

## CEED 2012 Question Paper with Solutions

|                              |                           |                            |
|------------------------------|---------------------------|----------------------------|
| <b>Time Allowed :3 Hours</b> | <b>Maximum Marks :100</b> | <b>Total questions :35</b> |
|------------------------------|---------------------------|----------------------------|

### General Instructions

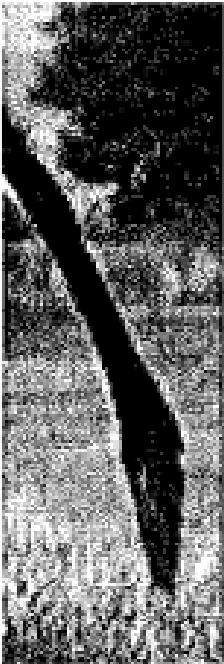
*Instruction:*

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

# Part-A

(Answer all questions)–50 Marks

1. Identify the animal from the tail shown in the image below.



- (A) Horse
- (B) Cow
- (C) Elephant
- (D) Dog

**Correct Answer:** (B) Cow

## **Solution:**

The animal's tail visible in the image closely resembles the type commonly found on cows.

This kind of tail is typically long and thin, ending in a distinctive tuft of hair that looks like a small brush.

Such a tail serves practical purposes, such as helping the animal swat away flies and other insects.

The brush-like tuft at the end is a characteristic feature that differentiates a cow's tail from those of other animals, which might be shorter, bushier, or lack this particular tufted appearance.

### Quick Tip

When identifying animals by features, pay attention to unique characteristics like tail shape, size, and texture.

## 2. At what time of the day was this photograph taken in Central India?



- (A) 11 AM
- (B) 2 PM
- (C) 5 PM
- (D) 8 PM

**Correct Answer:** (C) 5 PM

### Solution:

The photograph clearly shows shadows that are noticeably elongated, a phenomenon that usually occurs during the late afternoon hours.

As the sun begins to descend toward the horizon, its angle becomes lower, causing objects to cast longer shadows.

This effect is a direct result of the sun's position in the sky relative to the Earth's surface.

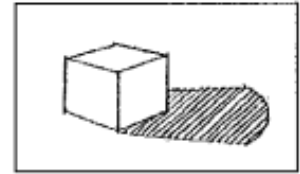
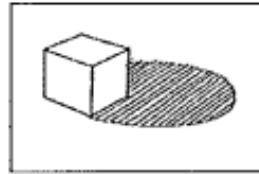
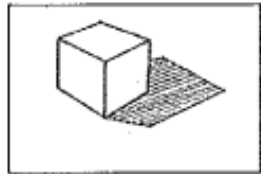
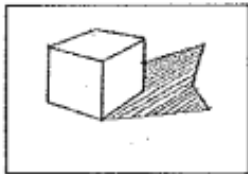
The length and direction of the shadows in the image are consistent with the sun being at a low angle, which typically happens around 5 PM.

Therefore, the elongated shadows strongly indicate that the photograph was taken during this time of the day, capturing the characteristic lighting conditions of the late afternoon.

### Quick Tip

To estimate the time of day in a photograph, observe the length and direction of shadows. Longer shadows usually indicate morning or late afternoon.

**3. A cube is shown with its shadow. Identify the one with the correct shadow.**



(A)

(B)

(C)

(D)

**Correct Answer:** (C)

### Solution:

Option (C) correctly represents the shadow of a cube. The edges and perspective in the shadow align accurately with how a cube would cast a shadow under directional light.

Specifically, the shadow shows straight lines and right angles that correspond to the cube's geometric structure.

The way the shadow tapers and the relative proportions of its sides match the expected projection of a cube's faces when illuminated from a particular angle, confirming that option (C) is the accurate representation.

### Quick Tip

When matching 3D shapes with their shadows, observe the number of visible edges and angles. A cube typically casts a shadow with straight edges and consistent angular proportions.

4. Identify the person from the photograph shown below.



- (A) Arun Jaitley
- (B) S C Bose
- (C) Jyoti Basu
- (D) Farooque Abdulla

**Correct Answer:** (B) S C Bose

**Solution:**

The person in the photograph is Subhas Chandra Bose, popularly known as Netaji. His distinct features, including his sharp facial structure and expressive eyes, along with his iconic attire—such as the characteristic cap and round spectacles—make him easily identifiable.

Netaji's unique style and his significant role in India's freedom struggle have been well-documented, and these visual cues are often used to recognize him in historical photographs.

**Quick Tip**

To identify historical figures, observe unique attributes such as clothing, accessories, or facial features commonly associated with them.

**5. Identify the logo of State Bank of India.**



(A)



(B)



(C)



(D)

(A)

(B)

(C)

(D)

**Correct Answer:** (B)

**Solution:**

Option (B) shows the correct logo of the State Bank of India, which features a distinctive blue circle with a small cut at the bottom center.

This unique design element is symbolic of simplicity and security, emphasizing the bank's dedication to providing safe and trustworthy financial services to its customers.

The circular shape represents unity, completeness, and the continuous cycle of banking and finance, while the blue color conveys a sense of trustworthiness, professionalism, and stability.

The small cut at the bottom center of the circle adds a modern touch to the logo, making it easily recognizable and memorable.

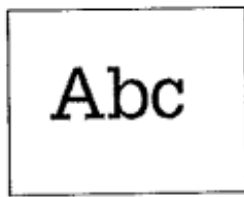
Overall, the logo effectively captures the essence of the State Bank of India's brand identity, reflecting both its rich heritage and forward-looking approach.

**Quick Tip**

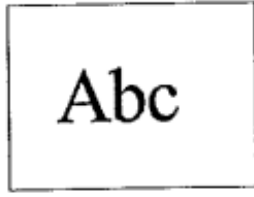
When identifying logos, focus on distinctive shapes, colors, and design elements unique to the brand.

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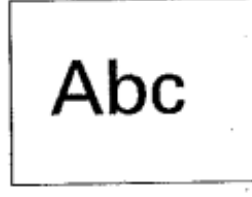
6. Four fonts are shown below. Identify the font that is different from the others.



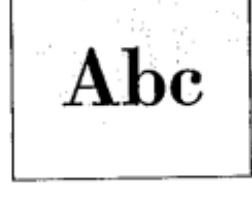
(A)



(B)



(C)



(D)

(A)

(B)

(C)

(D)

**Correct Answer:** (C)

**Solution:**

Option (C) is the only sans-serif font among the four options. Sans-serif fonts are characterized by the absence of serifs, which are the small lines or strokes that are regularly attached to the ends of larger strokes in letters.

These serifs are commonly found in traditional fonts and often give the text a more formal or classic appearance.

In contrast, sans-serif fonts have a clean and modern look due to their simplicity and lack of decorative elements.

This makes option (C) stand out as the only font without these embellishments, distinguishing it clearly from the other options that all feature serif details.

**Quick Tip**

To distinguish fonts, look for the presence or absence of serifs — decorative strokes at the ends of letters.

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7. Identify the tool used to create the letters shown below.



- (A) Chalk
- (B) Calligraphic pen
- (C) Ball point pen
- (D) Gel pen

**Correct Answer:** (B) Calligraphic pen

**Solution:**

The letters shown exhibit the distinct thick and thin strokes that are characteristic of writing created by a calligraphic pen.

This variation in stroke width is achieved by the angle and pressure applied while using the pen, which produces elegant, flowing lines.

