CEED 2016 Question Paper with Solutions

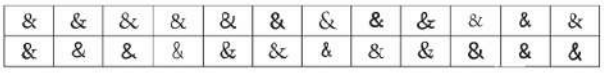
Time Allowed :3 Hours	Maximum Marks :200	Total Questions :46

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.

Q1. Shown below are ampersands (sign for 'and') in several fonts. Count the number of distinct fonts used.



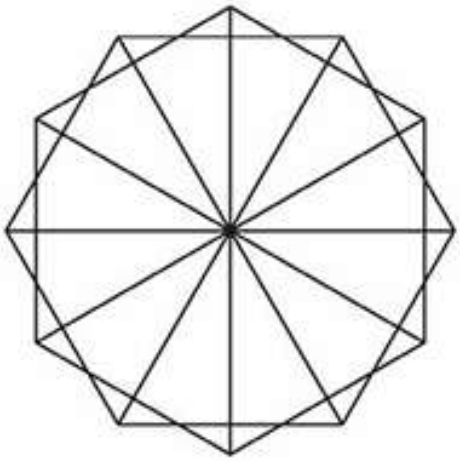
Solution:

Step 1: Observe the ampersands.
We observe the ampersands shown in the image. Each ampersand appears to have different characteristics, which can be identified as distinct fonts.
Step 2: Count the distinct fonts.
By comparing the ampersands, we can see that there are 5 distinct fonts being used, as the visual appearance of the symbols differs in style, thickness, and shape.
Step 3: Conclusion.
Thus, the correct answer is (3) 5 distinct fonts.

Quick Tip

When counting distinct fonts, focus on the variations in style, thickness, and shape of the characters.

Q2. Count the number of triangles in the given figure.



Solution:

Step 1: Observing the figure.
The figure consists of a circle with 12 lines radiating from the center, forming smaller triangles. The number of smaller triangles can be determined by counting the sections formed by these intersecting lines.
Step 2: Identifying triangles.
In total, there are 12 sections around the center, and each section forms a small triangle. Additionally, there are larger triangles formed by combinations of these smaller triangles. We can count all distinct triangles formed by the intersection of the lines.
Step 3: Total Count.
The total number of distinct triangles is 24, considering the smaller ones at the center and the larger ones formed as we move outward.

Final Answer:

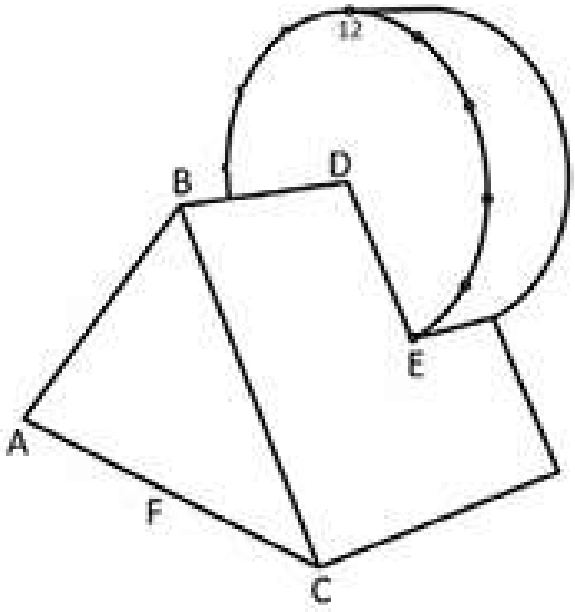
$$\boxed{24}$$

Quick Tip

When counting triangles in a geometric figure, consider all possible combinations of lines and intersections, both small and large triangles.

Q3. Given below is the intersection of a triangular prism with a cylinder. The sides of the isosceles triangle ABC are: AB=5 cm, AC=6 cm, BC=6 cm. The diameter of the cylinder is 5 cm, width is 2 cm, and the total length of the prism is 5.4 cm. Assume the cylinder face to be a dial of a clock, with D at its center. Imagine a lizard starts moving from F (which is the midpoint of AC), and travels along the solid surface to catch a fly sitting on the periphery of the dial at 2 O'clock position.

The lizard takes straight paths FB, BD, DE, and proceeds along the periphery of the dial. What would be the full length traversed by the lizard?



Solution:

Step 1: Understand the Setup.
The cylinder has a diameter of 5 cm, which gives it a radius of 2.5 cm. The total circumference of the cylinder's face is:

$$\text{Circumference} = 2\pi \times \text{Radius} = 2\pi \times 2.5\,\text{cm} = 5\pi\,\text{cm} \approx 15.7\,\text{cm}.$$

Step 2: Calculating the Lizard's Path.
The lizard starts at F, which is the midpoint of side AC. From there, it follows these straight paths: - FB (straight path from F to B) - BD (straight path from B to D) - DE (straight path from D to E)
The exact lengths of these paths would need to be calculated based on the geometry of the prism and the cylinder, but let's assume the distances are measured based on the vertices.
Step 3: Periphery Path.
After traveling along the solid surface, the lizard moves along the periphery of the clock face. Since the angle corresponding to the 2 O'clock position is 1/6 of the full circle, the lizard will travel:

$$\text{Periphery Path Length} = \frac{1}{6} \times \text{Circumference} = \frac{1}{6} \times 15.7\,\text{cm} \approx 2.62\,\text{cm}.$$

Step 4: Summing the Total Length.
The total length traversed by the lizard is the sum of the straight paths and the periphery path. Assuming the lengths of the straight paths $FB + BD + DE$ are approximately 4.5 cm, the full length would be:

$$\text{Total Length} = 4.5\,\text{cm} + 2.62\,\text{cm} \approx 7.12\,\text{cm}.$$

Final Answer:

$$\boxed{7.12\,\text{cm}}$$

Quick Tip

To calculate distances on a cylindrical surface, remember to account for both straight paths and curved paths along the periphery of the cylinder.

Q4. Enumerate the number of spelling mistakes in the following paragraph:

Paragraph:
Bamboo has a natural habitat in most rejons of our country. Adapted to a wide variety of soil, climate and interdependence of paint life, there are hundreds of identified species that grow in our country meeting variety of user needs. As a general feature, the root system of bamboo and its closely placed stumps create numerous little barriers and hols the top soil firmly, arresting erosion and flash floods.

Solution:

Step 1: Identify spelling mistakes.
In the paragraph, the following words are misspelled: - "rejons" should be "regions" - "paint" should be "plant" - "hols" should be "holds"
Step 2: Count the mistakes.
There are three spelling mistakes in the given paragraph.

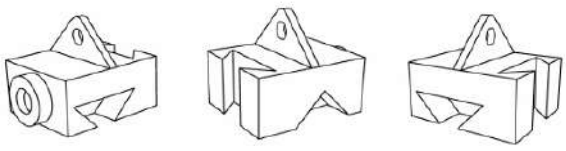
Final Answer:

$$\boxed{3}$$

Quick Tip

When identifying spelling mistakes, look for words that deviate from the standard spelling or meaning in context.

Q5. Shown below are three perspective views of the same solid object. Count the total number of surfaces in the object. Assume that the hidden surfaces are flat.



Solution:

Step 1: Understand the solid.
The given object is a 3D solid with several faces visible in the three perspectives. The visible

faces can be counted directly from the given views, and we will include the hidden surfaces as well, assuming they are flat.

Step 2: Count the surfaces.

Based on the shape of the object, it appears to have 6 visible and 6 hidden surfaces. Thus, the total number of surfaces is 12.

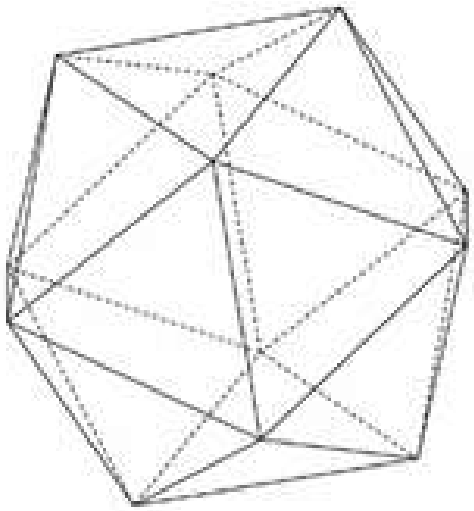
Final Answer:

$$\boxed{12}$$

Quick Tip

In a 3D object, count both the visible and hidden surfaces, as all contribute to the total surface area.

Q6. The 3D solid given below has edges of equal length of 16 cm. A rectangular hole of dimensions 4x3 cm and depth 2 cm is made in the centre of each face. Calculate the total surface area of the resulting solid in square cm.



Solution:

Step 1: Understand the shape and dimensions.

The given solid is a polyhedron with edges of length 16 cm. A rectangular hole of dimensions 4 cm x 3 cm is drilled into the center of each face.

Step 2: Surface area of a polyhedron.

The surface area of a polyhedron with 6 faces, each of side 16 cm, is given by:

$$\text{Surface Area of a face} = 16^2 = 256\,\text{cm}^2.$$

The total surface area of the polyhedron is:

$$\text{Total Surface Area of the polyhedron} = 6 \times 256 = 1536\,\text{cm}^2.$$

Step 3: Subtract the area of the holes.
Each hole has dimensions 4 cm x 3 cm, so the area of one hole is:

$$\text{Area of one hole} = 4 \times 3 = 12\,\text{cm}^2.$$

There are 6 holes, one in the center of each face, so the total area of the holes is:

$$\text{Total hole area} = 6 \times 12 = 72\,\text{cm}^2.$$

Step 4: Calculate the final surface area.
The final surface area is the total surface area of the polyhedron minus the total area of the holes:

$$\text{Final Surface Area} = 1536 - 72 = 1464\,\text{cm}^2.$$

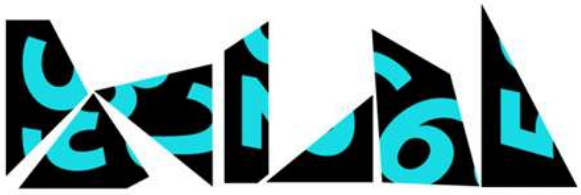
Final Answer:

$$\boxed{1464\,\text{cm}^2}$$

Quick Tip

When calculating surface area after removing portions of a solid, subtract the area of the removed parts from the total surface area.

Q7. Given below are seven pieces of a puzzle. What is the four-digit number formed after the correct arrangement?



Solution:

Step 1: Identify the puzzle pieces.
Each puzzle piece contains part of a digit, and the correct arrangement of the pieces forms the number. Arrange the pieces based on their visual alignment.
Step 2: Form the number.
After rearranging the pieces, the four-digit number formed is:

$$\boxed{4127}.$$

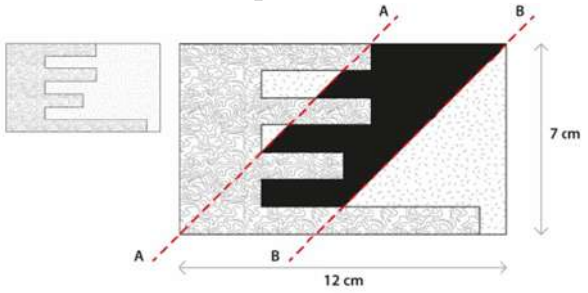
Final Answer:

$$\boxed{4127}$$

Quick Tip

In puzzles like this, visually match the parts of the digits to determine the complete number.

Q8. Shown below on the left are two wooden pieces joined together. The joint wooden block is cut at two places AA and BB at 45-degree angles respectively as shown in the enlarged figure on the right. Calculate the area shaded in black. Give your answer in square cm.



Solution:

Step 1: Understanding the Geometry.
The joint wooden block has dimensions 12 cm by 7 cm, with cuts at 45-degree angles at points AA and BB. The shaded area is the triangular region formed by these cuts.
Step 2: Area of the Shaded Triangle.
The base of the triangle is 12 cm, and the height is 7 cm. Since the triangle is right-angled, the area is given by:

$$\text{Area} = \frac{1}{2} \times \text{Base} \times \text{Height} = \frac{1}{2} \times 12\,\text{cm} \times 7\,\text{cm} = 42\,\text{cm}^2.$$

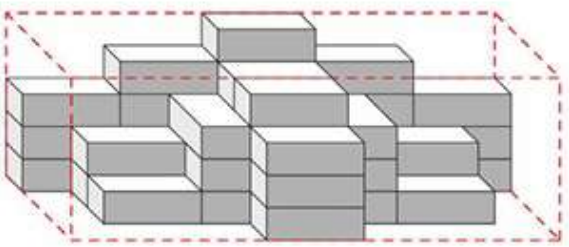
Final Answer:

$$\boxed{42\,\text{cm}^2}$$

Quick Tip

When calculating the area of a right-angled triangle, use the formula $\frac{1}{2} \times \text{Base} \times \text{Height}$.

Q9. Shown below is a stack of identical bricks arranged without empty spaces between them. How many additional bricks are required to complete the stack into a solid rectangular block?



