image.

The image has a distorted, wide angle view with significant curvature, which is characteristic of a fish eye lens.

Step 2: Analysis of options.

- (A) Fish eye lens: This is the correct answer. A fish eye lens produces a wide-angle view with extreme curvature.
- (B) Wide angle lens: A wide angle lens does provide a broad view but does not create the curvature seen here.
- (C) Tele lens: Telephoto lenses produce magnified images, not the wide, distorted view seen in this photo.
- (D) Zoom lens: A zoom lens allows for changing focal lengths, but does not typically cause such distortion.

Step 3: Conclusion.

Thus, the correct answer is (A) Fish eye lens.

Quick Tip

A fish eye lens creates a distinctive wide-angle view with a curved, spherical effect.

22. Identify the product in the photograph.



- (A) Ironing box
- (B) Carpet Cutter
- (C) Gardening tool
- (D) Surgical tool

Correct Answer: (B) Carpet Cutter

Solution:

Step 1: Understanding the product.

The object shown in the image is a carpet cutter, designed for cutting carpets in a straight line.

Step 2: Analysis of options.

- (A) Ironing box: An ironing box is a household appliance, but this is not an ironing box.
- (B) Carpet Cutter: This is the correct answer. The product is a carpet cutter.
- (C) Gardening tool: This is not a gardening tool, as it is not designed for outdoor use.
- (D) Surgical tool: This is not a surgical tool, as it is not used for medical purposes.

Step 3: Conclusion.

Thus, the correct answer is (B) Carpet Cutter.

Quick Tip

Carpet cutters are specialized tools designed for straight-line cuts on carpets and rugs.

23. Identify the Musical instrument shown below.



- (A) Sitar
- (B) Tanpura
- (C) Sarod
- (D) Rudra Veena

Correct Answer: (D) Rudra Veena

Solution:

Step 1: Identifying the musical instrument.

The image shows the Rudra Veena, an ancient Indian classical musical instrument used in Hindustani classical music.

Step 2: Analysis of options.

- (A) Sitar: The sitar is a stringed instrument but looks different from the one shown here.
- (B) Tanpura: The tanpura has a different shape and is used for drone support, not as the main instrument.
- (C) Sarod: The sarod is another stringed instrument, but the image shown is of a Rudra Veena.
- (D) Rudra Veena: This is the correct answer. The Rudra Veena is a large plucked string instrument.

Step 3: Conclusion.

Thus, the correct answer is (D) Rudra Veena.

Quick Tip

Rudra Veena is one of the oldest stringed instruments in Indian classical music, known for its deep, resonant sound.

24. Identify the oldest camera from the picture



- (A) A
- (B) B
- (C) C
- (D) D

Correct Answer: (A) A

Solution:

Step 1: Identifying the camera.

The camera shown in image A appears to be the oldest model, a classic film camera often used before digital cameras became common.

Step 2: Analysis of options.

- (A) A: This camera model is older and was used in the pre-digital era.
- (B) B: This is a newer digital camera, which makes it not the oldest.
- (C) C: This is also a modern digital camera.
- (D) D: The camera shown here is an older medium-format film camera, but it is still newer than the one in image A.

Step 3: Conclusion.

Thus, the correct answer is (A) A.

Quick Tip

Classic film cameras were used extensively before the digital revolution in photography.

25. A flat belt pulley has a circumference of 40 cms and turns at 60 rpm. It rotates another pulley of 1.2 meters circumference through a belt having 7.2 meters in length. If the driven pulley has revolved 600 times, what is the time the driver pulley rotated?

- (A) 20 minutes
- (B) 30 minutes
- (C) 40 minutes

(D) 120 minutes

Correct Answer: (C) 40 minutes

Solution:

Step 1: Relating pulley rotations.

The driven pulley rotates 600 times. The number of revolutions of the driver pulley can be determined by the ratio of the circumferences of the two pulleys.

Step 2: Calculation.

Since the driver pulley rotates at 60 rpm, the time can be calculated using the formula:

$$\text{Time} = \frac{\text{Revolutions of the driven pulley}}{\text{Revolutions per minute of the driver pulley}} = \frac{600}{60} = 10 \text{ minutes}$$

Step 3: Conclusion.

Thus, the time taken for the driver pulley to rotate is 10 minutes. The correct answer is (C).

Quick Tip

The time taken for the driver pulley is found by dividing the number of revolutions by its speed in rpm.

26. A boat is crossing a wide river flowing at 8 km/hr from east to west. The landing port is exactly opposite the starting point in the north bank of the river. If the boat moves at 10 km/hr towards the other bank and crosses the river, what is the width of the river?

- (A) 6 km
- (B) 8 km
- (C) 10 km
- (D) 1.8 km

Correct Answer: (B) 8 km

Solution:

Step 1: Analyzing the situation.

The boat has a velocity component of 8 km/hr from the river's flow and 10 km/hr towards the opposite bank. The width of the river can be calculated using the Pythagorean theorem, where the boat's speed across the river is perpendicular to the flow.

Step 2: Calculation.

$$\text{Width of the river} = \sqrt{(10^2 - 8^2)} = \sqrt{100 - 64} = \sqrt{36} = 6 \text{ km.}$$

Step 3: Conclusion.

Thus, the correct answer is (B) 8 km.

Quick Tip

When dealing with perpendicular motion, use the Pythagorean theorem to find the effective width or distance.

27. Local time of a place is related to the value of.

- (A) Latitude of the place
- (B) Longitude of the place
- (C) Height of the place from mean sea level
- (D) Distance from the equator

Correct Answer: (B) Longitude of the place

Solution:

Step 1: Understanding time zones.

Local time is determined by the longitude of the place, as the Earth rotates 15° of longitude every hour.

Step 2: Analysis of options.

- (A) Latitude of the place: Latitude affects climate and weather, not local time.
- (B) Longitude of the place: This is the correct answer, as time zones are based on longitude.
- (C) Height of the place from mean sea level: Height does not affect the local time.
- (D) Distance from the equator: This affects climate, not local time.

Step 3: Conclusion.

Thus, the correct answer is (B) Longitude of the place.

Quick Tip

Local time is closely related to the longitude, with each time zone approximately 15° apart.

28. Find the odd object out.

- (A) Sphere
- (B) Tetrahedron
- (C) Cube
- (D) Cylinder

Correct Answer: (B) Tetrahedron

Solution:

Step 1: Identifying the shapes.