The thicker strokes typically occur when the pen is pressed down more firmly or held at a certain angle, while the thinner strokes appear with lighter pressure or different pen positioning.

These features are hallmarks of calligraphy, giving the text an artistic and refined appearance that differs significantly from uniform, mechanically produced lettering.

**Quick Tip**

To identify writing tools, observe the stroke variation: calligraphic pens produce thick and thin lines, unlike ballpoint or gel pens which usually create uniform strokes.

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**8. Identify the animal from the pug mark of hind foot shown in the image.**





- (A) Elephant
- (B) Crocodile
- (C) Monkey
- (D) Leopard

**Correct Answer:** (C) Monkey

**Solution:**

The pug mark clearly belongs to a monkey, which can be identified by the presence of an opposing thumb—a distinctive feature unique to primates.

Unlike many other animals, monkeys possess an opposable thumb that can move independently and oppose the other fingers, allowing them to grasp and manipulate objects with precision.

This anatomical trait is a key factor in their ability to climb, hold branches, and perform complex movements.

In the pug mark, this opposable thumb is evident as it is positioned opposite to the other toes, setting it apart from footprints of other animals that lack this feature.

The overall shape, including the relative size and placement of the toes, further supports the identification.

Such detailed characteristics in the pug mark provide a clear indication that it is from a monkey, highlighting the specialized adaptations primates have evolved for their arboreal lifestyle.

#### Quick Tip

When identifying animals from footprints, look for unique features such as toe arrangement and presence of opposable digits.

### 9. Identify the photograph most suitable for use in Identity cards.



(A)



(B)



(C)



(D)

(A)

(B)

(C)

(D)

**Correct Answer:** (A)

#### Solution:

Option (A) is the most suitable photograph for identity cards due to several important factors.

It has proper contrast, ensuring that the facial features are clearly visible without being washed out or too dark.

The size of the photograph is appropriate, fitting well within the typical dimensions required for official identification purposes.

Additionally, the image presents a clear front view of the face, which is essential for accurate recognition and verification.

The subject's face is unobstructed and well-lit, making this option ideal for use in identity cards where clarity and precision are paramount.

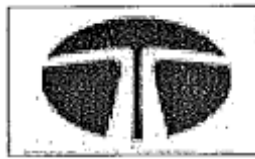
#### Quick Tip

For ID photos, ensure proper lighting, contrast, size, and a clear, front-facing image for easy identification.

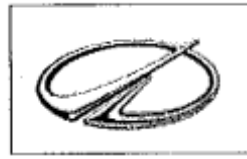
#### 10. Identify the logo of Mahindra & Mahindra.



(A)



(B)



(C)



(D)

(A)

(B)

(C)

(D)

**Correct Answer:** (D)

#### Solution:

Option (D) is the correct logo of Mahindra & Mahindra, which is widely recognized for its distinctive stylized "M" symbol.

This logo features bold and clean lines that form the letter "M" in a modern and dynamic design, reflecting the company's innovative spirit and strong presence in the automotive and industrial sectors.

The simplicity and uniqueness of the symbol make it easily identifiable, reinforcing the brand's identity and reputation across diverse markets.

Overall, option (D) accurately represents the official emblem of Mahindra & Mahindra.

### Quick Tip

Recognizing company logos requires familiarity with their unique symbols and design elements.

11. A sequence of frames from an animation is given below, where one frame is missing. Select the one from the given options to complete the sequence.



(A)



(B)



(C)



(D)

(A)

(B)

(C)

(D)

**Correct Answer:** (C)

**Solution:**

Option (C) correctly completes the sequence by showing the leaping position, which logically fits the flow of movement in the animation.

The given sequence illustrates a series of actions depicting an object or character in motion, and option (C) captures the critical moment when the subject is fully airborne, transitioning from the takeoff phase to the landing phase.

This leaping position is characterized by a stretched posture and elevated height, which aligns naturally with the physics of movement and the continuity of the animation.

By including this frame, the sequence maintains a smooth and realistic flow, effectively

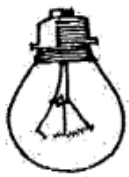
conveying the dynamic energy and momentum of the leap.

Hence, option (C) is the most appropriate choice to complete the animation sequence.

#### Quick Tip

When completing animation sequences, observe the continuity of motion and body positions for logical progression.

**12. Which word most appropriately communicates the image given below?**



- (A) Education
- (B) Darkness
- (C) Knowledge
- (D) Enlightenment

**Correct Answer:** (D) Enlightenment

#### Solution:

The image of a light bulb is universally recognized as a symbol of an idea, creativity, or enlightenment.

This association originates from the popular depiction of light bulbs being "turned on" to signify a sudden realization or the birth of a new concept.

The light bulb symbolizes not just the moment of intellectual clarity, but also the broader notion of innovation and discovery.

In various cultural contexts, it is often used to represent problem-solving, inspiration, and intellectual breakthroughs.

Given these associations, option (D), which features the light bulb image, is the most appropriate choice.

The visual conveys a strong message of creativity and insight, aligning perfectly with the concept of generating or sharing an idea.

This symbolic image stands out as a clear and effective representation of mental illumination, making it the ideal choice in situations where the focus is on brainstorming, creative thinking, or the realization of new concepts.

#### Quick Tip

Use common symbolic associations—like the light bulb representing ideas or enlightenment—to interpret images.

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**13. Identify the creator of the painting shown below.**



- (A) MF Hussain
- (B) Jamini Roy
- (C) Nandalal Bose
- (D) Rabindranath Tagore

**Correct Answer:** (B) Jamini Roy

#### **Solution:**

The painting style and technique correspond to Jamini Roy's distinct folk-art-inspired works. Jamini Roy, a renowned Indian painter, is famous for blending traditional Indian folk art with modernist influences, resulting in a unique and recognizable artistic style.

His use of bold lines, bright colors, and simplified forms reflects the characteristics of rural

Indian art, particularly that of Bengal.

Roy's work often emphasizes flatness and minimalism, with figures that are depicted in a stylized, almost abstract manner.

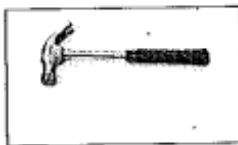
The painting in question displays these same features—distinct outlines, vibrant hues, and an emphasis on the emotional and cultural essence of the subject, rather than on realistic detail.

This alignment with Jamini Roy's signature style confirms that the painting is indeed inspired by his artistic approach, showcasing the fusion of folk elements with contemporary techniques.

#### Quick Tip

Recognize artists by their signature styles and the art movements they represent.

**14. Four hammers with different handles are shown below. Select the one which is most comfortable to use.**



(A)



(B)



(C)



(D)

(A)

(B)

(C)

(D)

**Correct Answer:** (A)

#### Solution:

Option (A) is the most comfortable to use because it has a shock-absorbing grip, which helps reduce the impact on the hands during use, making it gentler on the joints and muscles.

The design includes a soft, cushioned texture that provides extra comfort, allowing for extended periods of use without causing strain.

Additionally, its width is optimal, ensuring that the user can hold it securely without worrying about it slipping or causing discomfort.

This combination of a shock-absorbing grip and a wide, ergonomic shape makes option (A) the best choice for ease of use and long-lasting comfort.

#### Quick Tip

When selecting tools, consider ergonomic features like grip comfort and shock absorption for prolonged use.