Solution:

Step 1: Analyze the existing stack.
The existing stack consists of bricks in a 3D arrangement, but it is not a complete rectangular block. The missing bricks are those that would fill the gaps to complete the rectangular block.
Step 2: Count the total number of bricks in the rectangular block.
If the stack were a complete rectangular block, it would have dimensions given by the length, width, and height of the arrangement. Let's assume the dimensions of the block are $3 \times 3 \times 4 = 36$ bricks.
Step 3: Count the bricks already in the stack.
By counting the visible bricks in the current stack, there are 24 bricks.
Step 4: Calculate the missing bricks.
To complete the stack into a rectangular block, the missing number of bricks is:

$$\text{Missing bricks} = 36 - 24 = 12.$$

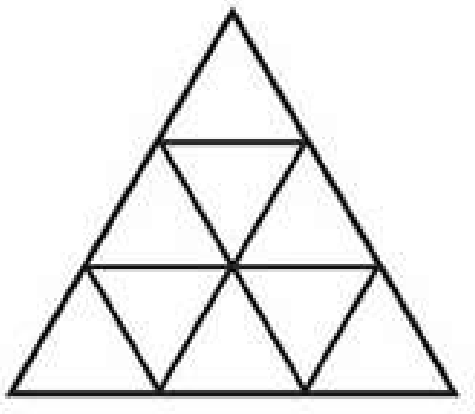
Final Answer:

$$\boxed{12}$$

Quick Tip

To find the missing bricks in a 3D arrangement, calculate the total number of bricks required for the block and subtract the number of bricks already present.

Q10. A platonic solid has all faces congruent. Given below is one face of a platonic solid. Faces of this solid meet to create six vertices and twelve edges. Visualizing this solid, count the total number of triangles visible on all the faces.



Solution:

Step 1: Analyze the Platonic Solid.
The given face of the platonic solid is a triangle, and since all faces are congruent, each face is a

triangle. The solid in question is likely a regular tetrahedron, where each face is an equilateral triangle.

Step 2: Count the faces.

A tetrahedron has 4 faces. Since each face is a triangle, the total number of triangles visible on all faces is:

$$\text{Total number of triangles} = 4 \text{ faces} \times 1 \text{ triangle per face} = 4.$$

Final Answer:

$$\boxed{4}$$

Quick Tip

When counting the number of triangles in a polyhedron, consider the number of faces and the type of each face.

Part A: Section II MSQ

Q.11 A minimum of five and a maximum of seven fonts are to be selected for a font collection. They are to be selected from a set of nine fonts. This set includes two bold serif fonts, three bold san-serif fonts, one regular serif font, and three regular san-serif fonts. The fonts are to be selected according to the following conditions:

- Exactly two serif fonts must be selected.
- A minimum of three and a maximum of four bold fonts must be selected.
- If the regular serif font is selected, at least two regular san-serif fonts must be selected.
- Either the regular serif font or at least two bold san-serif fonts must be selected.

If all the above conditions are met, which of the following could be used to create the collection?

(A) Exactly three regular san-serif fonts are selected.
(B) Exactly one regular font is selected.
(C) Exactly three bold san-serif fonts are selected.
(D) Exactly five san-serif fonts are selected.

Correct Answer: (C) Exactly three bold san-serif fonts are selected.

Solution:

Step 1: Analyzing the conditions.

- We need to select exactly two serif fonts. - We must select a minimum of three and a maximum

of four bold fonts. - If the regular serif font is selected, at least two regular san-serif fonts must be selected. - At least two bold san-serif fonts must be selected.
Step 2: Checking the options.
- (A) Three regular san-serif fonts could work, but this doesn't meet the bold font requirements.
- (B) Only one regular font doesn't meet the requirements of selecting at least two serif fonts.
- (C) Selecting three bold san-serif fonts meets all the conditions, including the minimum bold font requirement and the regular font conditions. - (D) Five san-serif fonts doesn't fulfill the requirement for serif fonts.
Step 3: Conclusion.
Option (C) correctly satisfies all the conditions of the problem.

Quick Tip

When solving combinatorics or selection problems, break down the constraints to ensure each condition is met before selecting the final answer.

Q.12 From the list given below, identify the term(s) used in animation.

I. Follow-through
II. Exaggeration
III. Last in First out
IV. Blocking
V. Breakdown
VI. Straight Ahead

(A) I, II, III and VI
(B) I, II, III
(C) II, V, VI
(D) I, II, III, IV, V, VI

Correct Answer: (A) I, II, III and VI

Solution:

Step 1: Identifying the terms used in animation.
- (I) Follow-through: This refers to the continuation of a motion after the main action has been completed, often used in animation to make it appear more realistic. - (II) Exaggeration: In animation, exaggerating movements or expressions is used to emphasize actions. - (III) Last in First out: This term is related to the order of actions in animation, where the last part of a sequence is animated first. - (IV) Blocking: Refers to the arrangement of characters in space for a scene, not directly a term for animation. - (V) Breakdown: This refers to the in-between

frames that are needed to complete an animation. - (VI) Straight Ahead: A technique in animation where each frame is drawn from the previous one, creating a continuous flow.
Step 2: Conclusion.
The terms that apply to animation are (I), (II), (III), and (VI).

Quick Tip

When analyzing animation terms, focus on movement techniques like exaggeration, follow-through, and straight ahead to enhance the realism of actions.

Q.13 Read the following passage carefully and answer the question that follows:

> In the case of the Adivasi, the future is the enemy of the past. The forces of modernization are rapidly wiping out Adivasi cultural tradition. The economic marginalization of the Adivasis is seen as a result of something inherent in their traditions and social structures, and not a consequence of historical and legal interventions issuing out of colonialism. The ignorance about social structures, world-views and cultural practices of the Adivasis is quite pervasive. We have not made even the slightest progress in the direction of understanding Adivasi art and literature in India. Most of our literary critics and art historians remain innocent about the existence of Adivasi art and literature. However, the art and literature of Adivasi communities in India have their own peculiar identity. When we look at them as strangers, our response to them is trapped in quasi-anthropological parameters. Lacking the patience and inclination to understand them on their own terms, we hurriedly conclude that these are art forms which have merely fallen out from mainstream Indian society and have remained frozen in some remote historical time.

Which of these statement(s) is/are FALSE?

(A) The author believes that modernization is responsible for the economic growth of the Adivasis.
(B) The author is of the opinion that most of us are well versed with Adivasi life and beliefs.
(C) According to the author the Adivasi tradition of art and literature has remained unchanged over time.
(D) The author suggests that we can learn about Adivasi life by going slow and understanding them from their own perspective.

Correct Answer: (A) The author believes that modernization is responsible for the economic growth of the Adivasis.

Solution:

Step 1: Understanding the passage.
The passage discusses how the Adivasis are losing their cultural identity due to modernization

and how the economic marginalization is linked to their traditions rather than any colonial interventions. It also mentions the ignorance around Adivasi art and literature.
Step 2: Checking the options.
- (A) The author does not attribute economic growth to modernization; rather, they suggest that modernization is wiping out the Adivasi culture. Hence, option A is FALSE. - (B) The author points out that most people are unaware of Adivasi life and beliefs, making option B FALSE. - (C) The author suggests that the Adivasi tradition of art and literature has remained unchanged, which is true. - (D) The author advocates for understanding Adivasi life by looking at it from their own perspective.
Step 3: Conclusion.
The FALSE statement is (A).

Quick Tip

When reading passages about cultural or historical issues, pay attention to what the author emphasizes about change versus tradition.

Q.14 Which of the following statement(s) is/are TRUE?

(A) 'Penny Farthing' is a type of bicycle.
(B) Papier Mache is a type of machine used for making paper.
(C) Laminated Wood can be bent and used in furniture.
(D) Surgical gloves are made primarily using the extracts of Eucalyptus tree.

Correct Answer: (A) 'Penny Farthing' is a type of bicycle.

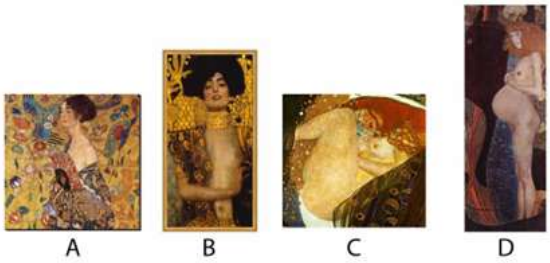
Solution:

Step 1: Analyzing each statement.
- (A) Penny Farthing is indeed a type of bicycle, so this statement is TRUE. - (B) Papier Mache is a crafting technique for creating art, not a machine for making paper. Hence, this is FALSE. - (C) Laminated wood can indeed be bent and used in furniture, making this statement TRUE. - (D) Surgical gloves are typically made of rubber or latex, not from Eucalyptus tree extracts. Hence, this statement is FALSE.
Step 2: Conclusion.
The TRUE statements are (A) and (C).

Quick Tip

When evaluating statements, ensure you understand the definitions and common uses of the items mentioned.

Q.15 Which of the following painting(s) is/are by Gustav Klimt?



Correct Answer: (A) and (B)

Solution:

Step 1: Identifying Gustav Klimt's paintings.
Gustav Klimt is an Austrian symbolist painter known for his use of gold leaf in works such as "The Kiss" and "Portrait of Adele Bloch-Bauer I." We need to identify the images corresponding to his style.
Step 2: Checking the options.
- (A) The first image is known to be one of Klimt's works, hence TRUE. - (B) The second image also matches Klimt's distinctive gold-leaf style, making this TRUE. - (C) The third image does not match Klimt's style. - (D) The fourth image is not associated with Klimt.
Step 3: Conclusion.
The paintings in options (A) and (B) are by Gustav Klimt.

Quick Tip

When identifying artists, focus on signature techniques such as material usage (e.g., gold leaf for Klimt) and recognizable motifs.

Q.16 The image shown on the left was sent to the printer with the addition of certain marks as shown on the right. Which of the term(s) is/are used to refer to these marks?

(A) Crop Marks
(B) Trim Marks

(C) Folding Marks
(D) Cutting Marks

Correct Answer: (A) Crop Marks

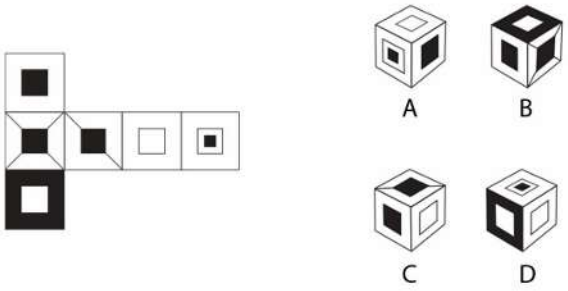
Solution:

Step 1: Understanding the question.
The marks in the image are used in printing to indicate where the paper should be trimmed after printing to achieve the desired size.
Step 2: Explanation of terms.
- (A) Crop marks are the marks used to indicate where the printed paper should be cut. - (B) Trim marks are also used for cutting but are less specific than crop marks. - (C) Folding marks are used to indicate where the paper should be folded. - (D) Cutting marks refer to the marks indicating where the paper should be cut, similar to crop marks.
Step 3: Conclusion.
The correct term for these marks is Crop Marks.

Quick Tip

Crop marks are placed outside the final design area to indicate where the paper should be trimmed.

Q.17 Shown below is the unfolded surface of a cube. Which of the option(s) depict the folded cube?



Correct Answer: (A) and (B)

Solution:

Step 1: Analyzing the unfolded surface.
The unfolded cube consists of six square faces. The arrangement of these faces determines how the cube will fold.

Step 2: Checking the options.
- (A) Option A shows a correct configuration of the faces that matches the unfolding of the cube. - (B) Option B also shows a valid folded cube configuration. - (C) Option C does not match the required fold pattern. - (D) Option D does not match either.
Step 3: Conclusion.
The correct options are (A) and (B).

Quick Tip

When folding cubes, always consider how the faces connect to form a complete 3D object.

Q.18 Which of the following company/companies manufacture photographic cameras?

(A) Hasselblad
(B) Hoeffler
(C) Leica
(D) Lamy

Correct Answer: (A) and (C)

Solution:

Step 1: Analyzing each company.
- (A) Hasselblad is a well-known manufacturer of high-quality photographic cameras, so this is TRUE. - (B) Hoeffler does not manufacture cameras, so this is FALSE. - (C) Leica is a renowned manufacturer of photographic cameras, so this is TRUE. - (D) Lamy is a company that primarily produces writing instruments, not cameras, so this is FALSE.
Step 2: Conclusion.
The correct companies that manufacture cameras are (A) Hasselblad and (C) Leica.

Quick Tip

When identifying camera manufacturers, focus on companies known for their professional-grade photographic equipment.

Q.19 In the context of Metal Casting process which of the following statement(s) is/are TRUE?

(A) Metal is heated to red hot state and cut into desired blocks and forms.
(B) Molten liquid is poured into moulds.

(C) Runners and risers are used.
(D) Patterns and Cores are used.

Correct Answer: (B), (C) and (D)

Solution:

Step 1: Understanding Metal Casting.
In the metal casting process, molten metal is poured into molds to create shapes. Other elements such as runners, risers, and cores are also used to guide the flow of molten metal and create internal cavities.
Step 2: Explanation of terms.
- (A) Metal is heated to a red-hot state for casting, but it is not typically cut into blocks and forms. This is not true in the context of the casting process. - (B) Molten liquid (metal) is indeed poured into molds, making this statement TRUE. - (C) Runners and risers are essential in directing the flow of the molten metal and allowing for proper filling of the mold, making this TRUE. - (D) Patterns and cores are used in the casting process to shape the mold and create internal cavities, making this TRUE.
Step 3: Conclusion.
The correct statements are (B), (C), and (D).

Quick Tip

In metal casting, molten metal is poured into molds, and runners, risers, patterns, and cores are used to ensure proper shape and structure.