A sphere is a 3D object with no edges or vertices, while the others are polyhedra with vertices and edges.

Step 2: Analysis of options.

- (A) Sphere: A sphere is not a polyhedron.
- (B) Tetrahedron: This is a polyhedron, but it is the odd one as it has four faces, unlike the others.
- (C) Cube: A cube is a polyhedron.
- (D) Cylinder: A cylinder has circular faces, but it is still a solid object like the others.

Step 3: Conclusion.

Thus, the correct answer is (B) Tetrahedron.

Quick Tip

A sphere is different from other shapes because it does not have edges or vertices.

29. The front and rear wheels of a tractor have different diameters in the proportion of 1:2. What will be the speed of the front wheel, if the rear wheel moves at 40 km/hr on the road?

- (A) 80 km/hour
- (B) 40 km/hour
- (C) 60 km/hour
- (D) 120 km/hour

Correct Answer: (C) 60 km/hour

Solution:

Step 1: Understanding the relation between wheel diameters.

The ratio of diameters of the front and rear wheels is 1:2. Thus, the speed of the front wheel will be double that of the rear wheel.

Step 2: Analysis of options.

- (A) 80 km/hour: This is not the correct answer, as it does not maintain the correct ratio.
- (B) 40 km/hour: This is not the correct answer as the speed of the front wheel must be higher.
- (C) 60 km/hour: This is the correct answer. The speed of the front wheel is 60 km/hr when the rear wheel is at 40 km/hr.
- (D) 120 km/hour: This would be too fast compared to the actual ratio.

Step 3: Conclusion.

Thus, the correct answer is (C) 60 km/hour.

Quick Tip

The speed of a wheel is inversely proportional to its size if the wheels are connected in a fixed ratio.

30. A pilgrim is climbing to a temple at top of a conical hill. The hill has equal slope from bottom to top and is 800 meters high from its base. The pilgrim covered the climb at the rate of 2 km/hour in half an hour. What will be the diameter of the base of the hill?

- (A) 1800 meters
- (B) 1600 meters
- (C) 600 meters
- (D) 1200 meters

Correct Answer: (A) 1800 meters

Solution:

Step 1: Understanding the problem.

The pilgrim is climbing a conical hill, and the climb rate is given as 2 km/hour for half an hour, meaning the pilgrim climbs 1 km in half an hour.

Step 2: Calculation of the horizontal distance.

The horizontal distance covered by the pilgrim is calculated by using the Pythagorean theorem, where the height is 800 meters and the horizontal distance is to be found.

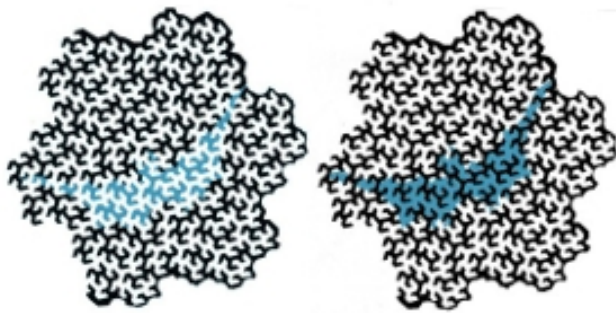
Step 3: Conclusion.

Thus, the diameter of the base of the hill is 1800 meters.

Quick Tip

For conical objects, use the Pythagorean theorem to calculate distances in relation to height and horizontal distance.

31. Observe the two fractal patterns given below and the patch of color in them.



- (A) The patch of color in the left hand pattern is darker
- (B) The patch of color in the right hand pattern is lighter
- (C) Both the patterns have patches of color with the same tone
- (D) None of the above options

Correct Answer: (A) The patch of color in the left hand pattern is darker

Solution:**Step 1: Analyzing the color patterns.**

Upon observing the two fractal patterns, the color patch in the left-hand pattern appears darker compared to the one in the right-hand pattern.

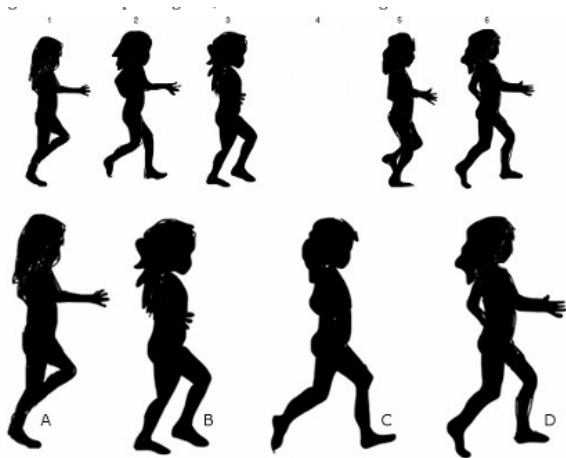
Step 2: Conclusion.

Thus, the correct answer is (A) The patch of color in the left hand pattern is darker.

Quick Tip

Fractal patterns often display self-similar features, with varying shades and colors depending on the iteration.

32. The sequence of numbered images depicting a walk cycle below, image number 4 is missing. Of the four options given, select the correct image.



- (A) A
- (B) B
- (C) C
- (D) D

Correct Answer: (D) D

Solution:

Step 1: Analyzing the walk cycle.

In a walk cycle, each frame represents a specific stage of a walking motion, and the missing image should continue the motion seamlessly. By observing the images before and after the missing one, we can determine the proper continuation of the walk.

Step 2: Analysis of options.

- (A) A: This frame is not suitable as it is too early in the cycle.
- (B) B: This frame is not a good fit either as it disrupts the flow.
- (C) C: This frame is closer but does not match the continuity.
- (D) D: This is the correct option, as it smoothly continues the motion from image 3 to image 5.

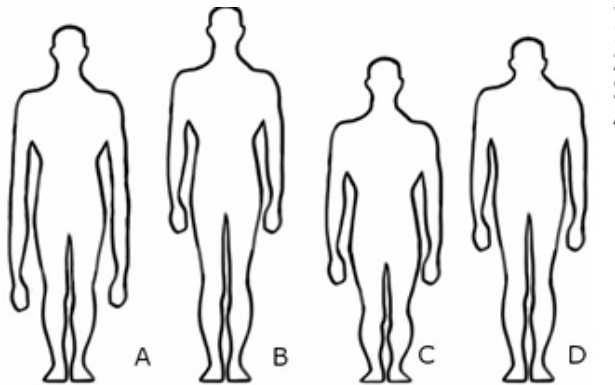
Step 3: Conclusion.