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**15. Identify the state to which the given image belongs.**



- (A) Maharashtra
- (B) Karnataka
- (C) Tamil Nadu
- (D) Kerala

**Correct Answer:** (B) Karnataka

**Solution:**

The image corresponds to Karnataka, identified by its distinct cultural and geographical features.

Karnataka is a state in southern India, known for its rich cultural heritage, historical landmarks, and diverse landscapes.

The image likely highlights some of the key elements associated with Karnataka, such as its iconic architecture, like the Mysore Palace or Hampi's ancient ruins, or natural landmarks such as the Western Ghats.

Additionally, Karnataka's traditional art forms, including classical dance (Bharatanatyam), music (Carnatic), and its famous cuisine, further reinforce its identity.

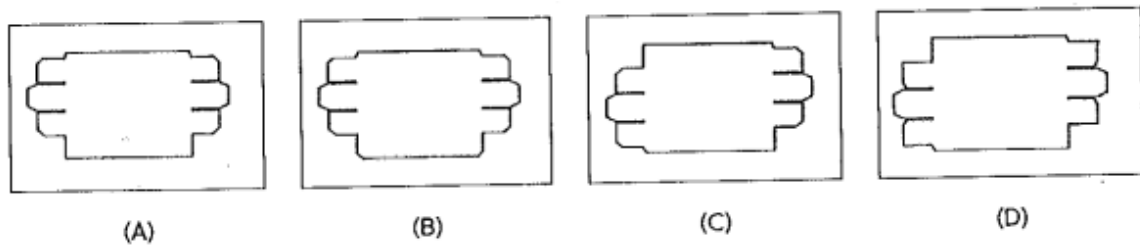
The combination of these distinctive features helps to easily identify Karnataka, making the image a clear representation of the state.

**Quick Tip**

When identifying states from images, focus on landmarks, cultural symbols, or regional characteristics.

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**16. Drawing of an unfolded toothpaste pack is shown below. Identify the correct one.**



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

**Correct Answer:** (C)

**Solution:**

Option (C) is correct because the covers have tabs for closing, which are essential for the functionality of the toothpaste pack.

These tabs help to securely seal the tube, preventing the toothpaste from drying out or leaking.

The design ensures that the toothpaste remains fresh and hygienic for use over an extended period.

In addition, the presence of tabs makes the pack more user-friendly, as it allows for easy opening and closing, while maintaining the integrity of the product inside.

This feature adds to the convenience and practicality of the packaging, making option (C) the most suitable choice for a functional and well-designed toothpaste pack.

**Quick Tip**

When identifying packaging designs, look for functional features like tabs or flaps for sealing.

**17. A character from an animation film is shown below. Identify the name of the character.**



- (A) Chottu
- (B) Chintu
- (C) Mowgli
- (D) Jimmy

**Correct Answer:** (C) Mowgli

**Solution:**

The character shown is Mowgli, the boy raised by wolves in the jungle, featured in popular animation films.

Mowgli is the protagonist of Rudyard Kipling's *\*The Jungle Book\**, a classic story that has been adapted into various films, television series, and other forms of media.

Raised by a pack of wolves in the jungle, Mowgli forms close bonds with various animals, including the bear Baloo, the panther Bagheera, and the mischievous tiger Shere Khan.

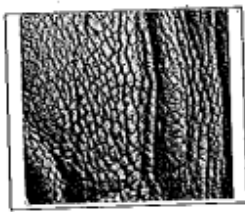
His unique upbringing in the wild, alongside his human nature, creates an intriguing dynamic in the narrative, often highlighting themes of identity, belonging, and survival.

His character is widely recognized, especially through animated adaptations like Disney's *\*The Jungle Book\**, making him a popular and iconic figure in both literature and film.

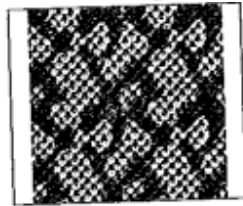
**Quick Tip**

Identify characters by their distinctive appearances and backgrounds from well-known stories or animations.

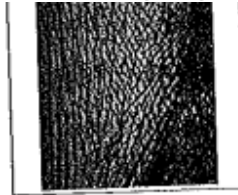
**18. Identify the skin texture of elephant from the images given below.**



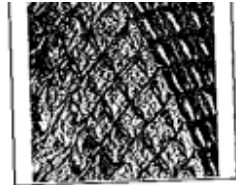
(A)



(B)



(C)



(D)

(A)

(B)

(C)

(D)

**Correct Answer:** (C)

**Solution:**

Option (C) shows the rough and thick skin texture typical of elephants, which plays a vital role in protecting them in their natural habitat.

The skin of an elephant is one of its most remarkable features, being both tough and resilient.

This thick, wrinkled skin acts as a barrier against environmental elements such as the sun's harmful UV rays, harsh weather conditions, and insect bites.

Additionally, the rough texture helps in preventing cuts and abrasions from the dense foliage and rough terrain in the elephant's habitat.

The skin is also essential for thermoregulation, helping the animal maintain a cooler body temperature by trapping moisture in the folds and allowing sweat to evaporate.

This adaptive feature is a key element of the elephant's survival in diverse ecosystems, from savannas to forests.

#### Quick Tip

Observe texture details carefully; elephant skin is notably rough and thick compared to other animals.

**19. Identify the state to which the given image belongs.**



- (A) Orissa
- (B) Manipur
- (C) Bengal
- (D) Gujarat

**Correct Answer:** (C) Bengal

**Solution:**

The image belongs to Bengal, as indicated by distinctive cultural and regional features associated with the state.

The clothing, design, and posture of the figure align with the traditional attire and customs of Bengal.

The specific elements, such as the style of the dress or the motifs depicted, are characteristic of Bengal's cultural heritage.

It could have been Orissa if the image had included a headgear typically worn in Orissan culture, such as the traditional Odia "phuli" or "mukut."

The presence of such a headgear would have signaled a connection to Orissa, which has its own rich and unique cultural identity.

However, the absence of these elements and the specific traits seen in the image suggest that it belongs to Bengal, reflecting the region's distinct identity and traditions.

### Quick Tip

When identifying states from images, look for distinctive cultural attire and accessories like headgear.

**20. The given image is the reflection of the word "SAMRAT" on a surface. Identify the nature of the reflective surface.**



- (A) Flat
- (B) Concave
- (C) Convex
- (D) Cylindrical

**Correct Answer:** (C) Convex

### Solution:

The reflection shows characteristics of a convex surface, as evidenced by the nature of the reflected image.

Convex surfaces, such as those found in spherical mirrors, cause light rays to diverge upon reflection.

This divergence results in the formation of a smaller, upright, and virtual image that appears behind the surface.

The reflection seen in the image exhibits these traits: the image is diminished in size, upright, and does not appear to be inverted, which are typical behaviors when light is reflected off a convex surface.

These optical characteristics confirm that the surface in question is convex, as opposed to concave surfaces, which produce magnified or inverted images depending on the distance from the mirror.

### Quick Tip

Understand how different surfaces reflect images: convex surfaces tend to produce diminished and distorted reflections.

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## 21. RGB as used in light theory stands for:

- (A) Red, Gold, Black
- (B) Red, Green, Black
- (C) Red, Green, Blue
- (D) Red, Green, Brown

**Correct Answer:** (C) Red, Green, Blue

### Solution:

RGB stands for Red, Green, and Blue, which are the primary colors of light used in additive color mixing.