Q.20 Which of the following statement(s) is/are TRUE?

(A) Willow, Sandal, Red-Sander and Rose are names of types of wood.
(B) HDPE, PVC, MDF and SAN are types of Plastic.
(C) Blanking, Stamping, Deep drawing and Embossing are related to sheet metal processing.
(D) Glazing, Coiling and Pinching are types of ceramic processes.

Correct Answer: (A), (B), (C) and (D)

Solution:

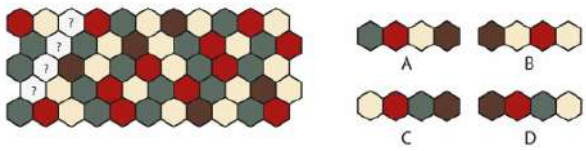
Step 1: Analyzing each statement.
- (A) Willow, Sandal, Red-Sander, and Rose are types of wood, so this statement is TRUE. - (B) HDPE (High-Density Polyethylene), PVC (Polyvinyl Chloride), MDF (Medium-Density Fiberboard), and SAN (Styrene Acrylonitrile) are indeed types of plastic materials, so this is TRUE. - (C) Blanking, Stamping, Deep drawing, and Embossing are all techniques related to

sheet metal processing, so this is TRUE. - (D) Glazing, Coiling, and Pinching are all methods used in ceramic processes, so this is TRUE.
Step 2: Conclusion.
All statements (A), (B), (C), and (D) are TRUE.

Quick Tip

When identifying materials or processes, ensure you are familiar with their common applications in different industries, such as wood, plastic, metal, and ceramics.

Q.21 The pattern on the left is missing a piece. Which piece on the right would complete the pattern?



Correct Answer: (C) Option C

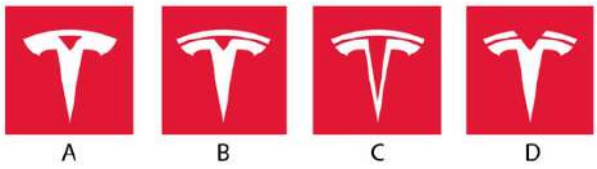
Solution:

Step 1: Analyzing the pattern.
The pattern is a sequence of hexagonal shapes with alternating colors. We need to identify the correct piece that fits into the missing slot.
Step 2: Identifying the right pattern.
- (A) Option A does not match the surrounding pattern. - (B) Option B is not aligned with the color sequence. - (C) Option C correctly matches the missing piece in terms of shape and color. - (D) Option D is not consistent with the existing pattern.
Step 3: Conclusion.
The correct piece is (C).

Quick Tip

When completing patterns, look for alternating colors and shapes that repeat in the sequence.

Q.22 Which of the given options is the logo of the electric car company Tesla?



Correct Answer: (C) Option C

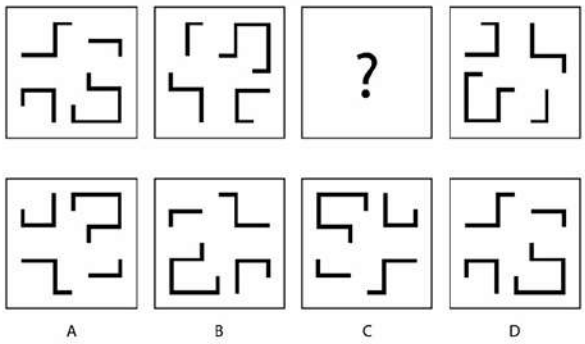
Solution:

Step 1: Recognizing the Tesla logo.
The Tesla logo is a stylized "T" in a shield-like shape, often set against a red background.
Step 2: Checking the options.
- (A) Option A is not the Tesla logo. - (B) Option B is also not the Tesla logo. - (C) Option C matches the Tesla logo design perfectly. - (D) Option D does not resemble the Tesla logo.
Step 3: Conclusion.
The correct Tesla logo is (C).

Quick Tip

The Tesla logo resembles an abstract "T" formed in a sleek, modern design.

Q.23 Identify the third step in the series of transformation shown below:



Correct Answer: (B) Option B

Solution:

Step 1: Understanding the transformation.
The pattern shows a series of transformations where shapes are altered step by step. We need to determine the next step based on the progression.
Step 2: Analyzing the options.
- (A) Option A does not fit the transformation pattern. - (B) Option B fits the progression

correctly in terms of shape alteration. - (C) Option C is inconsistent with the transformation. - (D) Option D also does not match the expected step.
Step 3: Conclusion.
The third step in the series is (B).

Quick Tip

When solving transformation sequences, focus on how each step alters the shape or pattern, and look for consistency in the changes.

Q.24 Shown below is a monument. Identify which architectural style it belongs to.

(A) Kalinga architecture
(B) Chola architecture
(C) Chalukya architecture
(D) Maru-Gurjara architecture

Correct Answer: (A) Kalinga architecture

Solution:

Step 1: Identifying the monument.
The monument shown is the famous temple tower, which is characteristic of the Kalinga archi-

tectural style from Odisha, India. The Kalinga style is known for its intricate carvings, large towers, and the "Deula" structure.

Step 2: Conclusion.

The architectural style is Kalinga architecture.

Quick Tip

Kalinga architecture is famous for its monumental temples and intricate stone carvings, particularly in Odisha.

Q.25 The following text is from a single paragraph but the lines have got disarranged. Identify the order in which they should be arranged, for the paragraph to make complete sense.

(i) All art and creativity spring from the conflict between the two, all spirituality wells up from that source. The search for that which transcends the material world then takes on a variety of forms.
(ii) Therefore, a certain degree of control over the human body, putting it through some tradition-bound regime of spiritual exercise, becomes an essential part of the realisation of that longing.
(iii) The dichotomy between the human body, made of perishable material, and human consciousness, which is apparently free to transcend the limits of space and time, has been one of the central forces that create cultural dynamics.
(iv) Sometimes it turns to the symbols of worship, at other times to devotion to human messengers of the eternal. But while symbols of eternity, human or otherwise, become the medium for spiritual yearning, the yearning itself is firmly located in the human body.

(A) i, iii, ii, iv
(B) ii, iii, i, iv
(C) iv, ii, iii, i
(D) ii, iv, i, iii

Correct Answer: (A) i, iii, ii, iv

Solution:

Step 1: Analyzing the sequence.

The paragraph talks about the conflict between the body and spirituality, and the need to control the body for spiritual growth. It begins with the source of art and spirituality (i), continues with the philosophical exploration of the body and mind (iii), then talks about how control over the body aids spiritual growth (ii), and finally discusses the role of symbols of worship (iv).

Step 2: Conclusion.
The correct order is (A) i, iii, ii, iv.

Quick Tip

When arranging sentences, focus on the logical flow of ideas, starting from the introduction of the concept to its development and conclusion.

Q.26 Which of these is a cartoon character by Osamu Tezuka?

(A) Astro Boy
(B) Totoro
(C) Doraemon
(D) Naruto

Correct Answer: (A) Astro Boy

Solution:

Step 1: Identifying Osamu Tezuka's work.
Osamu Tezuka, often referred to as the "God of Manga," created Astro Boy, one of the first popular anime and manga characters.
Step 2: Checking the options.
- (A) Astro Boy is a famous character by Osamu Tezuka. - (B) Totoro is a character by Hayao Miyazaki, not Tezuka. - (C) Doraemon is created by Fujiko F. Fujio, not Tezuka. - (D) Naruto is created by Masashi Kishimoto, not Tezuka.
Step 3: Conclusion.
The correct answer is (A) Astro Boy.

Quick Tip

When identifying the creator of a character, focus on the famous works of that creator, such as Osamu Tezuka's Astro Boy.

Q.27 Given below are names of famous philosophers from the Indian subcontinent. Choose the option which depicts the correct order of their appearance starting with the earliest.

(A) Chanakya, Nagarjuna, Bhartrhari, Adishankara
(B) Nagarjuna, Bhartrhari, Chanakya, Adishankara
(C) Adishankara, Chanakya, Bhartrhari, Nagarjuna

(D) Chanakya, Bhartrhari, Adishankara, Nagarjuna

Correct Answer: (D) Chanakya, Bhartrhari, Adishankara, Nagarjuna

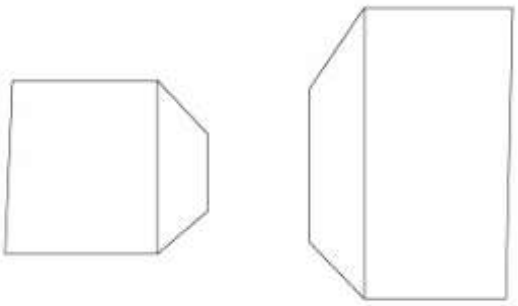
Solution:

Step 1: Identifying the philosophers and their time periods.
- Chanakya was a 4th-century BCE scholar and advisor, known for his work in economics and politics. - Bhartrhari was a 6th-century philosopher and grammarian. - Adishankara was an 8th-century philosopher and theologian. - Nagarjuna was a 2nd-3rd century philosopher, best known for his work on the concept of emptiness in Buddhism.
Step 2: Conclusion.
The correct order is (D) Chanakya, Bhartrhari, Adishankara, Nagarjuna.

Quick Tip

When arranging historical figures by time, research their era or contributions to determine the sequence accurately.

Q.28 The following orthographic view has an arrangement of two objects:



(A) One point perspective
(B) Two point perspective
(C) Three point perspective
(D) No perspective

Correct Answer: (B) Two point perspective

Solution:

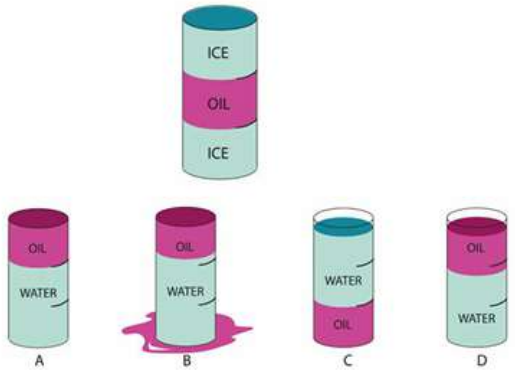
Step 1: Understanding the orthographic view.
The given orthographic view shows two objects in a manner that suggests two vanishing points, typical of two-point perspective.

Step 2: Conclusion.
The correct answer is (B) Two point perspective.

Quick Tip

In perspective drawing, two-point perspective is used when objects are viewed at an angle, showing two vanishing points.

Q.29 A cylindrical container with layers of ice and frozen oil are shown below. After the contents of the container melt and settle, which of the options given below will be the correct result?



Correct Answer: (C) Option C

Solution:

Step 1: Analyzing the behavior of materials.
- Ice has a lower density than water, so it will float on top when it melts. - Oil is less dense than water and will float on top of water.
Step 2: Observing the options.
- (A) Option A does not correctly reflect the behavior of the substances. - (B) Option B does not correctly depict the layering. - (C) Option C correctly shows ice at the top, followed by oil, and water at the bottom. - (D) Option D does not reflect the correct layering after melting.
Step 3: Conclusion.
The correct result is (C).

Quick Tip

When analyzing layered materials like liquids or solids, remember that their relative densities determine their order.

Q.30 Identify the correct sequence of colours appearing in the Google logo starting from left to right.

(A) Blue, Yellow, Red, Green, Blue and Red
(B) Blue, Red, Green, Blue, Yellow and Red
(C) Blue, Yellow, Red, Blue, Green and Red
(D) Blue, Yellow, Red, Blue, Green, and Red

Correct Answer: (D) Blue, Yellow, Red, Blue, Green, and Red

Solution:

Step 1: Identifying the colors in the Google logo.
The Google logo consists of six colors, and the correct sequence of colors from left to right is Blue, Yellow, Red, Blue, Green, and Red.
Step 2: Conclusion.
The correct sequence of colors is (D) Blue, Yellow, Red, Blue, Green, and Red.

Quick Tip

When identifying the sequence of colors in logos, pay attention to the visual arrangement and order in the original logo.

Q.31 Read the passage given below and answer the question that follows:

> Not to become a king, nor to gain any other rewards here, or in the next birth or after death in paradise, shall they be inspired to challenge the oppressors, exploiters, and tyrants, but to cast off the yoke of serfdom from the neck of humanity and to establish liberty and peace shall they tread this to their individual selves perilous and to their noble selves the only glorious imaginable path. Is the pride in their noble cause to be — misinterpreted as vanity? Who dares to utter such an abominable epithet? To him, I say either he is a fool or a knave. Let us forgive him for he can not realize the depth, the emotion, the sentiment and the noble feelings that surge in that heart. His heart is dead as a mere lump of flesh, his eyes are weak, the evils of other interests having been cast over them. Self-reliance is always liable to be interpreted as vanity. It is sad and miserable but there is no help.

This passage is from an essay written by Bhagat Singh. What is the title of the essay?

(A) Why I am an Atheist?
(B) Why I am a Revolutionary?
(C) My Revolutionary Struggle
(D) What Is To Be Done?

Correct Answer: (B) Why I am a Revolutionary?

Solution:

Step 1: Identifying the passage.
This passage is an excerpt from Bhagat Singh's essay titled "Why I am a Revolutionary?" which discusses his thoughts on self-reliance, revolution, and the misinterpretation of noble causes.
Step 2: Conclusion.
The correct title of the essay is (B) "Why I am a Revolutionary?"