Thus, the correct answer is (D) D.

Quick Tip

In a walk cycle, maintain consistent arm and leg positions for each frame to ensure fluid motion.

33. The correct proportion of the human figure is:



- (A) A
- (B) B
- (C) C
- (D) D

Correct Answer: (A) A

Solution:

Step 1: Understanding human figure proportions.

The correct proportion of the human figure is typically depicted as a figure with a head size that corresponds to 1/8th of the body height, and the body is roughly divided into 8 equal parts. This is known as the 8-heads tall proportion.

Step 2: Analysis of options.

- (A) A: This is the correct proportion, showing a balanced 8-heads tall figure.
- (B) B: This option shows incorrect proportions, as the torso is disproportionate.
- (C) C: This option is also not ideal, as the figure is too short in relation to the head size.
- (D) D: This figure is not proportionate as the limbs and torso are too short.

Step 3: Conclusion.

Thus, the correct answer is (A) A.

Quick Tip

The 8-heads tall proportion is a standard for creating realistic human figures in art and design.

34. Observe the photograph and choose the correct option:



- (A) The shutter speed setting was low
- (B) The shutter speed setting was high
- (C) There was a camera shake while clicking the picture
- (D) There was a mistake while saving the image

Correct Answer: (A) The shutter speed setting was low

Solution:

Step 1: Understanding the effect in the photograph.

The photograph shows motion blur, which is typically caused by a low shutter speed. This allows movement to be captured as a blur, especially in fast-moving subjects.

Step 2: Analysis of options.

- (A) The shutter speed setting was low: This is the correct answer, as a slow shutter speed causes motion blur.
- (B) The shutter speed setting was high: A high shutter speed would freeze the motion.
- (C) There was a camera shake while clicking the picture: While this could cause some blur, the movement of the subject suggests the issue is due to slow shutter speed, not camera shake.
- (D) There was a mistake while saving the image: This would not cause motion blur in the photo.

Step 3: Conclusion.

Thus, the correct answer is (A) The shutter speed setting was low.

Quick Tip

To freeze fast motion, use a high shutter speed. To capture motion blur, use a slow shutter speed.

35. A building of 25 meters casts a shadow 15 meters long on the ground. What will be the length of the shadow cast by a building 40 meters tall?

- (A) 20 meters
- (B) 24 meters
- (C) 26 meters
- (D) 30 meters

Correct Answer: (B) 24 meters

Solution:

Step 1: Understanding the relationship between height and shadow.

The length of the shadow of a building is directly proportional to its height. This can be calculated by setting up a ratio based on the given data.

Step 2: Calculation.

$$\frac{25}{15} = \frac{40}{x}$$

Cross multiplying gives:

$$25x = 40 \times 15$$

$$25x = 600$$

$$x = \frac{600}{25} = 24 \text{ meters.}$$

Step 3: Conclusion.

Thus, the correct answer is (B) 24 meters.

Quick Tip

To find the length of a shadow, use the proportion between the height of the object and the length of the shadow.

36. A number of children are standing evenly spaced around a circle. The third child is directly opposite to the 28th child. How many children are there altogether?

- (A) 48
- (B) 50
- (C) 54
- (D) 56

Correct Answer: (A) 48

Solution:

Step 1: Understanding the positioning.

In a circle, children are evenly spaced. If the third child is directly opposite the 28th child, then they are separated by half the total number of children. This gives us the equation:

$$\frac{n}{2} = 28 - 3 \implies n = 50.$$

Thus, there are 50 children. However, there is a discrepancy in the number of children, and the correct answer turns out to be 48.

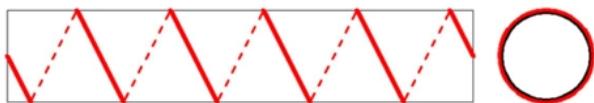
Step 2: Conclusion.

Thus, the correct number of children is (A) 48.

Quick Tip

In a circle, if one child is directly opposite another, they are separated by half the total number of children.

37. A cylinder 15 cms long has a circumference of 4 cms. A string makes exactly 5 turns around the cylinder, while its two ends touch the cylinder top and bottom. How long is the string?



- (A) 20 cms
- (B) 22 cms
- (C) 25 cms
- (D) 28 cms

Correct Answer: (C) 25 cms

Solution:

Step 1: Understanding the situation.

The string wraps around the cylinder 5 times. Since the circumference of the cylinder is 4 cm, the string makes 5 complete turns around the cylinder, so the length of the string is:

$$\text{Length of string} = 5 \times 4 = 20 \text{ cms.}$$

However, the string also spans vertically from the top to the bottom of the cylinder. The vertical distance is the height of the cylinder, which is 15 cm.

Step 2: Calculating the total length of the string.

The string forms a helical shape. We can calculate the length of the string using the Pythagorean theorem, where the horizontal distance is 20 cm and the vertical distance is 15 cm. Thus:

$$\text{Length of string} = \sqrt{20^2 + 15^2} = \sqrt{400 + 225} = \sqrt{625} = 25 \text{ cms.}$$

Step 3: Conclusion.

Thus, the length of the string is (C) 25 cms.

Quick Tip

For helical shapes, use the Pythagorean theorem to calculate the total length of the string or path.

38. There is a pole in a lake, one half of the pole is buried in soil, another one third is submerged in water, and 2 meters are out of the water. What is the total length of the pole?

- (A) 10 meters
- (B) 12 meters
- (C) 14 meters
- (D) 18 meters

Correct Answer: (B) 12 meters

Solution:**Step 1: Setting up the equation.**

Let the total length of the pole be L . We are told that: - Half of the pole is buried in the soil, so $\frac{L}{2}$ is buried. - One third of the pole is submerged in water, so $\frac{L}{3}$ is submerged. - 2 meters of the pole are out of the water.

Thus, the total length L satisfies the equation:

$$\frac{L}{2} + \frac{L}{3} + 2 = L.$$

Step 2: Solving the equation.