In this color model, various colors are created by combining different intensities of these three primary colors.

When combined at full intensity, they create white light. This is because, in additive color mixing, the combination of light of all colors results in a bright, white hue, while the absence of all light results in black.

RGB is widely used in digital displays, such as monitors and televisions, where pixels emit red, green, and blue light at varying intensities to produce the full spectrum of visible colors.

By adjusting the intensity of each primary color, a wide range of colors can be created, which is fundamental to digital imaging and color representation on electronic devices.

### Quick Tip

Remember, RGB is a color model for light where Red, Green, and Blue combine to create various colors.

**22. MK Gandhi stands for:**

- (A) Mohanbhai Kishorbhai Gandhi
- (B) Mohandas Karamchand Gandhi
- (C) Mohandas Keshubhai Gandhi
- (D) Mohandas Karimchand Gandhi

**Correct Answer:** (B) Mohandas Karamchand Gandhi

**Solution:**

MK Gandhi refers to Mohandas Karamchand Gandhi, commonly known as Mahatma Gandhi, the prominent leader of the Indian independence movement.

He is widely recognized for his philosophy of non-violent resistance (Satyagraha), which became the cornerstone of India's struggle for freedom from British colonial rule.

Gandhi's leadership and unwavering commitment to non-violence and truth inspired not only India but also civil rights movements across the world.

His efforts to unite the nation through peaceful protests, his role in major events like the Salt March, and his advocacy for social reforms such as the abolition of untouchability have solidified his place as one of the most influential figures in modern history.

The title "Mahatma," meaning "Great Soul," was given to him as a mark of respect for his moral leadership.

**Quick Tip**

Remember full names of famous personalities to correctly identify abbreviations.

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**23. The national fruit of India is:**

- (A) Coconut
- (B) Apple
- (C) Grape
- (D) Mango

**Correct Answer:** (D) Mango



**Solution:**

Mango is the national fruit of India, renowned for its sweet taste, rich flavor, and cultural significance.

It holds a special place in Indian tradition, not only as a beloved fruit but also as a symbol of prosperity and happiness.

The mango is featured in various cultural rituals, festivals, and even in religious practices, with its seasonal arrival often marking the start of summer.

India is the world's largest producer of mangoes, and it is home to many varieties, including Alphonso, Langra, and Dasherri, each prized for its unique taste and texture.

Beyond its culinary uses, the mango tree itself is often considered sacred in Indian culture, and its fruit is a symbol of both abundance and renewal.

The mango's widespread popularity and deep cultural roots make it an iconic representation of India's agricultural and culinary heritage.

**Quick Tip**

Familiarize yourself with national symbols to answer such questions easily.

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**24. The director of *Uski Roti* is:**

- (A) Govind Nihalani
- (B) Shyam Benegal
- (C) Satyajit Ray
- (D) Mani Kaul

**Correct Answer:** (D) Mani Kaul

**Solution:**

The film *Uski Roti* was directed by Mani Kaul, a prominent and influential filmmaker recognized for his contribution to experimental and avant-garde cinema in India.

Released in 1969, *Uski Roti* marked a significant departure from the traditional narrative

styles of mainstream Bollywood cinema.

Mani Kaul's direction is known for its minimalist approach, focusing on subtle performances, slow pacing, and a deep exploration of human emotions.

The film is based on a short story by the acclaimed writer Mohan Rakesh, and it captures the quiet complexities of rural life and human relationships, particularly focusing on the life of a woman waiting for her husband, who is away at work.

Kaul's unique style emphasizes mood over plot and visual storytelling, using long takes and an almost poetic treatment of everyday life.

This film is a cornerstone of the "New Wave" movement in Indian cinema, and Kaul's work continues to inspire filmmakers with its bold and introspective approach to filmmaking.

#### Quick Tip

Remember key filmmakers and their signature works for film-related questions.

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### 25. Identify the designer from the following:

- (A) Van Gogh
- (B) Leonardo da Vinci
- (C) Paul Klee
- (D) Pablo Picasso

**Correct Answer:** (B) da Vinci

#### Solution:

Option (B) da Vinci is the correct answer. While the other individuals listed are primarily known for their work as artists and painters, Leonardo da Vinci stands out not only for his artistic achievements but also for his groundbreaking work as an inventor, scientist, and designer.

Da Vinci's contributions to fields like anatomy, engineering, and aviation demonstrate his exceptional versatility and intellectual curiosity, making him a polymath.

His famous works, such as the *Mona Lisa* and *The Last Supper*, are iconic in the art world, but his sketches and studies on topics ranging from human anatomy to mechanical inventions underscore his genius in multiple disciplines.

Unlike the others, who were primarily focused on visual art, da Vinci's intellectual breadth set him apart as a true Renaissance man, combining the roles of both artist and scientist.

#### Quick Tip

Leonardo da Vinci was a polymath known for his designs and inventions in addition to his artwork.

**26. From the images of musical instruments given below, identify the one that does not belong to the group.**



(A)



(B)



(C)



(D)

(A)

(B)

(C)

(D)

**Correct Answer:** (B)

#### Solution:

Option (B) is the only instrument that belongs to the woodwind family, which typically includes instruments that produce sound by vibrating a reed or by the player's air passing through a narrow opening.

Common woodwind instruments include the flute, clarinet, and saxophone.

The other options listed belong to different families of instruments such as strings, percussion, or brass, which each have their own distinct methods of sound production.

### Quick Tip

Differentiate musical instruments based on their families: string, woodwind, brass, percussion, etc.

---

**27. The author of *The God of Small Things* is:**

- (A) Chetan Bhagat
- (B) Arundhati Roy
- (C) Bimal Roy
- (D) Aravind Adiga

**Correct Answer:** (B) Arundhati Roy

**Solution:** *The God of Small Things* was written by Arundhati Roy and won the Booker Prize in 1997.

### Quick Tip

Remember popular authors and their landmark works for literature questions.

---

**28. Dr. D Udaya Kumar is well known in the field of:**

- (A) Cardiology
- (B) Choreography
- (C) Music
- (D) Graphic Design

**Correct Answer:** (D) Graphic Design

**Solution:**

Dr. D Udaya Kumar is known for designing the Indian Rupee symbol, making him prominent in the field of graphic design.

The symbol, which combines the Devanagari letter 'र' (Ra) and the Latin capital letter 'R' without the vertical bar, was officially adopted by the Government of India in 2010.

This design was selected through a national competition held by the Ministry of Finance, in which Dr. Kumar's entry stood out for its simplicity, elegance, and ability to represent both Indian and international identities.

At the time, he was an assistant professor at the Indian Institute of Technology (IIT) Guwahati, and his contribution has since been recognized as a significant achievement in the realm of contemporary Indian design.

#### Quick Tip

Familiarize with notable contributions of individuals to connect names with their fields.

---

### 29. Cubism was started by:

- (A) Pablo Picasso
- (B) Massimo Vignelli
- (C) Leonardo da Vinci
- (D) Michelangelo

**Correct Answer:** (A) Pablo Picasso

#### Solution:

Cubism, an influential art movement, was started by Pablo Picasso along with Georges Braque in the early 20th century.

This movement marked a revolutionary departure from traditional perspectives in art by breaking subjects into geometric forms and depicting them from multiple viewpoints simultaneously.

Cubism laid the foundation for many modern art styles and significantly influenced the development of abstract art.