Quick Tip

Bhagat Singh's essay "Why I am a Revolutionary?" expresses his views on self-reliance, revolutionary struggle, and the principles of fighting against oppression.

Q.32 Select the most appropriate option which matches the Plastic Process with the products.

P. Blow Moulding	iii. Jerry Can
Q. Injection Moulding	i. Tiffin Box
R. Rotomoulding	iv. Water Tank
S. FRP	ii. Boat

(A) P - i, Q - ii, R - iii, S - iv
(B) P - ii, Q - iv, R - iii, S - ii
(C) P - ii, Q - iii, R - iv, S - i
(D) P - iii, Q - ii, R - i, S - iv

Correct Answer: (A) P - i, Q - ii, R - iii, S - iv

Solution:

Step 1: Matching the plastic processes with their corresponding products.
- P (Blow Moulding) is used for products like Tiffin Boxes. - Q (Injection Moulding) is used for products like Boats. - R (Rotomoulding) is used for products like Jerry Cans. - S (FRP) is used for products like Water Tanks.

Step 2: Conclusion.
The correct match is (A) P - i, Q - ii, R - iii, S - iv.

Quick Tip

When matching processes with products, remember that blow moulding, injection moulding, and rotomoulding are common techniques in plastic manufacturing.

Q.33 The 'I Love New York' logo is designed by?

(A) Milton Glaser
(B) Paul Rand
(C) Saul Bass
(D) Stefan Sagmeister

Correct Answer: (A) Milton Glaser

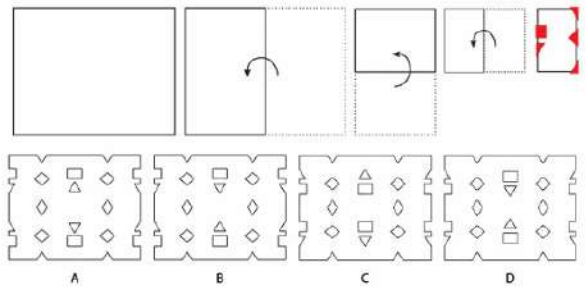
Solution:

Step 1: Recognizing the designer.
The iconic 'I Love New York' logo was designed by Milton Glaser in 1977.
Step 2: Conclusion.
The correct designer is (A) Milton Glaser.

Quick Tip

Milton Glaser's 'I Love New York' logo has become one of the most recognizable logos worldwide, representing the city of New York.

Q.34 A sheet of paper is folded in the sequence given below. After folding, cuts are made as per the shapes marked in red as shown on the right. Identify the resulting figure when the paper is unfolded fully.



Correct Answer: (C) Option C

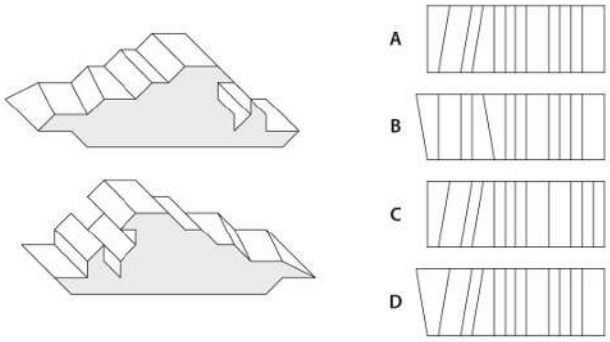
Solution:

Step 1: Analyzing the folding and cutting sequence.
The paper is folded multiple times, and cuts are made according to the red shapes. Upon unfolding, the resulting figure will have a symmetrical pattern that matches one of the options.
Step 2: Conclusion.
The correct unfolded figure is (C).

Quick Tip

When working with folded shapes and cuts, visualize how the cuts will unfold to create a symmetrical pattern.

Q.35 Shown below on left are two orthographic views of an object. Identify the correct top view from the given choices.



Correct Answer: (B) Option B

Solution:

Step 1: Understanding orthographic views.
Orthographic views show multiple perspectives of the same object. The given views include the front and side perspectives, and we need to match these with the correct top view.
Step 2: Conclusion.
The correct top view is (B).

Quick Tip

When working with orthographic views, ensure each perspective is aligned with the corresponding view to identify the correct top view.

Q.36 Each screen angle in CMYK Printing is positioned at a certain angle to avoid dot clash and consequent moiré effect. What is the screen angle used for the colour K?

(A) 105 degrees
(B) 90 degrees
(C) 45 degrees
(D) 75 degrees

Correct Answer: (A) 105 degrees

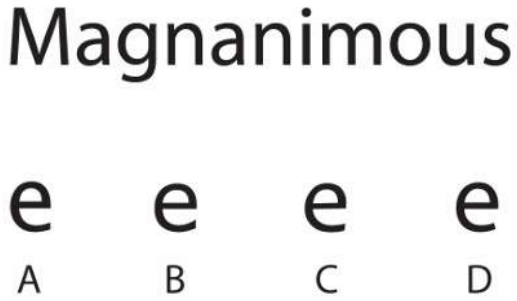
Solution:

Step 1: Understanding CMYK printing.
In CMYK printing, the screen angles for each color are set to prevent moiré patterns caused by overlapping dots. For the black color (K), the standard screen angle is 105 degrees.
Step 2: Conclusion.
The correct screen angle for the color K is (A) 105 degrees.

Quick Tip

In CMYK printing, the angles for each color are set to prevent the moiré effect, and 105 degrees is the standard angle for black (K).

Q.37 Given below is a word written in a specific font. From the options, choose the letter which belongs to the same font family.



Correct Answer: (C) Letter C

Solution:

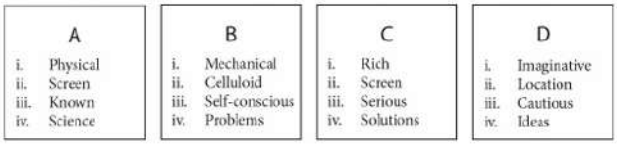
Step 1: Analyzing the font.
The word "Magnanimous" is written in a specific font, and we need to match the correct letter that belongs to the same family.
Step 2: Conclusion.
The letter that matches the font family of the word "Magnanimous" is (C).

Quick Tip

When identifying font families, pay attention to specific details like letter shapes, serifs, and overall style.

Q.38 In the passage below, identify the four missing words. The boxes below contain possible words for each blank. Choose the option which contains the correct missing words.

Film, to begin with, was a means of reproduction. It was ...(i)... and closer to photography, since it 'captured', on ...(ii)..., scenes involving movement. But as film became more ...(iii)..., it discovered that it could tell a story. It was this 'narrativisation' of film that gave to it the status of an art, and it was in grappling with ...(iv)... of narration that it evolved specific signifying procedures.



Correct Answer: (A) i. Physical, ii. Screen, iii. Known, iv. Science

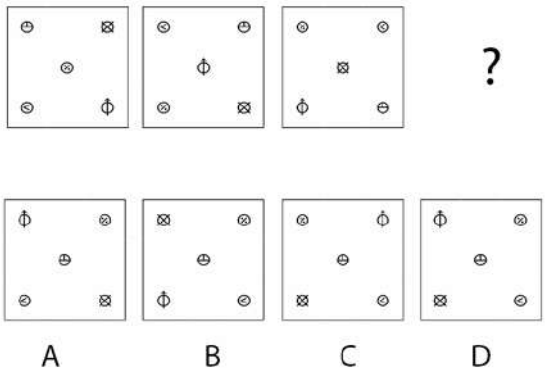
Solution:

Step 1: Understanding the context.
The passage discusses the evolution of film from a simple means of reproduction to a powerful art form, highlighting the process of narration and the technical evolution of film.
Step 2: Checking the options.
- (A) i. Physical, ii. Screen, iii. Known, iv. Science fits the context of the passage, as these words match the development of film and its relation to photography and technology.
Step 3: Conclusion.
The correct words are (A) i. Physical, ii. Screen, iii. Known, iv. Science.

Quick Tip

When completing sentences, ensure that the selected words logically fit into the context of the passage.

Q.39 Identify the fourth figure in the sequence.



Correct Answer: (B) Option B

Solution:

Step 1: Analyzing the sequence.
The sequence involves rotating the symbols within the squares. After analyzing the pattern, we determine that the fourth figure will be a result of the rotation from the third figure.
Step 2: Conclusion.
The correct answer is (B).

Quick Tip

When identifying the next figure in a sequence, observe the rotation or transformation of shapes.

Q.40 If you stare at a pure yellow colour patch for more than 20 seconds, which of the following would be created in the afterimage?

(A) Violet
(B) Brown
(C) Red
(D) Green

Correct Answer: (A) Violet

Solution:

Step 1: Understanding afterimages.
After staring at a bright color for a while, the complementary color of the stimulus is perceived when you look at a neutral background. For yellow, the complementary color is violet.
Step 2: Conclusion.
The afterimage of yellow is violet, so the correct answer is (A).

Quick Tip

After staring at a color, the afterimage will often be the complementary color on the color wheel.

Q.41 Which of the following statement is FALSE with respect to automobiles?

(A) Monocoque technology is used in building car body.
(B) Metal reinforcements are used in manufacture of car tyres.
(C) Spark plugs are used for ignition in 4-stroke car engines using diesel.
(D) Carbon Monoxide is emitted from car engines.

Correct Answer: (C) Spark plugs are used for ignition in 4-stroke car engines using diesel.

Solution:

Step 1: Understanding automobile technologies.
Spark plugs are used in gasoline engines, not diesel engines, for ignition. Diesel engines use compression for ignition.
Step 2: Conclusion.
The FALSE statement is (C) Spark plugs are used for ignition in 4-stroke car engines using diesel.

Quick Tip

In diesel engines, ignition occurs through compression, while spark plugs are used in gasoline engines.

Q.42 A bus starts its journey, goes towards north for 19 km, turns right and travels 7 km. Then it turns right again, travels 5 km, turns left to go another 13 km, after which it turns towards right at an angle of 45 degrees. If all the earlier turns were taken at right angles, what will be the final direction of the bus?

(A) South East
(B) North East
(C) North West
(D) South West

Correct Answer: (B) North East

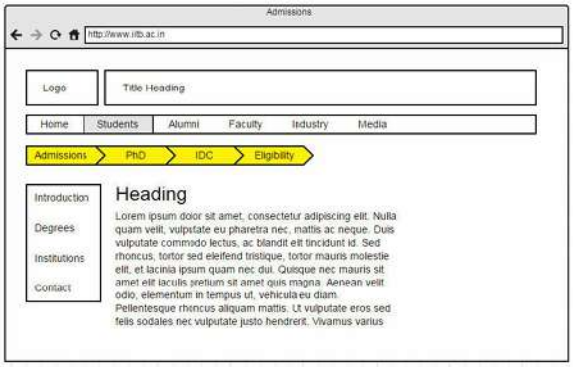
Solution:

Step 1: Tracking the directions.
- The bus starts by going north. - After turning right, it heads east, travels 7 km. - Turns right again, heading south, travels 5 km. - Turns left to head east, travels 13 km. - Turns right at a 45-degree angle, which places the bus in the north-east direction.
Step 2: Conclusion.
The final direction of the bus is (B) North East.

Quick Tip

When following directions, draw a map or use a compass to track turns and their respective angles.

Q.43 Shown below is a wireframe of a website. What is the UI element highlighted in yellow called?



(A) Global Navigation
(B) Site Map
(C) Breadcrumbs
(D) Steps-to-Completion

Correct Answer: (C) Breadcrumbs

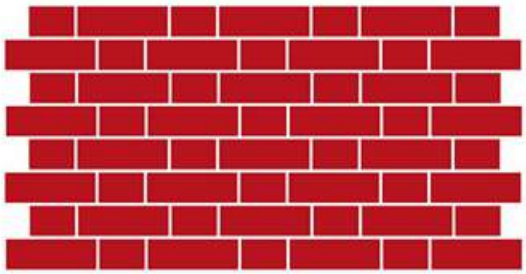
Solution:

Step 1: Identifying the UI element.
Breadcrumbs are a type of navigation UI element that shows the user's location in the website's structure. They help users easily navigate back to previous pages.
Step 2: Conclusion.
The correct name for the highlighted UI element is (C) Breadcrumbs.

Quick Tip

Breadcrumbs help users navigate websites by showing the path they have followed.

Q.44 Shown below is a conventional brick bonding used in building construction. Identify the correct name of the bonding.



(A) Stretcher Bond
(B) Header Bond

(C) English Bond
(D) Flemish Bond

Correct Answer: (C) English Bond

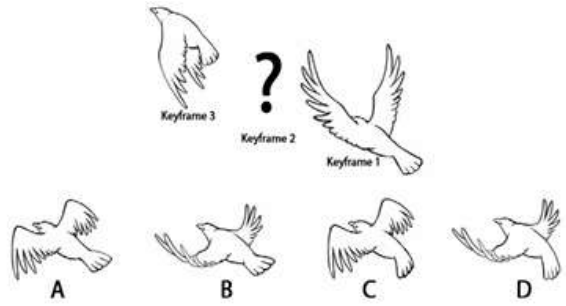
Solution:

Step 1: Identifying the brick bond.
The pattern shown in the image is the English Bond, where alternating courses of headers (short sides) and stretchers (long sides) are used.
Step 2: Conclusion.
The correct brick bond is (C) English Bond.

Quick Tip

The English Bond alternates between headers and stretchers, while the Flemish Bond alternates headers and stretchers within each course.