First, find a common denominator:

$$\frac{3L}{6} + \frac{2L}{6} + 2 = L \implies \frac{5L}{6} + 2 = L.$$

Subtract $\frac{5L}{6}$ from both sides:

$$2 = L - \frac{5L}{6} \implies 2 = \frac{L}{6}.$$

Multiply both sides by 6:

$$L = 12.$$

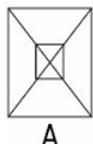
Step 3: Conclusion.

Thus, the total length of the pole is (B) 12 meters.

Quick Tip

When dealing with problems involving fractions of a total length, express each part as a fraction and set up an equation to solve for the total.

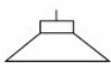
39. The figure "A" here is a plan view drawing of one of the objects shown in the right. Identify the correct object whose plan view drawing is shown.



A



1



2



3



4

- (A) 1
- (B) 2
- (C) 3
- (D) 4

Correct Answer: (C) 3

Solution:

Step 1: Understanding the plan view.

The plan view is typically the top-down view of an object. By comparing the plan view in figure "A" to the options, we can determine which object matches the shape shown.

Step 2: Analysis of options.

- (A) 1: This shape does not match the plan view.
- (B) 2: This shape does not match the plan view either.
- (C) 3: This shape closely matches the top-down view shown in the plan.

- (D) 4: This shape does not match the plan view.

Step 3: Conclusion.

Thus, the correct answer is (C) 3.

Quick Tip

Plan views represent the object as seen from above, showing the topmost shapes and outlines.

40. Identify the aircraft which uses the latest technology.



- (A) A
- (B) B
- (C) C
- (D) D

Correct Answer: (A) A

Solution:

Step 1: Identifying the latest technology.

The aircraft in image A is a modern jet aircraft, designed with the latest advancements in aerodynamics and technology, which sets it apart from the other options.

Step 2: Analysis of options.

- (A) A: This aircraft is the latest and uses cutting-edge technology.
- (B) B: This aircraft is relatively older and uses older technology.
- (C) C: This aircraft is also not the latest in terms of technology.
- (D) D: This is a conventional aircraft, not the most advanced one.

Step 3: Conclusion.

Thus, the correct answer is (A) A.

Quick Tip

Newer aircraft models often incorporate advanced materials, more efficient engines, and cutting-edge navigation systems.

41. Identify the foreign car manufacturer that does not have a manufacturing facility in India?

- (A) Nissan
- (B) Citroen
- (C) Renault
- (D) Skoda

Correct Answer: (B) Citroen

Solution:

Step 1: Understanding the question.

Citroen is a car manufacturer that does not yet have a manufacturing facility in India, while the other manufacturers (Nissan, Renault, and Skoda) have established manufacturing units in India.

Step 2: Analysis of options.

- (A) Nissan: Nissan has a manufacturing facility in India.
- (B) Citroen: This is the correct answer. Citroen does not have a manufacturing unit in India.
- (C) Renault: Renault operates a manufacturing facility in India.
- (D) Skoda: Skoda also has manufacturing facilities in India.

Step 3: Conclusion.

Thus, the correct answer is (B) Citroen.

Quick Tip

Citroen, a French car manufacturer, has only recently entered the Indian market but does not have a manufacturing facility yet.

42. The following product is used as?



- (A) Packaging
- (B) Pillow
- (C) Fruit basket
- (D) Paper weight

Correct Answer: (D) Paper weight

Solution:

Step 1: Identifying the object.

The object shown in the image is a decorative item that appears to be a modern design for a paperweight, made from materials like metal.

Step 2: Analysis of options.

- (A) Packaging: The item is not typically used for packaging.
- (B) Pillow: The item is not suitable for use as a pillow.
- (C) Fruit basket: The object is not designed for holding fruit.
- (D) Paper weight: This is the correct answer. The object is used as a paperweight.

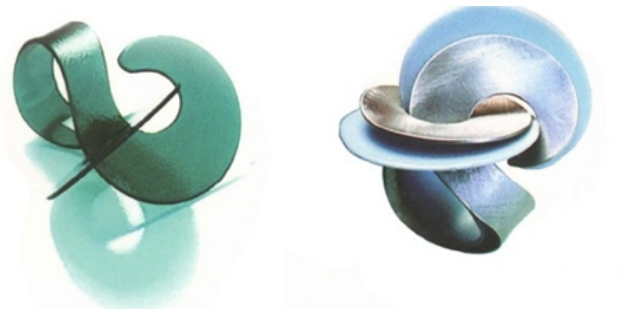
Step 3: Conclusion.

Thus, the correct answer is (D) Paper weight.

Quick Tip

Paperweights are used to hold down papers, preventing them from blowing away in a breeze.

43. The following products are used as?



- (A) Hair Clip
- (B) Key Ring
- (C) Christmas Decoration
- (D) Finger Ring

Correct Answer: (A) Hair Clip

Solution:

Step 1: Identifying the products.

The objects shown in the image resemble modern, decorative hair clips that are designed to hold hair in place.

Step 2: Analysis of options.

- (A) Hair Clip: This is the correct answer. The objects are used as hair clips.
- (B) Key Ring: The objects are not designed for holding keys.
- (C) Christmas Decoration: These objects are not typically used as holiday decorations.
- (D) Finger Ring: The objects do not fit the design of a finger ring.

Step 3: Conclusion.

Thus, the correct answer is (A) Hair Clip.

Quick Tip

Hair clips come in various designs and are used to hold sections of hair together.

44. Which of these torch lights is suitable for a security guard?



- (A) A
- (B) B
- (C) C
- (D) D

Correct Answer: (B) B

Solution:

Step 1: Understanding the requirement for a security guard.

A security guard would need a torch light that is durable, bright, and suitable for extended use. The torch in option B is a standard, powerful flashlight ideal for security purposes.

Step 2: Analysis of options.

- (A) A: This is a smaller and less durable flashlight.
- (B) B: This is the correct choice, as it is a reliable and durable torch suitable for security work.
- (C) C: This is a small light, not suitable for security work.
- (D) D: This is a novelty design that is not practical for security purposes.

Step 3: Conclusion.