It is generally divided into two phases: Analytical Cubism and Synthetic Cubism. The former focused on deconstructing objects, while the latter introduced simpler shapes, brighter colors, and collage elements.

Picasso and Braque's collaboration played a critical role in shaping this radical and enduring artistic style.

### Quick Tip

Recall key art movements and their founders to answer such questions accurately.

---

### 30. The full form of DSLR is:

- (A) Dynamic Self Loading Rifle
- (B) Digital Single Lens Reflex
- (C) Digital Single Line Radio
- (D) Dual Stage Light Reflector

**Correct Answer:** (B) Digital Single Lens Reflex

### Solution:

DSLR stands for Digital Single Lens Reflex, a popular type of camera known for its quality and versatility.

These cameras use a mirror mechanism that allows photographers to see exactly what the lens sees through the optical viewfinder, providing precise framing and focus.

DSLRs are favored by both amateurs and professionals because of their interchangeable lenses, large image sensors, and manual control options, which contribute to superior image quality compared to point-and-shoot cameras.

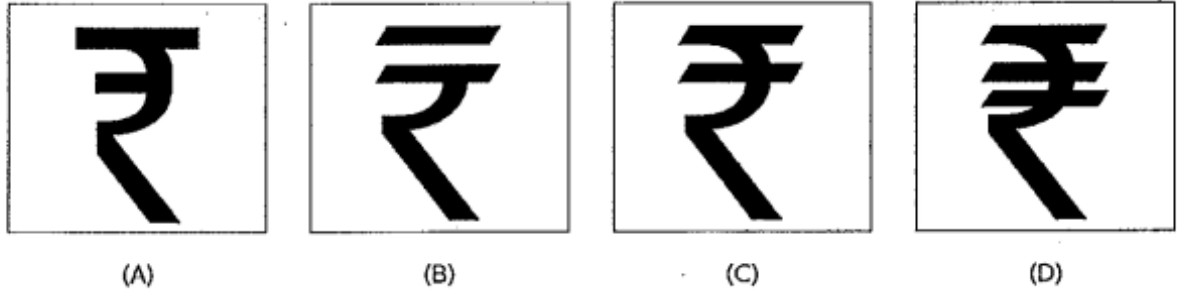
Additionally, DSLRs offer faster autofocus and better performance in low-light conditions, making them ideal for a wide range of photography styles including portraits, landscapes, and action shots.

### Quick Tip

Remember common abbreviations in photography for technical questions.

---

### 31. Identify the Rupee symbol approved by the Govt. of India.



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

**Correct Answer:** (C)

**Solution:**

Option (C) is the official Rupee symbol approved by the Government of India, designed by D. Udaya Kumar.

This symbol was introduced in 2010 to provide a unique identity to the Indian currency, combining elements of both the Devanagari script and the Roman alphabet.

The design cleverly merges the Sanskrit letter 'र' (Ra) with the Latin capital letter 'R,' without the vertical bar, symbolizing India's cultural heritage and its growing global economic presence.

The adoption of this symbol has helped standardize the representation of the Indian Rupee in financial documents, digital platforms, and currency notes, making it easily recognizable worldwide.

**Quick Tip**

Familiarize yourself with national symbols for identification in exams.

**32. Identify the material used to construct the bridge shown below:**



- (A) Steel
- (B) Hard Wood
- (C) Concrete
- (D) Cast Iron

**Correct Answer:** (A) Steel

**Solution:**

Steel is used for constructing the bridge due to its high strength and rigidity, making it ideal for such structures.

Its excellent tensile strength allows it to withstand heavy loads and resist deformation under stress, ensuring the stability and safety of the bridge.

Additionally, steel is durable and can endure various environmental conditions, including temperature changes and corrosion when properly treated.

Its versatility also allows for easier fabrication and assembly, enabling the construction of long spans and complex designs.

These properties make steel the preferred material in modern bridge engineering.

**Quick Tip**

Steel is preferred in construction for its durability and load-bearing capacity.



**33. Identify the correct map of India.**



(A)



(B)



(C)



(D)

(A)

(B)

(C)

(D)

**Correct Answer: (C)**

**Solution:**

Option (C) correctly represents the map of India with all its states and boundaries.

It accurately depicts the geographical layout, including the precise demarcation of state borders and union territories.

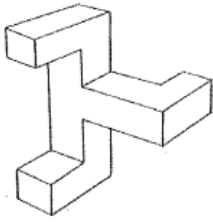
This option reflects the current political boundaries as recognized by the Government of India, ensuring that all states and their respective capitals are properly marked.

Accurate maps like this are essential for educational, administrative, and planning purposes, providing a clear visual understanding of the country's territorial divisions.

**Quick Tip**

Familiarize yourself with the political map of India for geography-related questions.

**34. Count the number of faces in the object shown below.**



- (A) 14
- (B) 15
- (C) 16
- (D) 18

**Correct Answer:** (B) 15

**Solution:**

The object shown has 15 faces in total. This total includes all the distinct flat surfaces that form the boundaries of the three-dimensional shape.

Each face is a polygon, and together they enclose the volume of the object. Counting the faces accurately is important for understanding the geometric properties of the solid, such as its edges and vertices, and for applying formulas like Euler's characteristic for polyhedra, which states that  $V - E + F = 2$  (where  $V$  is vertices,  $E$  is edges, and  $F$  is faces).

The diversity in the shapes of these faces, whether they are triangles, quadrilaterals, or other polygons, also contributes to the classification and study of the solid in geometry.

**Quick Tip**

Remember to carefully count all faces including hidden and irregular ones.

---

**35. The symbol shown below stands for:**



- (A) Cyclone
- (B) Air circulation

- (C) Recycling
- (D) Wind energy

**Correct Answer:** (C) Recycling

**Solution:**

The symbol is the universal recycling symbol, representing the process of recycling materials.

It consists of three chasing arrows arranged in a triangular loop, each arrow symbolizing one step of the recycling process: collection, processing, and reuse.

This symbol is widely recognized around the world and serves to promote environmental awareness by encouraging the reduction of waste through the reuse and recycling of materials.

Its simplicity and clear message make it an effective tool in educating the public about sustainable practices and the importance of conserving natural resources.

**Quick Tip**

Recognize common environmental symbols for quick identification.

**36. Identify the wrist watch having the most sporty look.**



(A)



(B)



(C)



(D)

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

**Correct Answer:** (D)

**Solution:**

Option (D) is the most sporty watch as it includes a stopwatch feature, enhancing its sporty appeal.

The stopwatch allows users to measure elapsed time accurately, which is essential for various sports and fitness activities such as running, swimming, and cycling.

Additionally, sporty watches often have durable designs, water resistance, and easy-to-read displays, making them practical for active lifestyles.

The inclusion of this feature distinguishes Option (D) from the others by offering functionality that supports athletic performance and training.

**Quick Tip**

Sporty watches often include chronograph or stopwatch functions for active use.

---

**37. Identify the material used for the sculpture in the image.**



- (A) Cast Iron
- (B) Granite
- (C) Bronze
- (D) Marble

**Correct Answer:** (D) Marble

**Solution:**

The sculpture shown is the famous *Pieta* by Michelangelo, which is made of marble. Created during the Renaissance period, this masterpiece depicts the Virgin Mary holding the body of Jesus Christ after his crucifixion. Renowned for its exquisite detail and emotional expression, the *Pieta* exemplifies Michelangelo's exceptional skill in sculpting lifelike figures and conveying deep human emotion. The use of marble adds to its timeless beauty and durability, making it one of the most celebrated sculptures in the world.