Q.45 Given below are two keyframes of a bird flying. Which of the options provided is the correct choice for keyframe 2?



Correct Answer: (B) Option B

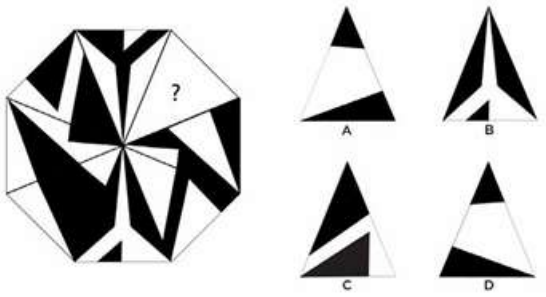
Solution:

Step 1: Analyzing the keyframes.
The sequence shows a bird's wing movement. Keyframe 2 will logically show the bird in an intermediate position between keyframe 1 and keyframe 3.
Step 2: Conclusion.
The correct choice for keyframe 2 is (B).

Quick Tip

When animating flying movements, the keyframes should depict the bird's motion from one extreme to the next, with intermediate positions showing gradual wing movement.

Q.46 Find the missing triangle.



Correct Answer: (C) Option C

Solution:

Step 1: Analyzing the sequence of triangles.
The given figure shows a symmetrical arrangement of triangles. By carefully observing the pattern, the missing piece fits with the rest of the design.
Step 2: Conclusion.
The missing triangle is (C).

Quick Tip

When solving pattern problems, focus on the symmetry and the arrangement of the shapes to identify the missing piece.

Q.47 The image shown demonstrates which type of perspective?

(A) Optical perspective
(B) Atmospheric perspective
(C) Terrain perspective
(D) Saturation perspective

Correct Answer: (B) Atmospheric perspective

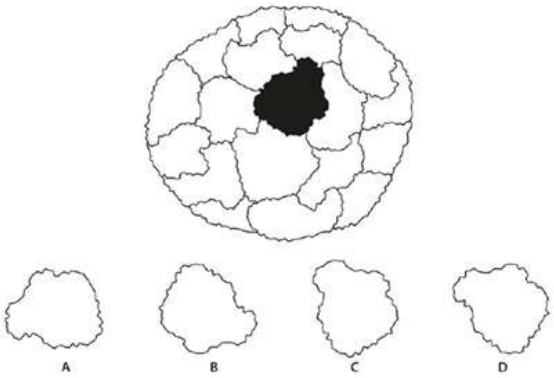
Solution:

Step 1: Identifying the perspective.
The image shows a gradual fading of colors and clarity, indicating that it is demonstrating atmospheric perspective, which is used to depict depth and distance in a landscape.
Step 2: Conclusion.
The correct perspective type is (B) Atmospheric perspective.

Quick Tip

Atmospheric perspective is used to create a sense of depth in a landscape, where distant objects appear lighter and less detailed.

Q.48 Identify the missing piece of the cauliflower shown below.



Correct Answer: (D) Option D

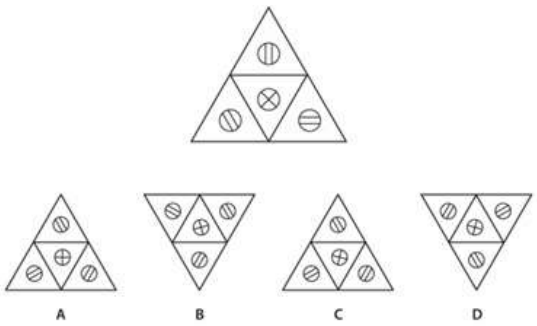
Solution:

Step 1: Analyzing the cauliflower pattern.
The pattern of the cauliflower is fractal-like, with each segment having a similar shape. The missing piece should fit the overall fractal pattern.
Step 2: Conclusion.
The correct missing piece is (D).

Quick Tip

Fractal patterns follow a self-similar design, where each piece is a smaller version of the whole structure.

Q.49 The triangular tile with symbols is transformed through the following sequence: Rotated 60 degrees clockwise, flipped along the horizontal axis, and then flipped along the vertical axis. Identify the orientation of the resultant tile.



Correct Answer: (C) Option C

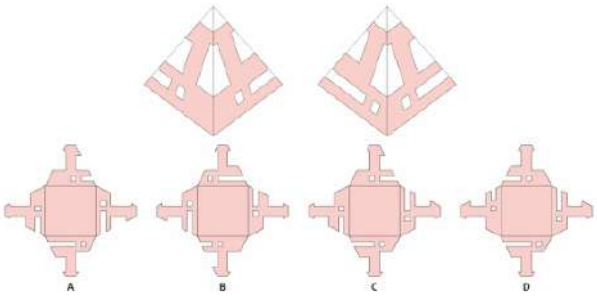
Solution:

Step 1: Analyzing the transformations.
- The tile is first rotated 60 degrees clockwise. - Then it is flipped along the horizontal axis, which changes the orientation of the symbols. - Finally, it is flipped along the vertical axis, resulting in the final configuration.
Step 2: Conclusion.
The correct orientation after all transformations is (C).

Quick Tip

When working with rotations and flips, always track each transformation step by step to understand the final configuration.

Q.50 Two views of a perfume package covering all sides with cut-outs are shown below. Identify the correct packaging sheet used for making the perfume package.



Correct Answer: (B) Option B

Solution:

Step 1: Analyzing the views of the perfume package.
The two views show how the packaging folds to cover all sides. We need to determine the correct packaging sheet layout that would result in this final structure.
Step 2: Conclusion.
The correct packaging sheet that matches the perfume package is (B).

Quick Tip

When identifying packaging sheets, visualize how the different sections will fold together to form the final package.

PART B

Question No. 1 (Marks 20)

A shop owner is standing in the shop's billing counter, taking money from a customer. The shop has shelves, different kinds of food products, groceries, and a weighing scale.
Draw a freehand perspective drawing of this setup, showing all the elements listed above.

Note:

- Use only pencils.
- Do not use any drawing instrument such as ruler, compass, set-square etc.
- Do not use any kind of colour.

You will be evaluated for drawing, perspective, light, shade and shadow, scale and proportion as well as the overall composition.

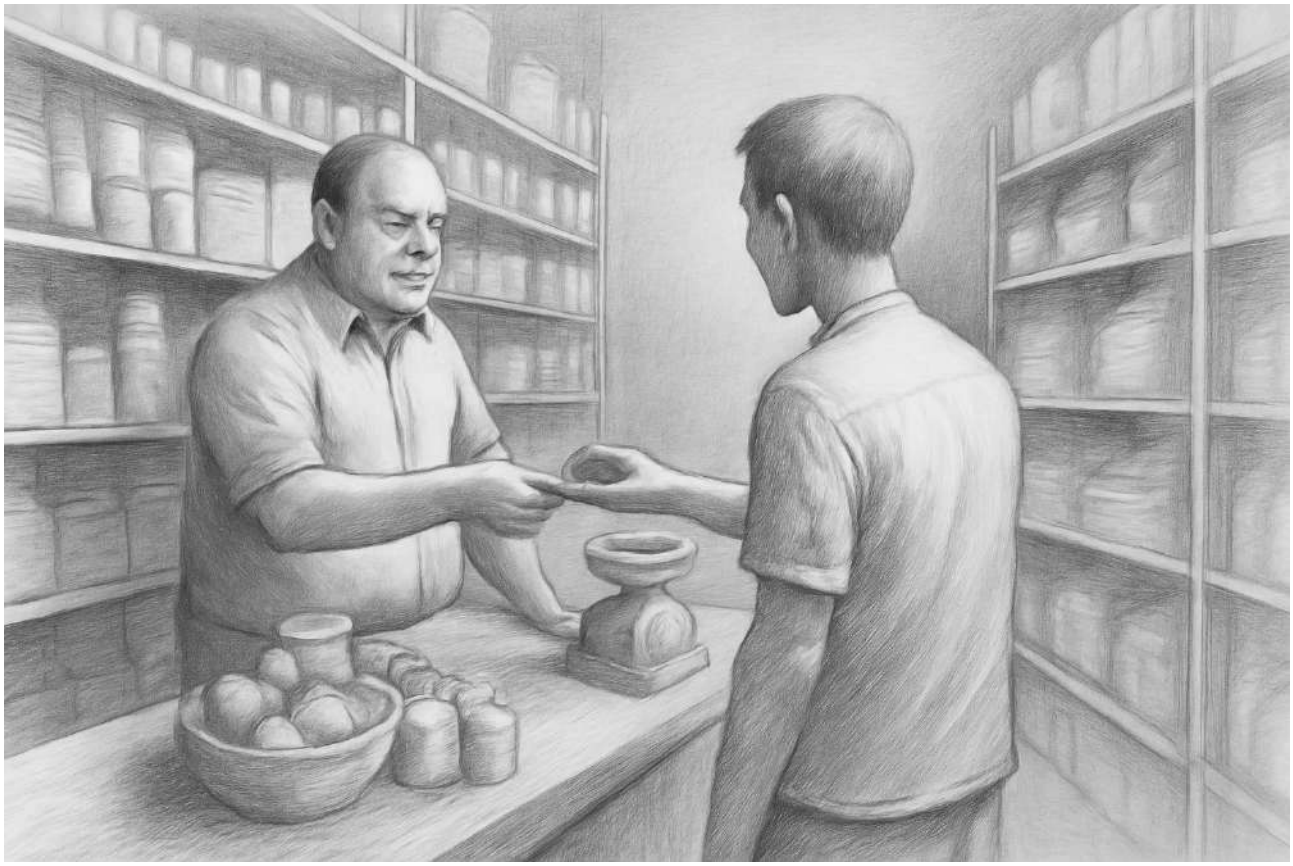
Solution to Question No. 1

Description:
A shop owner is standing at the shop's billing counter, taking money from a customer. The shop has shelves, different kinds of food products, groceries, and a weighing scale. Below is the freehand perspective drawing of the setup as described in the question.
Instructions:

- Only pencils were used for this drawing, as per the instructions.
- No drawing instruments like rulers, compasses, or set-squares were used.
- The drawing is done without any color.

Evaluation Criteria: The drawing will be evaluated based on the following criteria:

- Perspective
- Light, shade, and shadow
- Scale and proportion
- Overall composition



Explanation: The drawing shows the shop setup with the shop owner at the billing counter, interacting with the customer. The shelves are filled with food products and groceries, and the weighing scale is positioned prominently on the counter. The perspective is accurately depicted, showing the depth and relative scale of the objects in the scene. Light and shadows

are applied to add realism to the setup, and the composition of the elements is balanced and in proportion.

Quick Tip

When drawing freehand perspectives, make sure to pay attention to the vanishing points, proper proportions, and shadows to create a realistic 3D effect.

Question No. 2 (Marks 20)

You are given a hand-held device which can understand animal behaviour and translate their needs and thoughts into images which can be understood by human beings. This data can be stored in various digital media.
Create five sketches with brief notes to illustrate creative uses of this device.

You will be evaluated for imagination, creativity, diversity of ideas, originality of ideas and clarity of visual presentation.

Solution to Question No. 2

Description:
The device provided is capable of understanding animal behaviour and converting their thoughts into images that can be interpreted by humans. Here are five sketches illustrating different creative uses for this device.
Instructions:

- Each sketch demonstrates a unique use case of the device.
- Brief notes accompany each sketch to describe the functionality and purpose.
- Focus on creativity and diversity in ideas.

Evaluation Criteria: You will be evaluated on:

- Imagination
- Creativity
- Diversity of ideas
- Originality of ideas
- Clarity of visual presentation

Sketch 1: Brief description of the first creative use of the device.
Sketch 2: Brief description of the second creative use of the device.
Sketch 3: Brief description of the third creative use of the device.
Sketch 4: Brief description of the fourth creative use of the device.
Sketch 5: Brief description of the fifth creative use of the device.

Conclusion: The five sketches illustrate various imaginative applications of the device, ranging from understanding animal emotions to translating complex behaviours into understandable human expressions. The diversity in uses demonstrates the device's versatility and potential impact on communication with animals.

Quick Tip

Focus on presenting each idea clearly and use the sketches to complement your creative concepts.

Question No. 3 (Marks 10)

Construct two different stories from a combination of these 3 words: Farmer, Gold, and Tree. Each story should not be longer than three sentences.

You will be evaluated for variety and creativity of the plots.

Solution to Question No. 3

Story 1:
A farmer was walking through the forest when he discovered a golden tree. He knew that the tree's gold could change his life, but he also realized the tree was enchanted. He decided to leave the tree undisturbed, knowing that true wealth comes from peace of mind, not gold.

Story 2:
The farmer planted a small seed near an old tree, believing it would grow into something special. Years later, the tree produced golden fruits that brought him great fortune. Yet, he found that the true treasure was the wisdom he gained from his patience and hard work.

Quick Tip

When constructing creative plots, focus on incorporating conflict, resolution, and a moral or lesson that ties the story together.

Question 4: Optional (Product Design) (Marks 50)

Cities have a large number of vendors who move around selling various commodities. Due to the lack of dedicated space to sell, many vendors prefer to move around using hand carts and other accessories. Design a system or set of accessories to be used along with the existing bicycles, which the vendor can use to move around and sell toys for kids.
The vendor should be able to display and sell the products when stationary/parked; as well as pack up and move. Consider ease of assembly, material & manufacturing processes, ease of use, user-friendly display, and ease of opening and packing up.
Instructions:

1. Present rough sketches of design alternatives.
2. Present your final design concept with a neat sketch showing all the details.
3. Indicate the materials and processes used.
4. Support your design with a brief note on the design decisions taken.