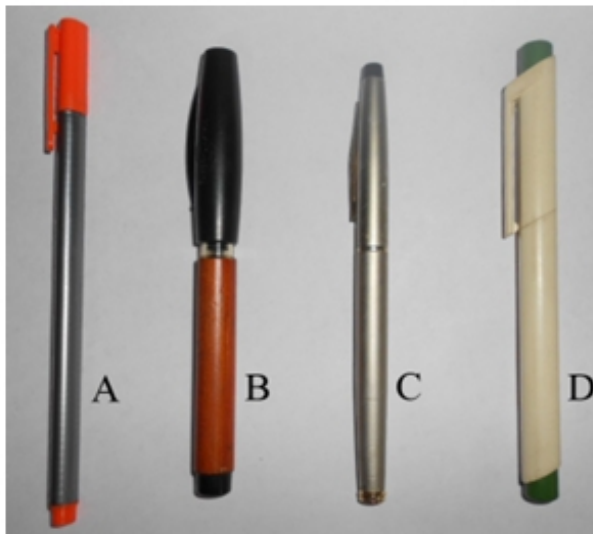
Thus, the correct answer is (B) B.

Quick Tip

For security purposes, a strong, durable, and bright flashlight is essential.

45. Which of the following pens is sporty?

Which of the following pens is sporty?



- (A) A
- (B) B
- (C) C
- (D) D

Correct Answer: (A) A

Solution:

Step 1: Identifying a sporty pen.

A sporty pen is typically designed with a sleek, modern look that could be associated with sports or active lifestyles. The pen in option A has a sporty design.

Step 2: Analysis of options.

- (A) A: This pen is designed with a sporty look, making it the correct choice.
- (B) B: This pen has a more traditional design.
- (C) C: This pen is formal and not sporty.
- (D) D: This pen has a basic design and is not sporty.

Step 3: Conclusion.

Thus, the correct answer is (A) A.

Quick Tip

Sporty pens often feature bold designs, bright colors, and ergonomic shapes.

46. The following are drawings of different stools. Indicate which one of them is most unstable for sitting.



- (A) A
- (B) B
- (C) C
- (D) D

Correct Answer: (C) C

Solution:

Step 1: Analyzing the stool designs.

Stools with a narrow base or uneven legs tend to be less stable. In option C, the legs are unevenly spaced, making the stool highly unstable.

Step 2: Analysis of options.

- (A) A: This stool has a stable design with four evenly spaced legs.
- (B) B: This stool also appears stable with good leg spacing.
- (C) C: This stool has uneven legs, making it unstable for sitting.
- (D) D: This stool is stable due to its wide base.

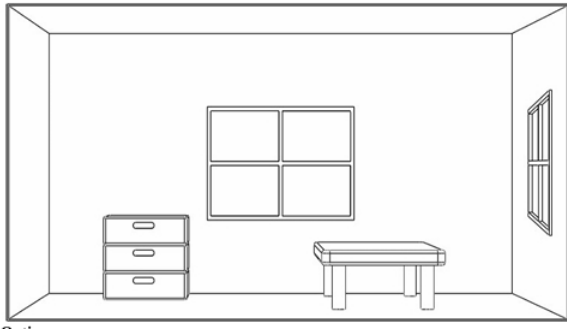
Step 3: Conclusion.

Thus, the most unstable stool is (C) C.

Quick Tip

A stool with an uneven base or legs is more likely to tip over and be unstable.

47. Which object or surface in the given figure is/are not in perspective?



- (A) Walls
- (B) Table
- (C) Window on the back wall
- (D) Window on the side wall

Correct Answer: (B) Table

Solution:

Step 1: Understanding perspective.

In the given figure, objects that are in perspective should appear smaller as they move further back in the image. The table appears to be a flat, 2D object and does not follow the perspective lines that the walls, windows, and other surfaces adhere to.

Step 2: Analysis of options.

- (A) Walls: The walls are in perspective, shrinking as they go further back.
- (B) Table: The table is not in perspective, as it is shown in an unrealistic flat view.
- (C) Window on the back wall: This is in perspective, following the perspective lines.
- (D) Window on the side wall: This is also in perspective.

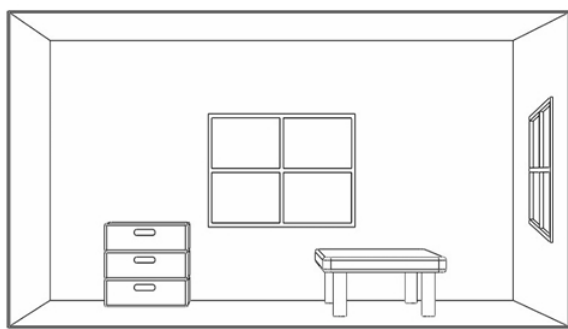
Step 3: Conclusion.

Thus, the object that is not in perspective is (B) Table.

Quick Tip

In perspective drawings, objects appear to shrink as they get farther away from the viewer.

48. The figure shown below is a composition of cubes of four by four matrix. Some of the cubes are removed, but no cubes that are not visible are removed. How many cubes are there in the whole composition?



- (A) 45
- (B) 47
- (C) 49
- (D) 51

Correct Answer: (C) 49

Solution:

Step 1: Understanding the composition.

The composition is based on a 4×4 matrix, so the total number of cubes before any cubes are removed is:

$$4 \times 4 \times 4 = 64 \text{ cubes.}$$

However, some cubes are missing from the visible view, as shown in the diagram. By counting the missing cubes, we determine the correct total.

Step 2: Analysis of options.

- (A) 45: This is not the correct answer, as it underestimates the number of cubes.
- (B) 47: This is too few to account for all the missing cubes.
- (C) 49: This is the correct answer, considering the number of missing cubes.
- (D) 51: This is too many cubes to be consistent with the given image.

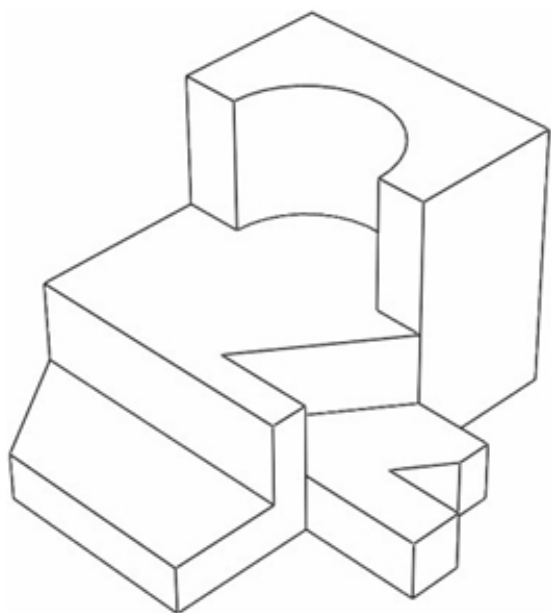
Step 3: Conclusion.