#### Quick Tip

Michelangelo's most famous sculptures are carved from marble.

**38. Identify the monument shown below.**



- (A) Vidhan Sabha
- (B) Victoria Memorial
- (C) Mysore Palace
- (D) White House

**Correct Answer:** (B) Victoria Memorial

#### Solution:

The monument shown is the Victoria Memorial, located in Kolkata, India. Built between 1906 and 1921, it was dedicated to Queen Victoria and serves as a museum and tourist attraction today. The structure is an exquisite example of Indo-Saracenic architecture, blending British and Mughal elements, and is constructed primarily from white Makrana marble.

The Victoria Memorial stands as a symbol of the British Raj in India and houses numerous artifacts, paintings, and manuscripts that chronicle the history of the colonial period.

**Quick Tip**

Familiarize yourself with famous monuments and their locations.

**39. Select the most suitable type of cup for drinking hot tea/coffee.**

- (A) Paper cup
- (B) Polystyrene cup
- (C) Stainless steel cup
- (D) Ceramic cup

**Correct Answer:** (D) Ceramic cup

**Solution:**

The ceramic cup is most suitable for hot beverages because polystyrene cups might melt when exposed to high temperatures, posing safety risks.

On the other hand, stainless steel cups tend to conduct heat efficiently, causing their surfaces to become very hot and uncomfortable to hold.

Ceramic cups, however, provide good thermal insulation and remain relatively cool to the touch, making them safer and more comfortable for drinking hot liquids.

Additionally, ceramic is durable, non-reactive, and retains heat well, preserving the beverage's temperature longer.

**Quick Tip**

Choose materials that are heat-resistant and safe for hot liquids.

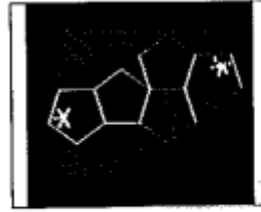
**40. The unit shown below is a pentagon with a mark. Each of the four compositions (A, B, C, D) is created by mirroring four times along the edges. Identify the composition with the correct reflection.**



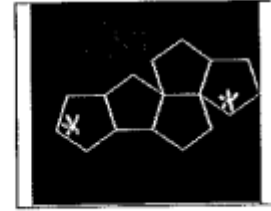
(A)



(B)



(C)



(D)

(A)

(B)

(C)

(D)

**Correct Answer:** (A)

### **Solution:**

Option (A) shows the correct composition formed by mirroring the pentagon unit correctly along its edges.

This precise mirroring ensures that each pentagon fits seamlessly with its neighboring shapes, maintaining the overall symmetry and uniformity of the pattern.

By reflecting the pentagon along its edges, the design avoids any gaps or overlaps, which are common issues when tiling irregular polygons.

Such accurate composition is essential in geometric tessellations, as it preserves the continuity and balance of the pattern.

The successful arrangement seen in Option (A) not only demonstrates mathematical precision but also creates a visually appealing and harmonious design, which is fundamental in applications like tiling, art, and architectural decoration.

### Quick Tip

Visualize symmetry and reflections carefully to identify correct patterns.

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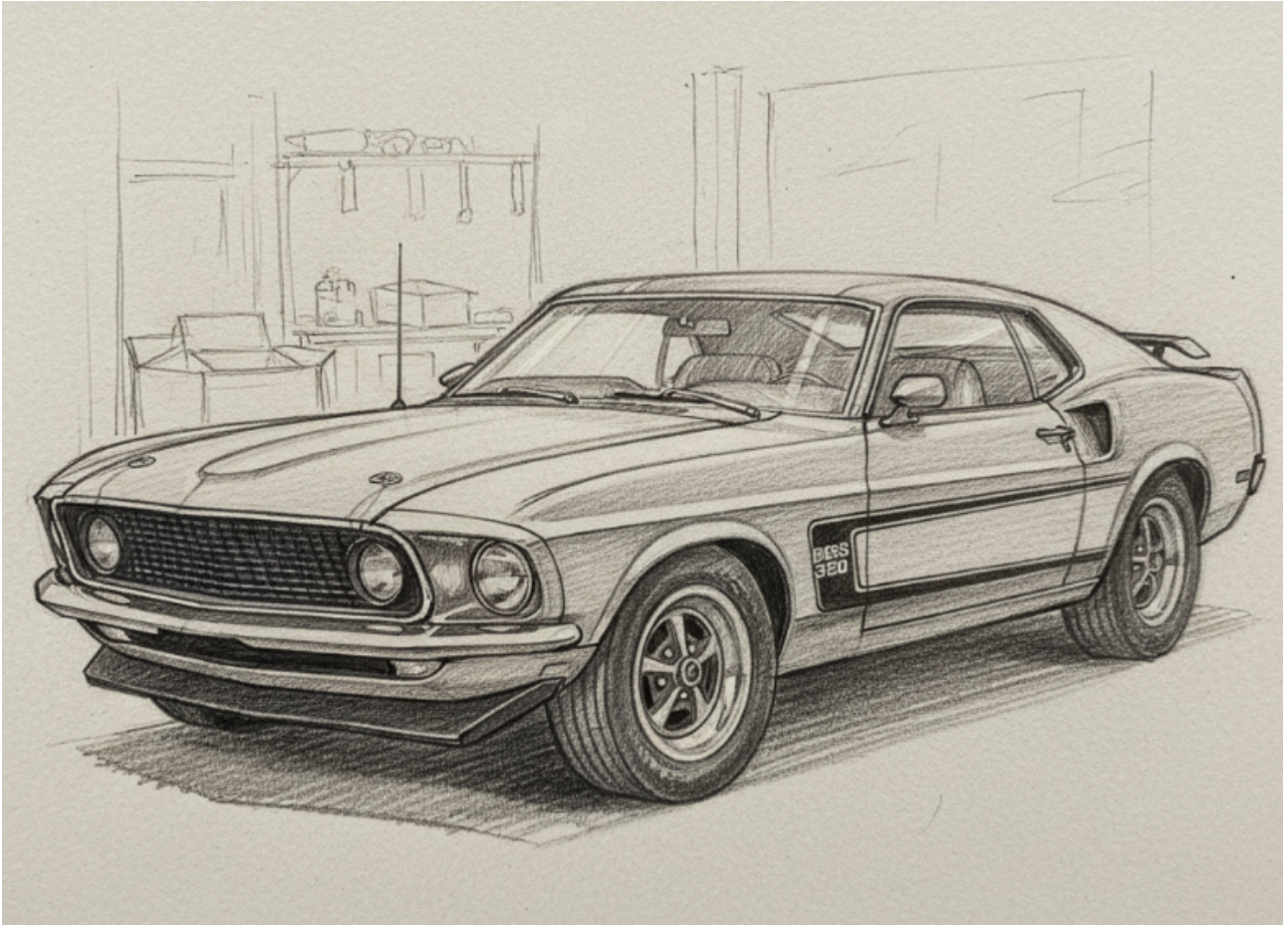


## Part-B

Question 1 (Answer ANY ONE)

[20 Marks]

Draw your favorite car in proper perspective in three-quarter view.



**OR**

**Draw a 5-year-old boy sitting on a chair.**



**Instructions:**

- The final drawing is to be done free hand using only a pencil.
- Do not use any colour.
- You may use shading to give a realistic three-dimensional feel.
- Do not use any drawing instruments like ruler, set square, compass, etc.