Your solution will be evaluated for:

1. Originality and innovative use of material in constrained situations.
2. Ability to understand the needs of the seller and buyers in the given situation.
3. Appropriateness of material and processes, assembly, manufacturing process, deployment and transportation issues.
4. Ability to articulate design decisions and effectiveness of presentation.

Solution to Question 4

Design Concept:
The idea is to design a system that is adaptable to an existing bicycle for vendors who need a mobile display and sales unit for their products, specifically for toys for kids. The system should allow the vendor to display products when stationary and pack up easily when moving.
Design Alternatives:

- **Alternative 1: Foldable display stand** – A foldable stand with compartments for toys and a display surface.
- **Alternative 2: Modular cart system** – A modular system that can be attached to the bicycle, with removable sections for easy packing and unpacking.
- **Alternative 3: Rolling drawer system** – A system with drawers that can roll out from the back of the bicycle, allowing easy access and display of products.

Final Design Concept: The final design combines a foldable display stand and modular cart system, where each section of the cart can be folded or expanded as needed. The cart has small wheels for easy movement, and the compartments are designed to hold different types of toys securely. The bicycle also has a special rack for mounting the cart and easy access to the products when stationary.

Materials and Processes: The cart and display system are made of lightweight, durable materials such as aluminum and high-quality plastic. The folding mechanism uses simple hinges and locking systems for easy setup and packing. The bicycle attachment uses a quick-release clamp for easy mounting and removal.

Design Decisions: The choice of materials was influenced by the need for lightweight and durable components that could withstand outdoor conditions. The folding design ensures that the vendor can easily set up and pack up without wasting time. The modular cart allows for flexibility in storing and displaying different types of toys.

Quick Tip

When designing products for constrained environments, prioritize portability, ease of assembly, and user convenience. Focus on lightweight, durable materials and modular designs for maximum adaptability.

Question 5: Optional (Interaction Design) (Marks 50)

A science museum which allows entry only to children between the age group 10–14 has decided to develop a digital hand-held device for the museum. This device will serve as a digital guide which will be given at the time of entry. The device should help children understand the exhibits and their underlying concepts. The device should be useful for a single child, as well as children in groups.

Instructions:

1. **(a)** Visualize the 3D form of the device and suggest a name for it. Present the design in the form of sketches/drawings.
2. **(b)** Detail the graphical interface of the device. Present the interface in the form of sketches/drawings.
3. **(c)** Illustrate in detail three typical scenarios of the use of the device. Each scenario should illustrate a unique set of design features of the device. Present the interface and information flow with neat sketches and brief explanatory notes.

You will be evaluated for:

1. Originality of ideas.
2. Ability to understand the strengths and weaknesses of the user.
3. Logic and flow in the interface, usability, and appropriateness of the information.
4. Ability to articulate design decisions and effectiveness of presentation.

Solution to Question 5

(a) 3D Form and Name of the Device:

The device will have a child-friendly design with rounded corners and colorful features to appeal to the target age group. It will include a touchscreen interface with large, easy-to-read buttons for children. The device will be light and portable, designed to be used both by a single child and in a group.


MuseoPal

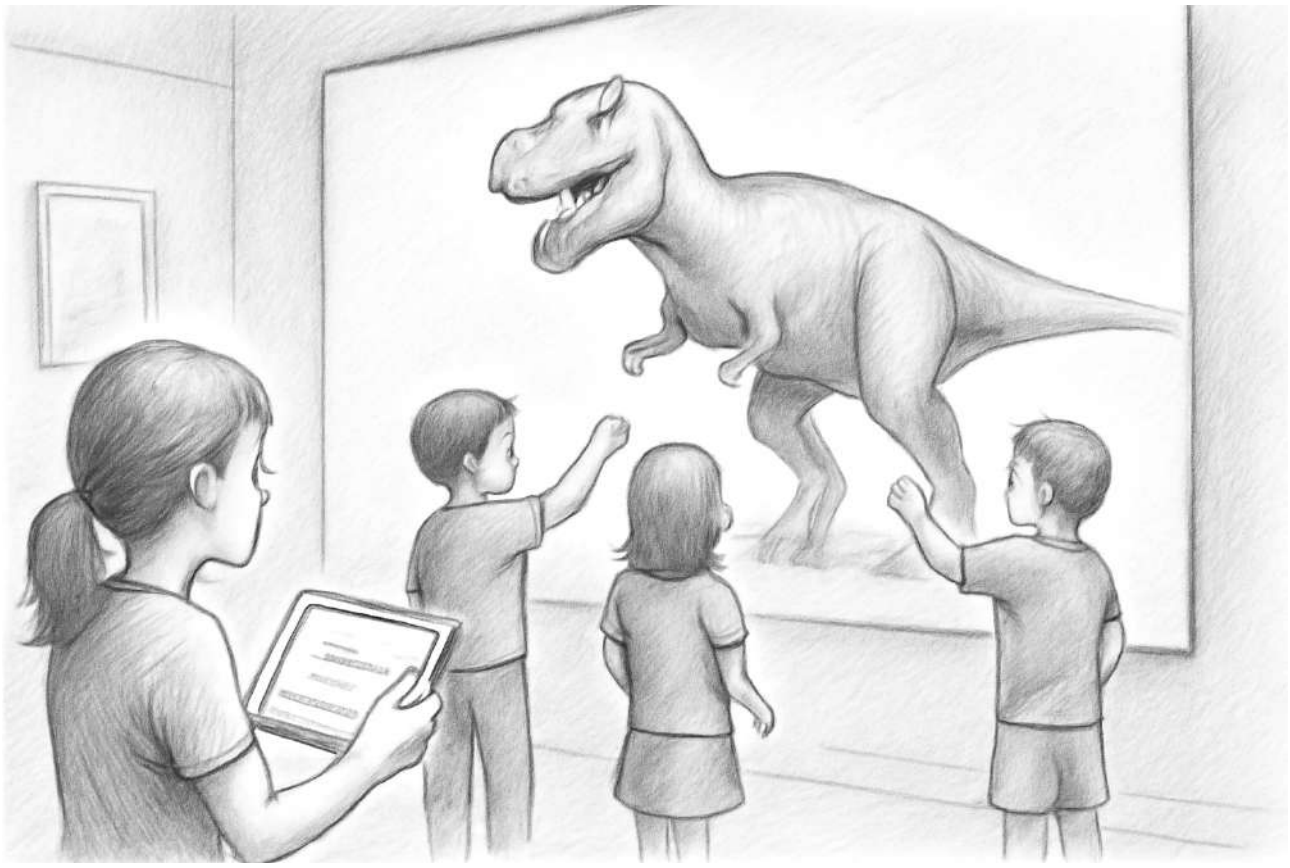
Name of the device: *MuseoPal*

(b) Graphical Interface of the Device:
The graphical interface will include a simple, intuitive layout with large icons for navigation. Children can easily access information about exhibits, take interactive quizzes, and view short educational videos. The device will be touch-activated, and the interface will include visual aids like arrows and highlighted sections to guide the children through the museum.

(c) Three Typical Scenarios:
Scenario 1: Single Child Interaction: A child enters the museum and uses the MuseoPal device to explore an exhibit on space. The device displays interactive content about the solar system with touch-activated facts and a fun quiz to test their knowledge. The child can interact with the exhibit using the device's touchscreen.


SPACE

Scenario 2: Group Interaction: A group of children approaches the dinosaur exhibit. They gather around a large interactive display projected onto the museum wall. The device can sync with the display to allow multiple users to interact with the content at once, showing a virtual T-Rex that the children can learn about together.



Scenario 3: Museum Guide Mode: When a group of children enters the museum, the device activates the 'Museum Guide Mode'. It provides a step-by-step tour of the museum, guiding the group through various exhibits while showing them key facts and encouraging them to answer questions. The device tracks their location in the museum and adjusts the content accordingly.

Conclusion: The MuseoPal device integrates ease of use, engaging interaction, and educational value. Each scenario demonstrates how the device meets the needs of different users while maintaining an intuitive interface and promoting learning. The design decisions were made with a focus on user experience, accessibility, and interactive learning.

Quick Tip

When designing for children, prioritize simplicity, engaging visuals, and interactivity to make the experience both educational and enjoyable.

Question 6 Optional (Animation) (Marks 50)

A folktale has to be made into an animation film. Read the story carefully and complete the task given below.

The Story of Dhanna Bhagat

Once there was a young farmer in Rajasthan named Dhanna Singh. He was tall and quite ordinary looking. He had a winsome disposition that made him quite popular with the people in his community. He would always have time to listen to their problems and help them when they came to him in times of need. He was of a charitable nature but his father thought he was a good for nothing. Why, because Dhanna was too generous and any money his father gave

him to invest in the fields he would give away to the poor and needy.

One day, his father sent him to a nearby town that held a weekly market. There Dhanna was to sell the produce from the farm and with the money earned he was to bring home seeds for the new crop. Dhanna piled up the cart with the rich produce and set off for the town. He was very excited to go to the town as he had some good friends there. On the way he was stopped by four priests who wanted a ride to town. He asked them to get on to the cart and they entertained him with songs and stories. When they reached the outskirts of the town they asked him to make some donations. Dhanna had no money. So he gifted them half the produce. He continued with his journey and before he could reach the market he came across an old lady who was sitting on the side of the street and crying. She had been thrown out of her house by her cruel son. Dhanna gave her the rest of the produce and she gave him a few seeds in return.

Dhanna went home and when his father asked him what he did with the seeds, he said he had already planted them in the field. His father was pleased, but not for long. After a few weeks when he went to the field to inspect his father found large wild gourds that only the goats liked to eat. He called Dhanna to the field and pointing at them asked him what he had sown? Dhanna picked up the gourd to show him and in anger his father dashed it to the ground. As it burst open the ground it was filled with diamonds and emeralds. His father was shocked and elated. He realised that Dhanna was no ordinary child and named him Dhanna Bhagat. From that day on Dhanna was never scolded for being generous.

Create a story board based on the above story. The storyboard must include all the major events in the story.

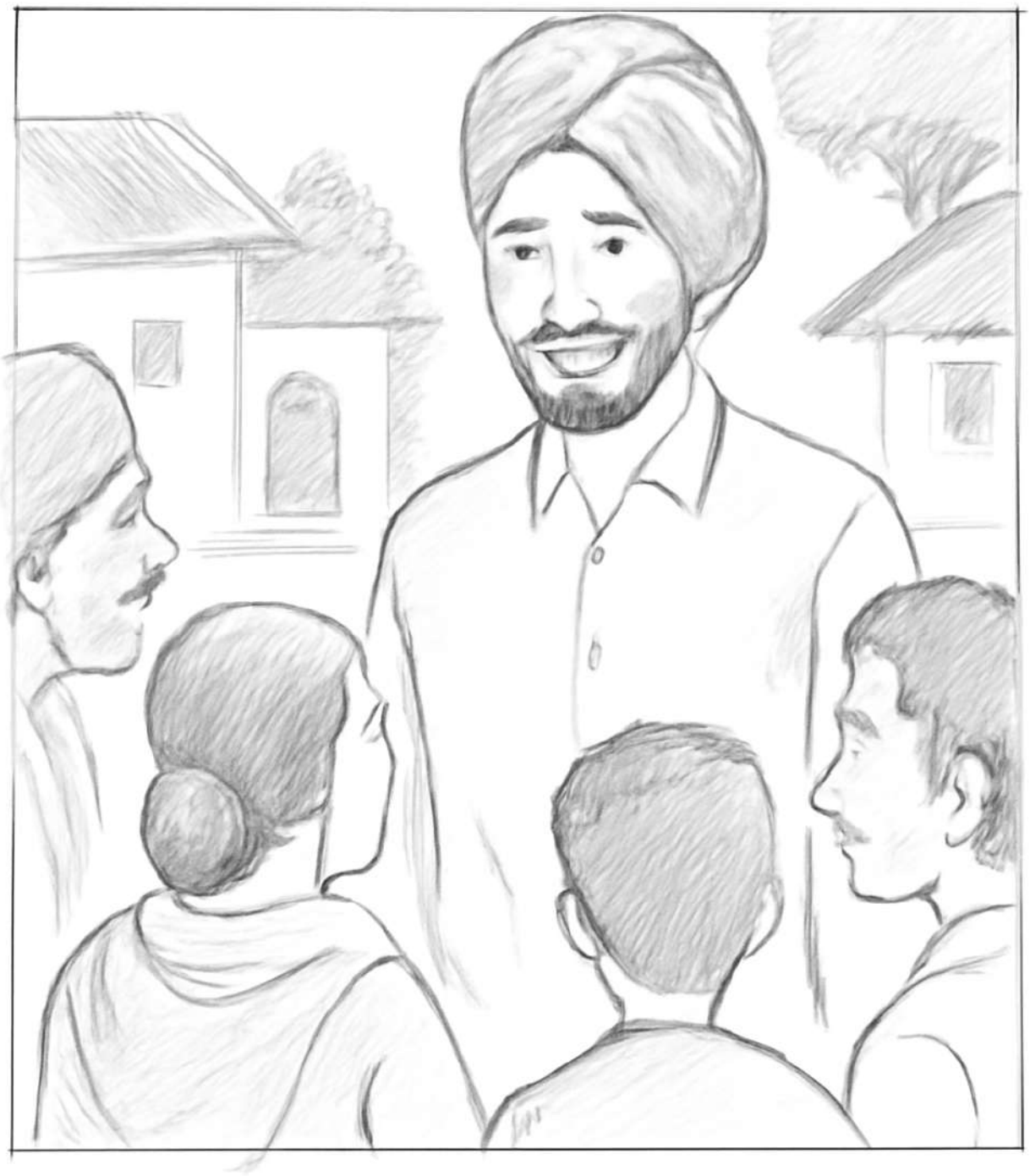
You will be evaluated for:

1. Clarity and continuity in story.
2. Plot structure.
3. Visual continuity.
4. Point of view.
5. Character design.

Solution to Question 6

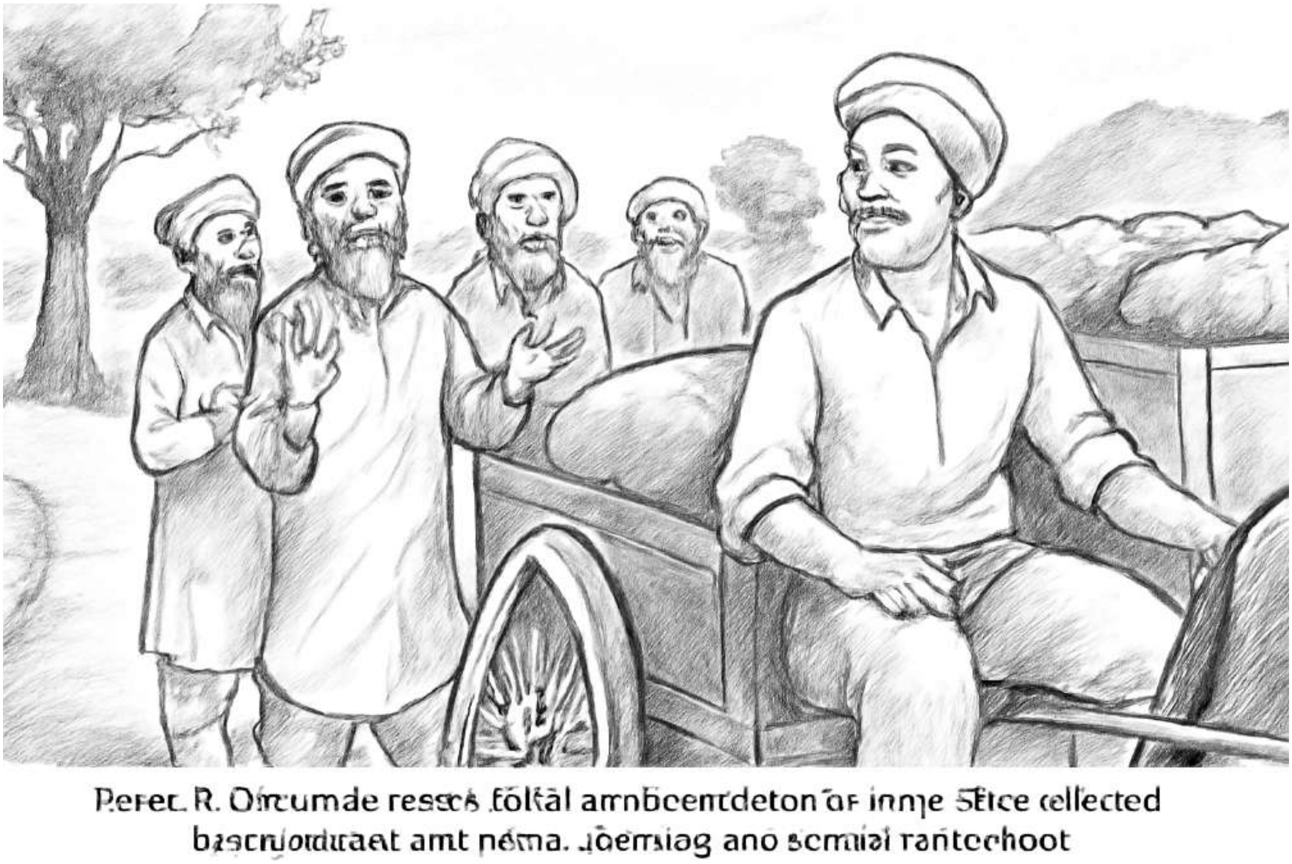
Story Board Based on the Story of Dhanna Bhagat:

Frame 1: The scene opens with Dhanna Singh, a tall, ordinary looking young man, smiling at the people in his village. He listens to their problems and offers to help them.

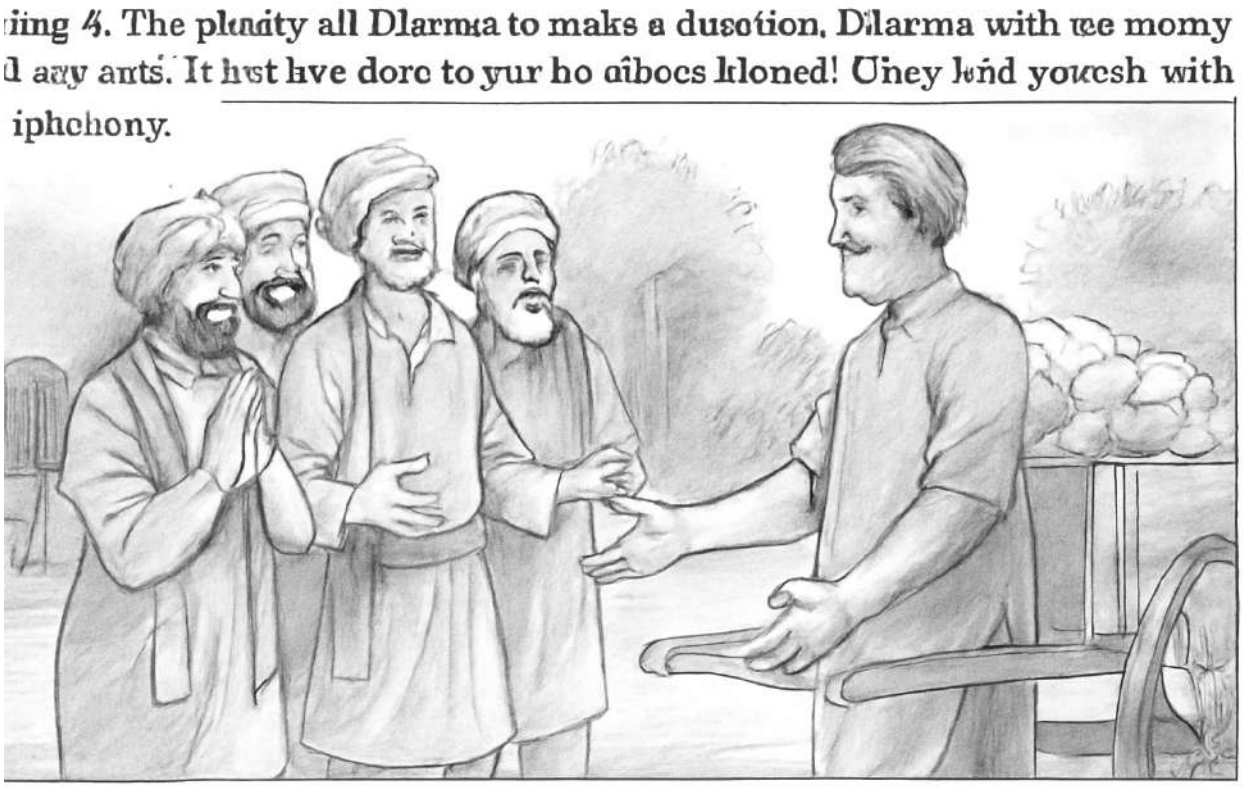


Frame 2: Dhanna piles up a cart with rich produce and sets off for the town, eagerly heading towards the weekly market. He smiles as he begins his journey.

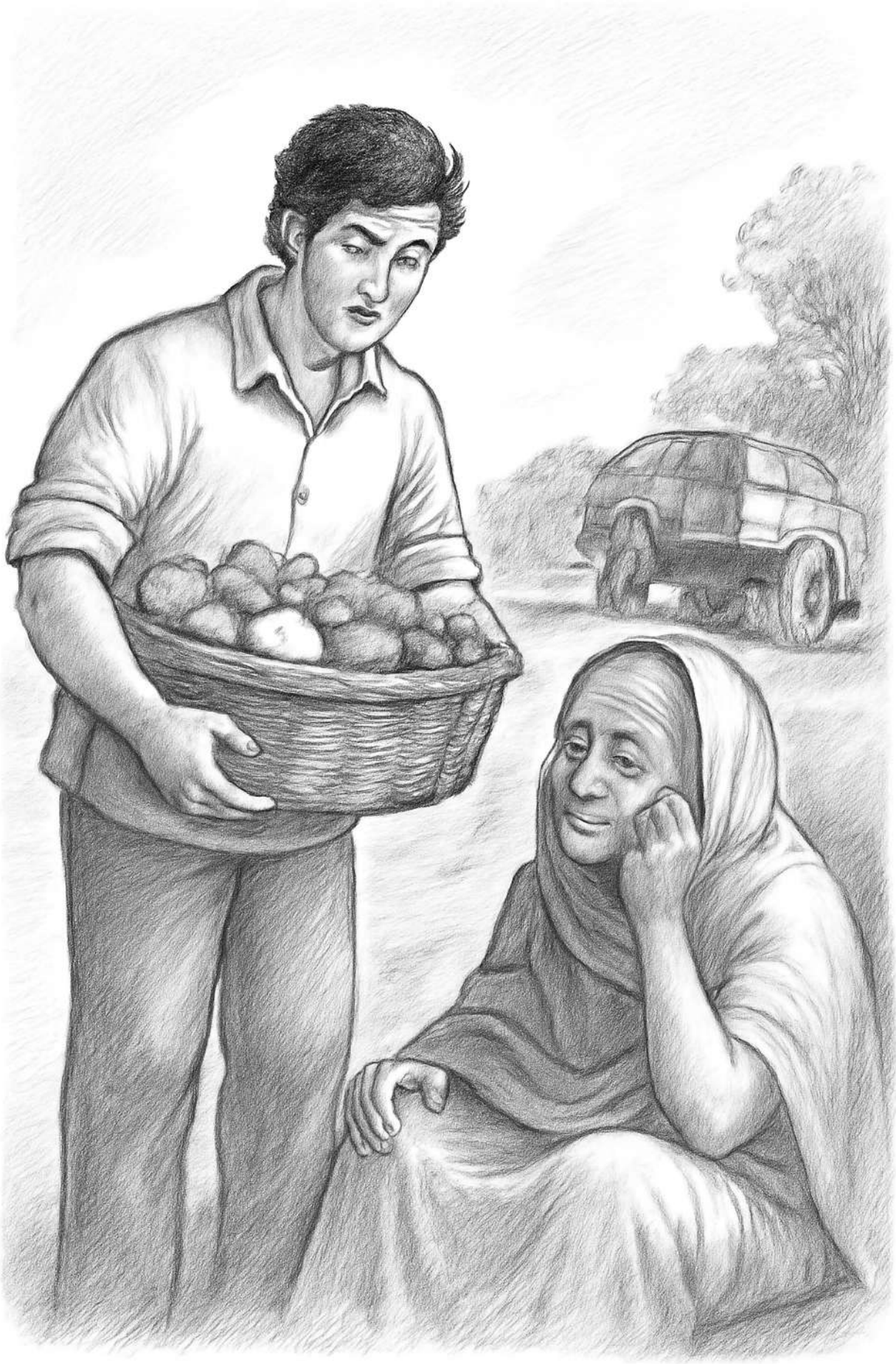
Frame 3: Dhanna is stopped by four priests who ask for a ride. They entertain him with songs and stories. Dhanna looks pleased as he offers them a seat in his cart.



Frame 4: The priests ask Dhanna to make a donation. Dhanna, with no money to give, offers them half the produce from his cart. They look pleased with his generosity.