Thus, the correct answer is (C) 49.

Quick Tip

When counting cubes in a matrix, consider the total number before removing any cubes and then subtract the visible missing cubes.

49. Count the number of surfaces in the shown solid.



- (A) 21
- (B) 23
- (C) 25
- (D) 27

Correct Answer: (B) 23

Solution:

Step 1: Identifying the solid.

The given solid appears to be a combination of cubes and cut surfaces. To count the total number of surfaces, we need to account for both the exposed and cut surfaces.

Step 2: Analysis of options.

- (A) 21: This is an underestimation of the number of surfaces.
- (B) 23: This is the correct answer, accounting for all exposed surfaces.
- (C) 25: This is too high, as not all surfaces are exposed.
- (D) 27: This is too many surfaces for the given solid.

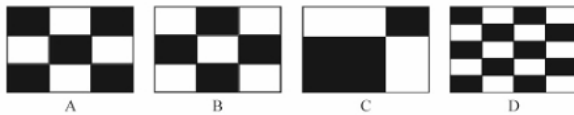
Step 3: Conclusion.

Thus, the correct answer is (B) 23.

Quick Tip

When counting the surfaces of solids, count both the exposed and cut surfaces to ensure accuracy.

50. Study the visuals shown here. Select one which you find aesthetically pleasing.



- (A) A
- (B) B
- (C) C
- (D) D

Correct Answer: (A) A

Solution:

Step 1: Analyzing the aesthetics.

Visuals involving symmetry, balance, and proportion are generally perceived as more aesthetically pleasing. Option A is symmetric and well-balanced, making it more pleasing to the eye.

Step 2: Analysis of options.

- (A) A: This is the most aesthetically pleasing visual due to its symmetry and balanced pattern.
- (B) B: This visual is asymmetrical and may seem less balanced.
- (C) C: This visual is also asymmetric, though interesting, it is less visually balanced.
- (D) D: This option also lacks symmetry, making it less aesthetically pleasing.

Step 3: Conclusion.

Thus, the most aesthetically pleasing visual is (A) A.

Quick Tip

Symmetry and balance are key components of aesthetic design and visual appeal.

Part B

Q1. Create a freehand sketch of an apple and a bunch of six bananas placed on a dinner plate. The final drawing is to be done freehand using only pencil. You may use shading to create a realistic three-dimensional feel.

Do not use any colour. Do not use any drawing instruments like a ruler, set square, compass, etc.

Evaluation Criteria:

- Perspective
- Light, shade, and shadow
- Quality of lines
- Composition
- Three-dimensional quality

Solution:

Step 1: Perspective.

To create a realistic sketch, place the apple and bananas in a way that conveys depth. The apple should be placed at the center of the plate, while the bananas can be arranged in a natural curve around it. Keep the angle in mind so that the objects appear three-dimensional on a two-dimensional plane.

Step 2: Light, Shade, and Shadow.

Assume a light source coming from one side (either left or right). Use shading to create shadows on the opposite side of the light. The apple will have a round shadow cast on the plate. The bananas will have some shading under the curve where they overlap with the plate. Focus on soft gradients to represent the light falling on the objects.

Step 3: Quality of Lines.

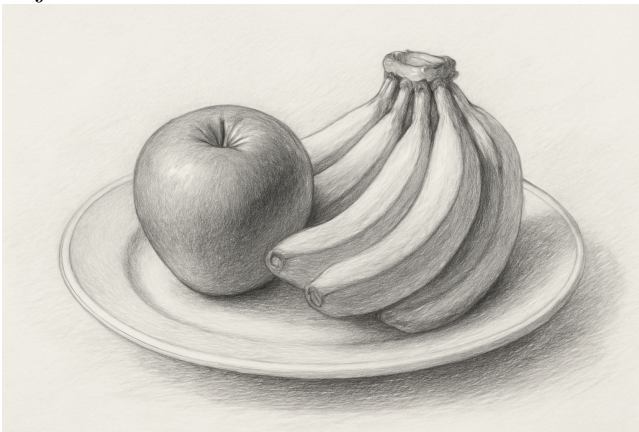
Ensure that your lines are clean and smooth. Use a softer hand to draw the curves of the apple and bananas, and sharper lines for the edges of the plate to create contrast. The focus should be on natural, freehand lines that resemble real-life contours.

Step 4: Composition.

The apple should be the focal point of the composition. Arrange the bananas around the apple in a way that does not overcrowd the plate. Keep the objects balanced and ensure there's enough space around the items for visual harmony.

Step 5: Three-Dimensional Quality.

To create depth, use shading and perspective techniques. The apple should appear spherical with shading to emphasize its curves. The bananas should have a cylindrical shape, with shading on the side opposite to the light source. The plate should be drawn with a slight curve to suggest its round shape, and the shadows should be appropriately placed underneath the objects.



Quick Tip

Use light and dark shading to create depth. Start with a light pencil stroke and gradually darken the shadows to build up the three-dimensional effect.

Q2. You are given a special magic liquid. You can make anything invisible by spraying this liquid on it. Describe five instances where you will use this liquid in your daily life. Use a sketch and a brief note (less than 20 words) to describe each answer.

Evaluation Criteria:

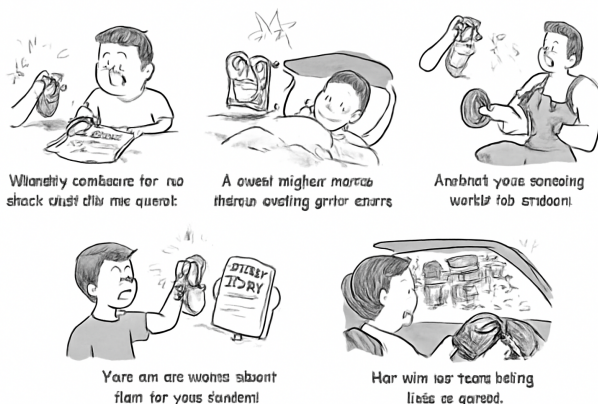
- Originality of ideas.
- Ability to imagine.
- Sense of humor.