**Evaluation Criteria:**

- Composition
  - Perspective
  - Light, shade and shadow
  - Quality of lines
- 

**Question 2**

**Answer ANY ONE of the following questions [A] or [B] or [C]**

**[A]**

Caps on glass bottles used for pickles and jam are often difficult to open for senior citizens. Many of these caps are screwed on to the bottles.

**Design an opener for screwable bottle caps, to be used by the elderly.**

- Identify at least five distinct factors essential for designing a cap opener for bottles and jars that can be used by the elderly. Write briefly in the space provided on page 20.
- Generate three distinct concepts through pencil sketches based on the factors identified above. Present these pencil sketches along with brief notes (if necessary) in the space provided on page 20–21.
- Create your final concept and present this through drawing, showing the overall form and design of its features on page 22. Mention materials to be used for production of the opener and reasons for choosing the same.

**Evaluation criteria:**

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



- Quality of your presentation

## **Solution:**

### **Design an Elderly-Friendly Bottle Cap Opener**

#### **a. Essential Design Factors for an Elderly-Friendly Cap Opener**

Here are five distinct factors essential for designing a safe and effective bottle cap opener for the elderly:

1. **Grip Comfort and Security:** The device must have a large diameter or ergonomic shape to distribute pressure across the hand, reducing strain. The grip material must be non-slip (e.g., soft rubber or silicone) to accommodate reduced hand strength, dexterity, and potential arthritis, ensuring the opener doesn't slip when force is applied.
2. **Minimal Strength/Force Required (Torque Leverage):** The design must incorporate an effective leverage mechanism to significantly multiply the force applied by the user. A longer handle or a gear mechanism allows a small input of hand strength to generate a large output torque to break the cap's seal.
3. **Versatility/Adjustability:** The opener must effectively grip and open multiple cap sizes (from small spice jars to large pickle jars). This requires an adjustable clamping mechanism or a multi-slot design to maximize market utility and reduce clutter for the user.
4. **Ease of Alignment and Engagement:** The device should be easy to position on the cap without complex mechanisms or fine motor control. The gripping jaws should quickly and securely engage the cap without requiring the user to hold them tightly during placement.
5. **Durability and Cleanability (Material Choice):** The materials chosen (e.g., reinforced plastic or stainless steel) must be durable to withstand repeated, high-torque use without breaking or deforming. They must also be easy to wipe clean since the opener will likely come into contact with sticky jar residues.

#### **b. Three Distinct Design Concepts (Pencil Sketches)**

Here are three distinct concepts based on the factors above, presented with brief descriptions.

### **Concept 1: The Lever-Action Pliers Wrench (High Leverage)**

*Mechanism:* Uses a long handle attached to an adjustable, toothed metal band that wraps around the cap.

*Operation:* The band tightens via a ratchet or quick-release lever. The user then twists using the long handle.

*Key Feature:* Provides exceptional torque (Factor 2), with a thick, rubber-coated grip (Factor 1).

*Target:* Very tight, large jars.

### **Concept 2: The Multi-Sized Silicone Cone Grip (Static Versatility)**

*Mechanism:* A solid, cone-shaped dome of high-friction silicone with internal grooves.

*Operation:* The user places the cone over the cap. Various ring grooves fit multiple cap sizes (Factor 3).

*Key Feature:* Uses friction and grip diameter for torque (Factor 2). No moving parts, durable and washable (Factor 5).

*Target:* Wide range of jars and bottles.

### **Concept 3: The Under-Cabinet V-Taper (Fixed Placement)**

*Mechanism:* A flat triangular plate with V-shaped tapered slots, mounted beneath a cabinet.

*Operation:* The user slides the jar into the correct slot and twists the jar while the opener holds the cap.

*Key Feature:* Eliminates need to grip the opener (Factor 1) and uses full-body leverage (Factor 2).

*Target:* Users with severe grip issues, arthritis.

### **c. Final Concept: The Adjustable, Geared T-Handle Grip**

#### **Design Presentation:**

The final design combines the high leverage of Concept 1 with secure grip and ease-of-use, forming a *Geared T-Handle Wrench* for screw caps.

**Overall Form:** A T-shaped handle perpendicular to the main body with three wide, curved jaws that clamp onto the cap.

### **Key Features and Design Details:**

- **T-Handle:** Long, horizontally placed, and coated with soft, textured silicone for a two-handed grip or palm-based twisting (Factor 1 & 2).
- **Adjustable Jaws:** Three wide, thick jaws simultaneously adjust to fit caps from 20 mm to 110 mm (Factor 3). They are lined with deeply grooved, high-friction rubber to prevent slippage.
- **Geared Adjustment:** A gear-operated dial allows easy jaw adjustment (Factor 4), enabling secure engagement without high precision or strength.
- **Durability:** The enclosed gear housing protects internal parts and enhances hygiene (Factor 5).

### **Conclusion:**

This final concept prioritizes ergonomic comfort, mechanical advantage, and accessibility, making it ideal for elderly users with reduced hand strength or arthritis. Its intuitive design and durable construction ensure daily usability and long-term reliability.

---

### **Question 1 [B] (Answer ANY ONE)**

**[20 Marks]**

**The issue of corruption is becoming a big concern and people are agitating over the issue. It is a social responsibility of a designer to create awareness of this issue amongst common people so that they are properly informed about this, through visual media.**

### **Your Task:**

Design an anti-corruption awareness poster to capture the essence of the issue. You can make use of text, graphics, or both.

- Identify at least five distinct factors essential for representing the issue of corruption. Write briefly in the space provided on page 20.
- Generate three distinct concepts through pencil sketches based on the factors identified above. Present these pencil sketches along with brief notes in the space provided on pages 20–21.

- c. Create your final concept of the poster and present this through drawing on page 22.  
You may use colours if necessary.

### **Evaluation Criteria:**

- Identification of distinct factors
- Originality of your alternate concepts
- Appropriateness of your final poster
- Clarity of your poster in representing the issue of corruption

### **Solution:**

#### **a. Essential Design Factors for Representing Corruption**

Here are five distinct factors essential for visually representing the issue of **corruption** in a poster:

##### **1. Deception / Hidden Nature:**

Corruption involves secret deals and a betrayal of public trust. The visual representation must convey a sense of *secrecy*, something being obscured, masked, or operating *in the shadows* to highlight the dishonest and non-transparent nature of the act.

##### **2. Erosion of Public Trust / Justice:**

Corruption dismantles the foundation of fair governance and equal opportunity. The imagery should reflect this *decay*, *distortion*, or the destruction of societal pillars, like distorting the classic symbols of law and order (e.g., scales, gavels).

##### **3. Impact on the Common Person / Society:**

The ultimate consequence is harm to citizens, often through poor public services or diverted funds. The visuals need to clearly establish the link between the corrupt act and the *suffering or deprivation* experienced by the average, honest person.

##### **4. Exchange / Transaction (Bribery):**

The core act often involves an illicit *exchange*—money, power, or influence changing hands improperly. This transaction needs to be symbolized, such as hands meeting under a table or a metaphorical flow of wealth.

## **5. Chain Reaction / Systemic Issue:**

Corruption is rarely isolated; it often spreads and becomes deeply ingrained in systems. The design should suggest a *wider network*, a spreading "disease," or a *complex web* of complicity that traps the entire system.