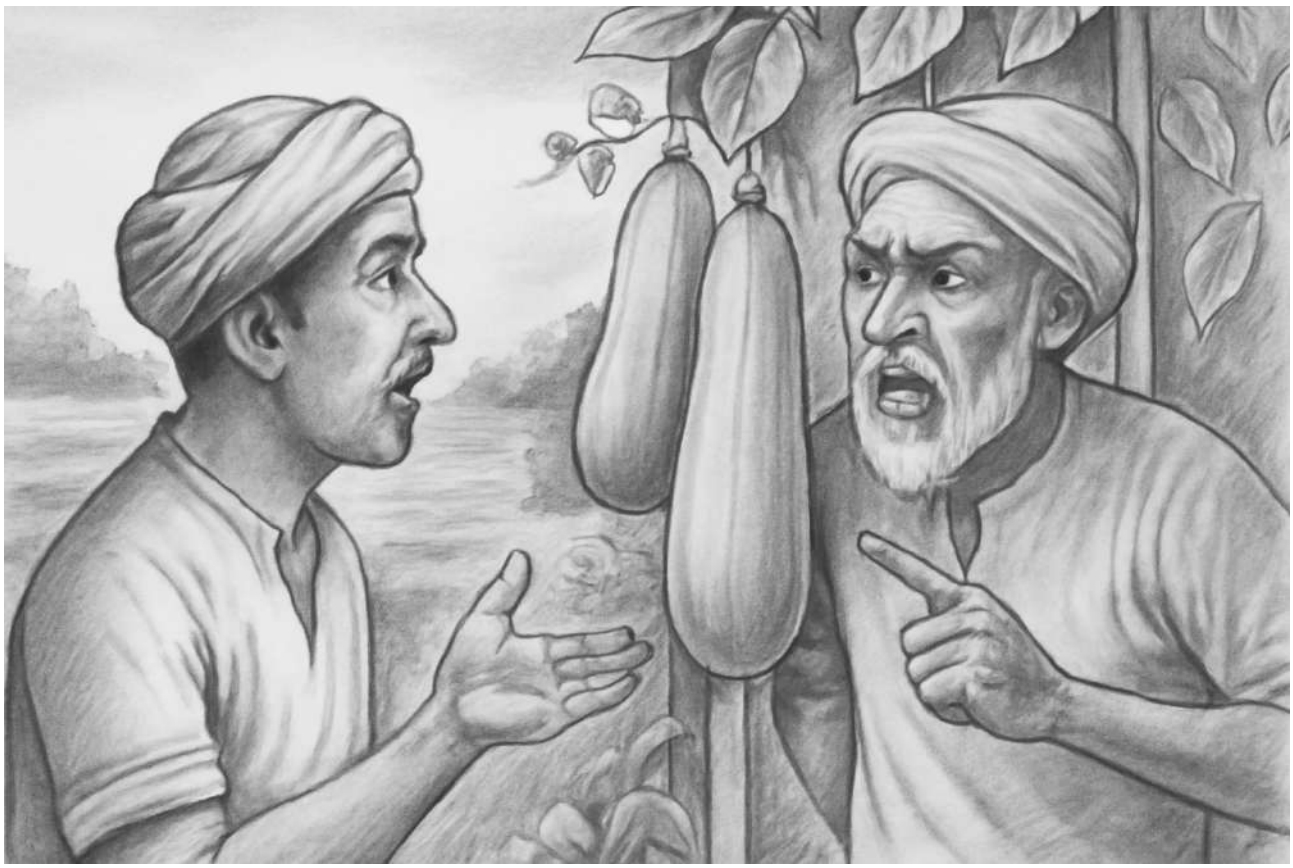


Frame 5: Dhanna encounters an old lady sitting by the side of the road, crying. She tells him her son has thrown her out of the house. Dhanna gives her the rest of his produce in sympathy.

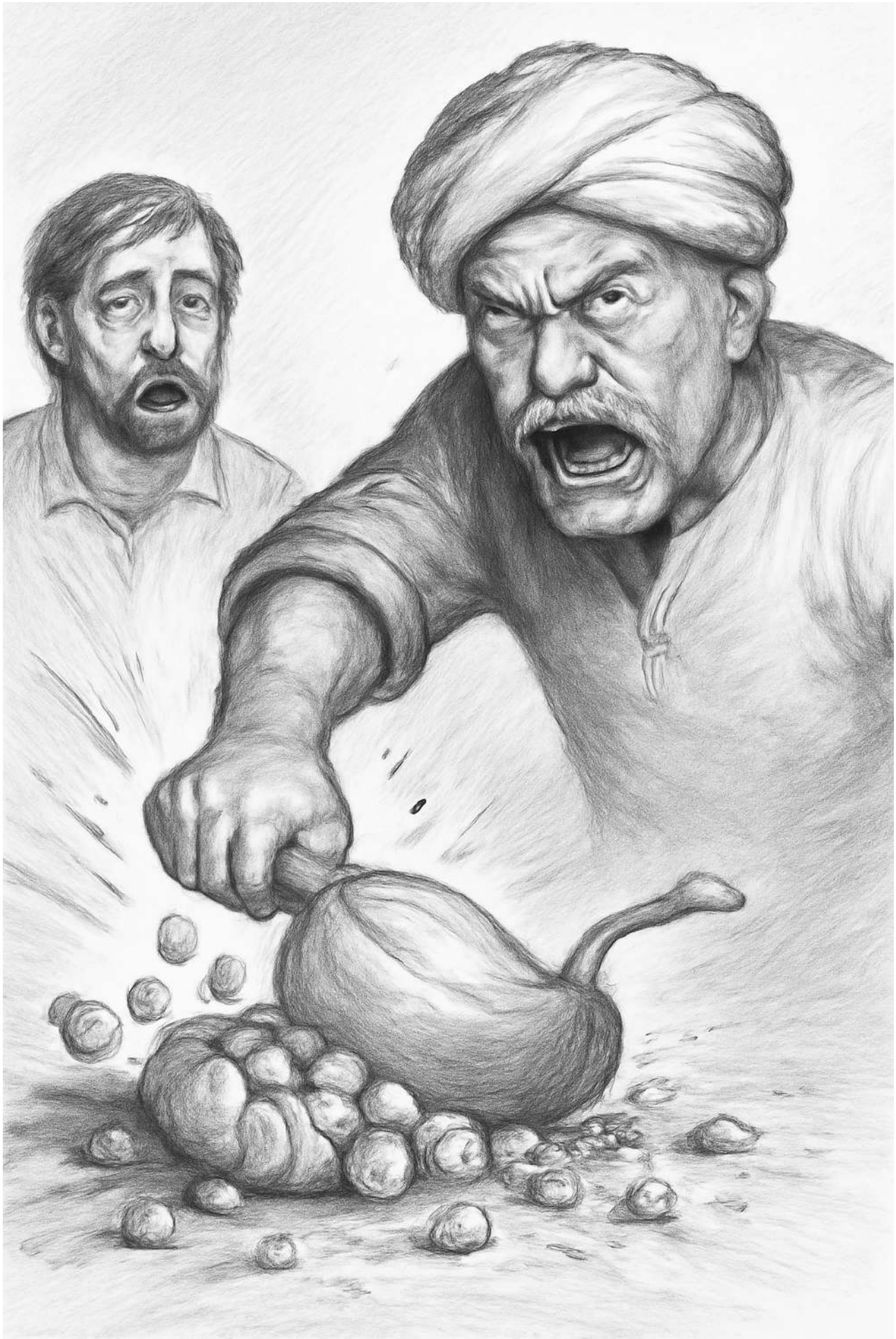


Frame 6: Dhanna returns home and tells his father he has already planted the seeds. His father is pleased but skeptical. They both go to the field to check the crops.

Frame 7: To his father's surprise, instead of regular crops, Dhanna finds large wild gourds growing. He is scolded by his father, who is disappointed in him.



Frame 8: In anger, Dhanna's father dashes the gourd to the ground. As it bursts, diamonds and emeralds spill out. His father is shocked and elated, realizing that Dhanna's generosity led to this miracle.



Conclusion: The storyboard effectively captures the major events in the story of Dhanna Bhagat. Each frame highlights a pivotal moment, from Dhanna's generosity to the miraculous discovery of jewels in the gourd. The design is consistent with the story's message of kindness and the rewards of selflessness.

Quick Tip

When creating a storyboard, focus on visual storytelling that matches the pacing of the narrative. Each frame should clearly convey the emotional journey of the character.

Question 7: Optional (Visual Communication) (Marks 50)

Government of India is starting a new Ayurvedic Medical Research Centre (AMRC) in Karnataka. AMRC is an autonomous institute setup to conduct research in various fields related to Ayurveda.

Design a symbol and a logo for this centre.

Symbol is a visual representation of various ideas associated with the centre. Logo is the way in which the name of the centre is depicted through letter forms or typefaces. Final logo should show *"AMRC Karnataka"* in English.

Symbol and logo should be designed in such a way that they can be used in black & white and in colour. They will be used in various places including stationery, vehicles, publicity material, website, digital media, 3D forms and architecture. The final design should be visible in various sizes.
The design should reflect the following key words: **Ayurveda, India, research and development.**

Instructions:

1. Present rough sketches of three design alternatives with brief notes on each alternative (less than 50 words each).
2. Present the final design proposal with a neat sketch and relevant design specifications.
3. Illustrate with sketches how the symbol and the logo will be used in the stationery and website of the institute.
4. Write a brief note on the final symbol and logo (less than 50 words).

Solution to Question 7

Design Concept:
The logo for AMRC is created to reflect the key themes of Ayurveda, India, research, and development. The symbol draws inspiration from elements of Ayurveda like natural healing and the fusion of traditional wisdom with modern scientific research.
Design Alternatives:

Alternative 1: The Leaf and Sun Concept:
This design incorporates the symbol of a leaf (representing Ayurveda) combined with a stylized sun, symbolizing energy, growth, and development. The typography is modern yet maintains a connection to tradition.

Alternative 2: The Tree and DNA Helix Concept:

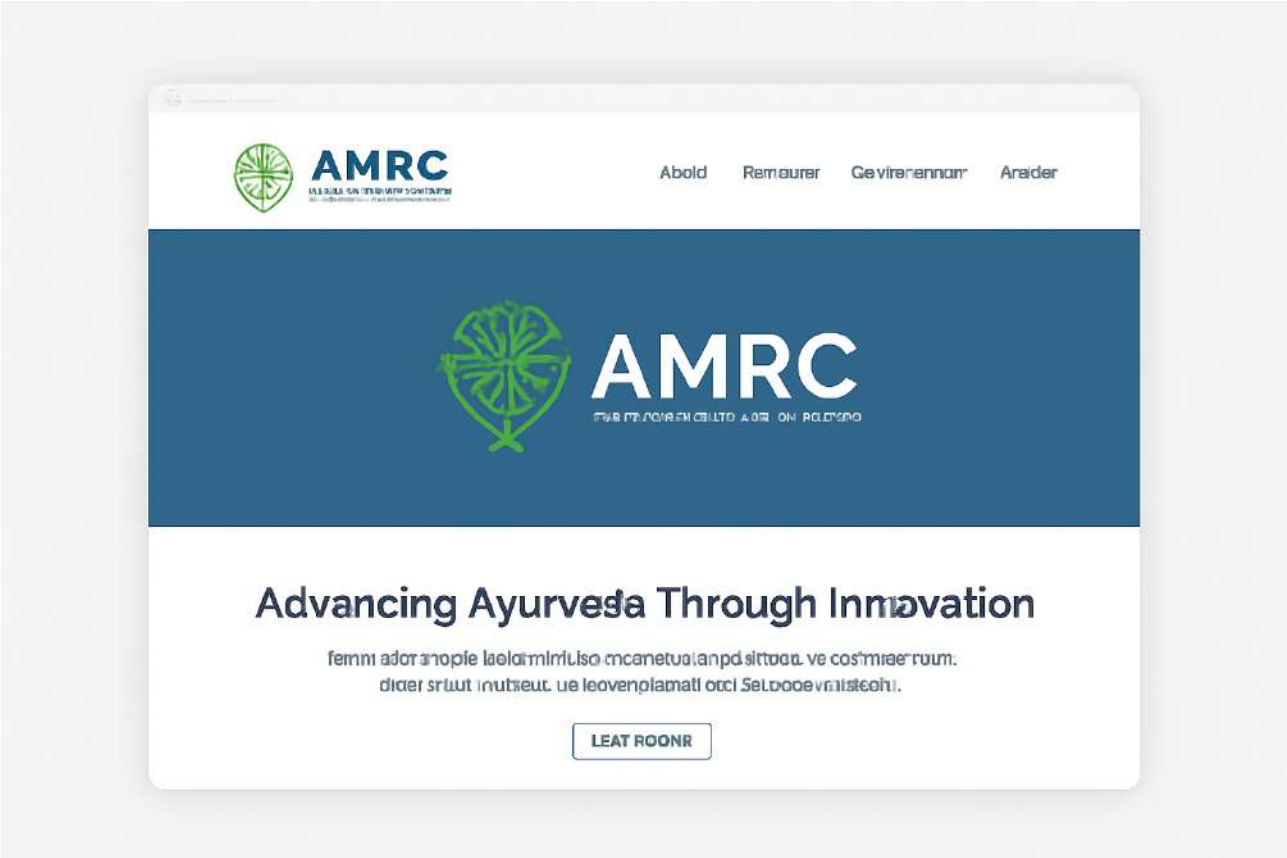
The second concept uses the image of a tree intertwined with a DNA helix to represent the deep-rooted traditions of Ayurveda combined with cutting-edge scientific research in medical fields.

Alternative 3: The Circle of Life Concept:
This concept features a circular design symbolizing harmony, continuity, and the holistic approach of Ayurveda. The typography is clean and contemporary to appeal to modern sensibilities.

Final Design Proposal:
After evaluating the alternatives, the final design incorporates the tree and DNA helix concept, as it best represents the integration of Ayurveda with modern research and medical development. The logo features bold, clean lines for clarity and legibility, especially when used in various media formats.

Symbol and Logo Usage:
Stationery: The logo is designed to fit seamlessly on stationery like letterheads and business cards. It uses simple yet effective design to ensure visibility at different scales.

Website: The logo is adaptable for use on the website and digital media, maintaining its visibility in both large and small formats. It's designed for high impact even at smaller sizes.



Final Note on the Design:
The final design reflects the essence of Ayurveda, research, and development. It is simple, yet strong, ensuring that it will work across various media, from print to digital, maintaining the integrity of the institute's identity.

Quick Tip

When designing a logo, ensure it is simple, scalable, and versatile to work across all mediums. Incorporate key elements that represent the essence of the organization.