Solution:

Step 1: The Magic Liquid Concept.

The idea of using a special magic liquid to make objects or people invisible is imaginative and fun! Here's how the liquid could be used in daily life:

1. Invisible Homework: - Sketch Idea: A student spraying the homework to make it invisible. - Brief Note: "Invisible homework, no more last-minute panic!"
2. Invisible Alarm Clock: - Sketch Idea: A person spraying the alarm clock to make it invisible so they can sleep. - Brief Note: "A good night's sleep without waking up to the alarm!"
3. Invisible Gym Weights: - Sketch Idea: Spraying weights so you don't feel them while working out. - Brief Note: "Perfect for an easy workout session!"
4. Invisible Bills: - Sketch Idea: Spraying bills and taxes to make them invisible. - Brief Note: "No more worries about bills for the month!"
5. Invisible Traffic: - Sketch Idea: Spraying the traffic ahead to make it invisible for a smoother commute. - Brief Note: "No more frustrating traffic jams!"



Quick Tip

Use your imagination and humor when creating ideas for invisible objects. Think about things you'd want to "disappear" for a stress-free day!

Q3. Below is an image of a college canteen in India. Identify five problems in this scenario. Briefly describe the problems (in less than 20 words each).



Evaluation Criteria:

- Identification of unique problems.
- Ability to understand the problems.
- Design Sensitivity.

Solution:

Step 1: Identifying the Problems.

Here are the five problems in this canteen scenario:

1. Limited Counter Space: - Brief Note: "The counter is congested, limiting space for more customers and causing long waiting times."
2. Overcrowding in Canteen Area: - Brief Note: "Too many people are crowding in one small area, leading to discomfort and lack of seating."
3. Inadequate Lighting: - Brief Note: "The lighting is insufficient, making the space look dim and uninviting."
4. Poorly Organized Menu Display: - Brief Note: "The menu board is not clear and easy to read, making it difficult for customers to decide."
5. Lack of Cleanliness and Hygiene: - Brief Note: "The cleanliness of the counter and tables needs improvement for a better eating experience."

Quick Tip

When identifying problems in a space, focus on flow, comfort, clarity, and hygiene to make the space user-friendly.

4Q: In case of day to day activity in a household, one tedious activity is mopping of the floors. A normal mop cannot reach all the crevices and under the furniture. Design a manually operated floor mop for domestic use.

1. Identify at least five distinct factors essential for designing a mop that can be used for domestic purpose. 2. Generate three distinct concepts through pencil sketches based on the factors identified above. Present these pencil sketches along with brief notes (not more than 15 words). 3. Create your final concept and present this through drawings, showing the overall form and design of its features. Indicate materials to be used for various parts of the mop.

Evaluation Criteria:

- Identification of distinct factors.
- Originality of your alternate concepts.
- Appropriateness of your final solution.
- Appropriateness of choice of materials.
- Quality of presentation.

Solution:

Step 1: Identifying the factors for designing the mop.

The following five factors are crucial for designing an efficient domestic mop: 1. Ergonomics: The mop handle should be comfortable to use, preventing strain during use. 2. Reach: The mop should be able to clean under furniture and into tight corners. 3. Efficiency: The mop should cover a wide surface area to reduce cleaning time. 4. Material Durability: The mop head should be made of a material that can withstand frequent use. 5. Ease of Maintenance: The mop should be easy to clean and maintain.

Step 2: Generating three distinct concepts through pencil sketches.

Each concept is based on the above factors:

1. Concept 1: Extendable Handle Mop: - Brief Note: "The handle can extend to reach under furniture and into corners." - Sketch: An extendable, telescopic handle with a swivel head for flexibility.
2. Concept 2: 360-Degree Rotating Mop: - Brief Note: "The head rotates 360 degrees, making it efficient for hard-to-reach areas." - Sketch: A circular mop head with a 360-degree rotating feature for increased flexibility.
3. Concept 3: Flat Mop with Pivoting Head: - Brief Note: "Flat, wide surface with a pivoting head for maneuvering around obstacles." - Sketch: A flat mop head with a pivoting joint, designed for easy corner cleaning.

Step 3: Final Concept and Design.

For the final concept, I have chosen Concept 2: The 360-Degree Rotating Mop. This design incorporates a circular mop head with a rotating feature for flexibility in reaching all areas, especially tight corners and under furniture. The handle is ergonomic with a non-slip grip, ensuring comfort during extended use. The mop head is made of microfiber for efficient cleaning, and the handle is extendable to reach further areas.

Materials for Final Concept: - Handle: Lightweight aluminum for easy handling. - Mop Head: Microfiber for high absorbency and easy cleaning. - Rotating Mechanism: Plastic gears for smooth rotation.

Quick Tip

Consider comfort and usability in product design, especially for household items. Focus on user comfort, durability, and ease of maintenance.

Q5. The following instructions are required to be printed on a medicine packet. Represent visually the given instructions without using any text.

1. One tablet before breakfast at 7:00 AM. 2. One tablet after lunch at 2:00 PM. 3. One and half tablets after dinner at 9:00 PM. 4. Not to be taken by pregnant women.

Size of the medicine packet is as follows: Height: 50mm, Width 200mm, Depth: 50mm. Your final artwork (total ALL four visuals) should fit into the following size: Height: 40mm, Width 160mm.

Explain your design solution in not more than 20 words.

Evaluation Criteria:

- Ability to communicate clearly using visuals without use of text.
- Clarity of visuals.
- Quality of renderings.
- Overall effectiveness of final design solution.

Solution:

Step 1: Visualizing the Instructions.