## **b. Three Distinct Concepts (Textual Descriptions)**

### **Concept 1: The *Blind Scales of Justice***

#### **Visual Description:**

This concept centers on the classic **Scales of Justice**. One pan is heavily weighted down by a mass of large, crumpled currency notes or gold coins. A hand depositing the currency emerges from the shadows, partially hidden. The other pan, representing the common person, is empty or holds a single cracked ceramic tile symbolizing a broken promise. Lady Justice's blindfold is ripped, with one eye deliberately closed or turned away.

**Text/Tagline:** "*The Price of Injustice is Paid by All.*"

**Focus:** Emphasizes the **erosion of justice** (Factor 2) and the **hidden transaction** (Factors 1 and 4). The imbalance in the scale illustrates unfair advantage and the resulting harm to ordinary people (Factor 3).

### **Concept 2: The *Spiderweb of Greed***

#### **Visual Description:**

A large, dark **spiderweb** fills the frame. At its center is a grotesque human hand cupping money or a crown. The web entangles human silhouettes and icons of public services (e.g., water taps, hospital symbols, books). The mood is heavy and oppressive.

**Text/Tagline:** "*A Web of Corruption. Every Thread Harms the Public.*"



**Focus:** Highlights the **systemic, widespread nature** (Factor 5) and the **impact on the common person** (Factor 3). The web represents the entangling, deceptive nature of corruption (Factor 1).

### **Concept 3: The *Sinking Ship of State***

#### **Visual Description:**

A grand ship symbolizing the State is shown sinking into dark waters. Large holes, cut deliberately, are visible below the waterline. A hand reaches from one of these holes, stealing a life preserver. Citizens on deck panic as essential lifeboats float away unused or broken.

**Text/Tagline:** *"Don't Let Self-Interest Sink Our Future. Report Corruption."*

**Focus:** Uses the powerful sinking ship metaphor to show the **erosion of trust** (Factor 2) and the devastating **impact on society** (Factor 3). The sneaky hand stealing the life-saving tools symbolizes **bribery and deceit** (Factors 1 and 4).

### **c. Final Concept: The *Grafting Hand***

**Visual Theme:** A bold, symbolic poster using high contrast and metaphor.

**Color Scheme:** **Blood Red, Deep Black, and White.** The background is clean white; the graphic is central and dominant.

**Central Graphic:** A stylized human hand grasps a vivid **red rose** — symbol of public good or national wealth. Black vines emerge from the palm, *grafting* onto the stem, draining the color from the flower.

**Extended Visual:** The black vine descends from the hand and spreads like roots, cracking the white background. Within the vine are silhouettes of broken public items — a school bus, a water tap, a collapsed human figure.

#### **Textual Elements:**

- **Headline (white on black):** *STOP THE BLACK GRAFT.*
- **Subline (red on white):** *Corruption is a weed that starves the nation.*

#### **Symbolism and Rationale:**

- **Red Rose:** Symbolizes beauty, life, and national/public good.
- **Black Vines:** Represent corruption — dark, parasitic, and systemic.
- **The Hand:** Represents institutional or political power committing the act.
- **Cracking Ground and Trapped Items:** Show corruption’s deep societal impact.

**Focus and Impact:** This concept blends Factors 1, 2, 3, 4, and 5 in a unified, visual metaphor. It is bold, clean, and requires no complex text to convey its meaning — ideal for impactful poster design.

---

**Question 1 [C] (Answer ANY ONE)**

**[20 Marks]**

**The issue of Dengue fever claiming human life is becoming a concern.**

Create an imaginary female mosquito character spreading dengue fever. Draw an interesting comic strip of five key frames involving the character created. You may add characters to complement the story.

- Write an abstract of the story in five lines. Write briefly in the space provided on page 20.
- Make three alternative sketches for each of the characters in the space provided on pages 20–21.
- Represent your storyboard in five frames in the space allotted on page 22. You may use colours if necessary.

**Evaluation Criteria:**

- Abstract of the story
- Appropriateness of the characters
- Originality of storyboard
- Quality of presentation

## **Solution:**

### **1. Character Concept: *Aedeleen the Agent***

To make the character interesting and clearly linked to Dengue, we personify the **Aedes aegypti** mosquito.

**Name:** *Aedeleen* (from *Aedes aegypti*)

**Appearance:** A sleek, sassy, and somewhat villainous mosquito. Her body is black with distinct white bands on her legs and abdomen (the signature of the Aedes mosquito). She wears dark sunglasses to enhance her 'agent' persona. She carries a tiny, sinister-looking syringe or needle, and perhaps a small striped handbag representing stagnant water containers.

**Personality:** Cocky, opportunistic, and thrives on human carelessness regarding sanitation. Proud of her ability to move unseen in urban neighborhoods.

**Motto:** "*A little stagnant water is all I need!*"

### **2. Abstract of the Story (Five Lines)**

1. Aedeleen, a notorious dengue-spreading mosquito, eagerly searches for her ideal breeding ground in a residential area.
2. She spots a tempting old tire and a discarded bucket full of stagnant water outside a house.
3. Just as she prepares to lay her eggs, a young, vigilant boy named *Clean-Up Carl* notices the trash.
4. Carl quickly empties the containers and properly disposes of the tire, destroying Aedeleen's home.
5. Frustrated and defeated, Aedeleen flies away, showing that simple action prevents Dengue.

### **3. Alternative Character Sketches (Described)**

#### **A. Aedeleen the Agent (Female Mosquito)**

##### **Sketch 1: The 'Classic Vector' (Serious)**

Highly realistic body shape with large, stylized eyes and a menacing, sharp proboscis (needle). Focuses on anatomical accuracy and the white-striped legs. Less personified.

##### **Sketch 2: The 'Sassy Spy' (Final Choice)**

Short, bob-like antennae, dark sunglasses, tiny high-heeled boots on the hind legs, and a striped vest/jacket over the abdomen. Carries a small syringe accessory. This design was chosen for its visual interest and strong 'villain' persona.

##### **Sketch 3: The 'Mad Scientist' (Exaggerated)**

Wears a tiny lab coat and oversized safety goggles, holding a beaker of "dengue juice." Features exaggerated wings and a wild, cackling expression. More comic and caricatured.

#### **B. Clean-Up Carl (Young Vigilant Boy)**

##### **Sketch 1: The 'Generic Child'**

Plain clothes and a tired or sick look. Focuses more on being a victim of dengue than an active participant. Less suitable for a heroic story arc.

##### **Sketch 2: The 'Vigilant Hero' (Final Choice)**

Bright T-shirt (yellow or green for energy/health), shorts, and rubber gloves. A determined facial expression shows initiative. Carries a bucket and looks alert and proactive.

##### **Sketch 3: The 'Boy Scout'**

Wears a full scout uniform with a hat and badge sash. While disciplined-looking, it feels too specific and less relatable to a broad audience.

### **4. (Optional) Five-Frame Storyboard (Suggested Layout)**

- **Frame 1:** Aedeleen flying through a neighborhood, spotting multiple potential breeding grounds.
- **Frame 2:** Close-up of the discarded bucket and old tire collecting rainwater.

- **Frame 3:** Aedeleen getting ready to lay eggs — with an evil grin.
- **Frame 4:** Clean-Up Carl notices, runs in, and empties the water + disposes of the tire.
- **Frame 5:** Aedeleen flies away angrily, with a bold message: “*Stop Dengue. Start Cleaning.*”