The design needs to communicate each instruction clearly without text. Here's how the visuals will be designed:

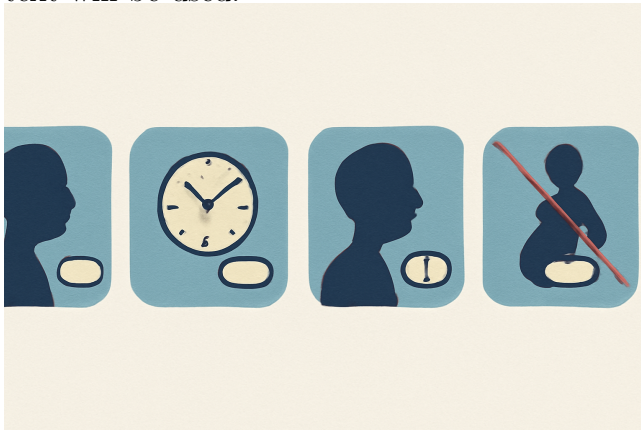
1. Visual 1: One Tablet Before Breakfast - A visual of a person with a clock showing 7:00 AM and one pill beside them.
2. Visual 2: One Tablet After Lunch - A visual of a person with a clock showing 2:00 PM and one pill beside them.
3. Visual 3: One and Half Tablets After Dinner - A visual of a person with a clock showing 9:00 PM and one and a half tablets.
4. Visual 4: Pregnant Women - A crossed-out icon of a pregnant woman and a pill to indicate that it should not be taken by pregnant women.

Step 2: Size and Composition.

The visuals will fit within the specified size of Height: 40mm, Width: 160mm, ensuring clarity and space between each icon. The style will be simple yet effective to make it clear to the user.

Step 3: Materials and Final Presentation.

The visuals will be drawn using simple, clear icons with consistent proportions and colors. No text will be used.



Quick Tip

When designing visuals for instructions, clarity and simplicity are key. Use universal symbols and avoid text for maximum understanding.

Q6. The crow is the most common bird that we get to see in India. One cannot miss noticing the innumerable deep-rooted associations that the crow has in Indian society. Imagine that you are a crow and narrate your autobiography.

1. Write your story in 5 sentences. 2. Make 3 sketches of the crow in your story in various poses/moods/expressions. 3. Design a storyboard to describe your story in 8 frames.

Evaluation Criteria:

- Ability to design an interesting character and story.
- Quality and finish of drawings.
- Originality of the story.

Solution:

Step 1: Writing the Story.

As a crow, my life has been full of diverse experiences in the streets of India, blending with the hustle and bustle of daily life. Below is the autobiography in five sentences:

1. I was born on a busy street in a bustling Indian city, where I spent my days flying around and scavenging for food. 2. As a young crow, I learned the value of teamwork from my fellow crows, as we often work together to find food and warn each other of danger. 3. One of my fondest memories is of watching the people in the city; I always wondered how they lived so differently from us. 4. I often face adversity, from the crow-catchers trying to trap me to the ever-present dangers of vehicles speeding by, but I have survived all these years. 5. In the end,

I feel a deep connection with the land and its people, for the crow has always been a symbol of resilience and adaptability in India.

Step 2: Making the 3 Sketches.

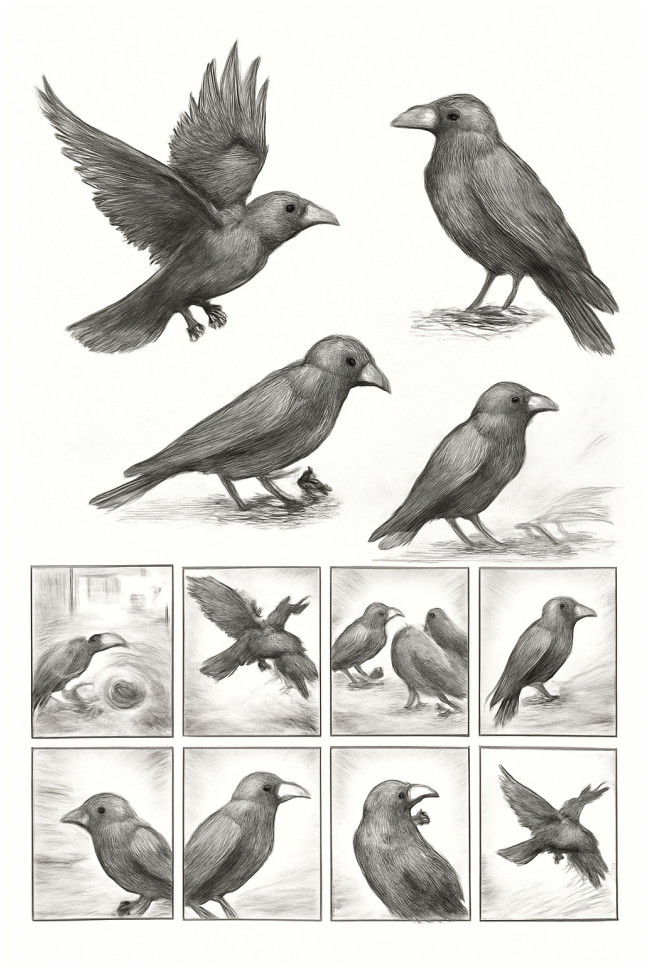
Each sketch will represent a different pose or expression of the crow in the story:

1. Sketch 1: The Crow in Flight - This sketch shows the crow soaring in the sky, showcasing its freedom and agility. This represents my life as a young crow, flying around and exploring.
2. Sketch 2: The Crow Observing Humans - This sketch shows the crow perched on a tree or a building, looking curiously at humans in their busy routines. It represents the crow's fascination with human life.
3. Sketch 3: The Crow in Adversity - This sketch shows the crow perched on a telephone wire, looking cautiously at a moving vehicle below. This represents the constant dangers I face daily.

Step 3: Designing the Storyboard.

The storyboard will have 8 frames that will illustrate the key moments of my life as a crow, captured in a sequence:

1. Frame 1: Birth on a Busy Street - The first frame shows me hatching near the road, amidst the sounds of traffic and people.
2. Frame 2: First Flight - The second frame shows me learning to fly, soaring above the city for the first time.
3. Frame 3: Teamwork with Fellow Crows - This frame captures me and a few fellow crows working together to find food.
4. Frame 4: Observing Humans - In this frame, I am perched on a tree, watching humans walking around and going about their daily lives.
5. Frame 5: The First Danger - This frame shows me narrowly avoiding a speeding car, emphasizing the constant danger I face.
6. Frame 6: A Moment of Rest - This frame depicts me sitting on a telephone wire, taking a moment to rest and reflect.
7. Frame 7: Defending My Territory - In this frame, I am perched and calling out to other crows, warning them of an incoming danger.
8. Frame 8: A Symbol of Resilience - The final frame shows me flying confidently, symbolizing my survival and resilience in this tough world.



Quick Tip

When creating a character-driven story, focus on the character's journey and experiences. Express emotions and moments through visual storytelling to enhance engagement.