FDDI AIST Design Aptitude

Sample Paper – 2

Duration: 60 Minutes **Maximum Marks: 50**

Instructions

- This paper contains **50** Multiple Choice Questions (Single Correct Answer), modelled on the Design Aptitude portion of **FDDI AIST** entrance.
- Each correct answer carries **+1 mark**. There is **no negative marking** for incorrect or unattempted answers.
- Only **one** option is correct. Choose carefully.
- Syllabus: Colour theory, design elements & principles, spatial visualisation, Indian and world art/design history, and footwear/textile materials.
- Use of mobile phones, calculators, or electronic gadgets is strictly prohibited.

Q1. Which colour on the standard artist's (RYB) colour wheel is the direct complementary of **orange**?

(A) Red

(B) Blue

(C) Green

(D) Yellow

Q2. A designer chooses **blue** as the base colour and builds a **split-complementary** scheme. Which set of three colours correctly describes this scheme?

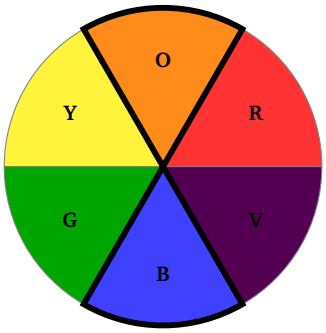
(A) Blue, yellow-orange, and red-orange

(B) Blue, green, and violet

(C) Blue, orange, and yellow

(D) Blue, red, and yellow

Q3. The two **thickly outlined** segments in the simplified colour wheel below represent which type of colour relationship?



(A) Analogous

(B) Triadic

(C) Split-complementary

(D) Complementary

Q4. In colour theory, a **tint** of a hue is produced by:

(A) Adding black to the pure hue

(B) Adding grey to the pure hue

(C) Adding white to the pure hue

(D) Mixing two complementary hues together

Q5. A **tetradic** (double-complementary) colour scheme is made up of how many colours?

(A) Two colours

(B) Four colours

(C) Three colours

(D) Six colours

Q6. Josef Albers' landmark study *Interaction of Color* (1963) primarily demonstrates that:

(A) The perceived colour of a hue is altered by the colours surrounding it

(B) Primary colours cannot be optically mixed to produce secondary colours

(C) Warm colours always appear physically heavier than cool colours

(D) Colour saturation has no effect on the viewer's perception of depth

Q7. Hues with relatively **long wavelengths** (such as red, orange, and yellow) are classified as _____ and, in a composition, tend to visually _____ the viewer.

(A) Cool colours; recede from

(B) Neutral colours; calm

(C) Cool colours; excite

(D) Warm colours; advance toward

Q8. In the **subtractive** (pigment) colour model, mixing cyan, magenta, and yellow together in equal amounts ideally produces:

(A) White

(B) A bright mid-grey

(C) Black (or near-black)

(D) Brown

Q9. A **tone** of a colour is created by:

(A) Adding white to a pure hue

(B) Adding grey to a pure hue

(C) Adding black to a pure hue

(D) Layering two analogous hues

Q10. The attribute of colour that measures its **purity or intensity** relative to a neutral grey at the same value is referred to as:

(A) Hue

(B) Value

(C) Temperature

(D) Saturation (chroma)

Q11. **Rhythm** as a design principle is best defined as:

(A) A regular or repeated pattern of elements that creates a sense of visual movement and flow

(B) The arrangement of elements from most to least important

(C) The use of opposing qualities to create visual interest

(D) Equal distribution of visual weight on both sides of a central axis

Q12. In layout and typography, **negative space** (white space):

(A) Reduces legibility by making key elements harder to locate

(B) Gives elements room to breathe, improving readability and focus

(C) Should always be filled to maximise information density on a page

(D) Refers exclusively to the empty space between individual letterforms

Q13. **Visual hierarchy** in a design composition is most effectively established by:

(A) Restricting the design to a single typeface throughout

(B) Making every element exactly the same size and visual weight

(C) Varying size, colour intensity, and weight to signal relative importance

(D) Placing all important content uniformly in the bottom-left corner

Q14. The **Rule of Thirds** in visual composition divides a frame into:

(A) Three equal horizontal bands only

(B) Three equal vertical bands only

(C) Four equal quadrants

(D) A 3×3 grid of nine equal sections with four intersection points

Q15. **Radial balance** differs from bilateral (reflective) symmetry in that radial balance:

(A) Has elements radiating outward from a single central point rather than mirroring across an axis

(B) Requires two mirror-image halves separated by a vertical axis

(C) Applies only to perfectly circular compositions

(D) Is identical to asymmetrical balance

Q16. As a design principle, **movement** refers to:

(A) Animated or kinetic elements included in a static printed composition

(B) The path a viewer's eye is intentionally guided to follow through a composition

(C) The physical displacement of design elements during production

(D) The exclusive use of diagonal lines to suggest dynamism

Q17. **Value contrast** in a composition describes the difference between:

(A) Two colours that are positioned opposite each other on the colour wheel

(B) Warm hues and cool hues placed side by side

(C) Light tonal areas and dark tonal areas within the same image

(D) Smooth-textured and rough-textured surfaces

Q18. When repeated design elements **gradually change** in size, colour, or shape from one end of a composition to the other, the principle being applied is called:

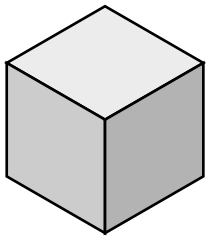
(A) Harmony

(B) Unity

(C) Emphasis

(D) Progression (gradation)

Q19. Study the isometric view of the cube below. How many **faces** of the cube are **visible** to the viewer?



(A) 3

(B) 4

(C) 6

(D) 2

Q20. A cube has a total of ____ **edges**:

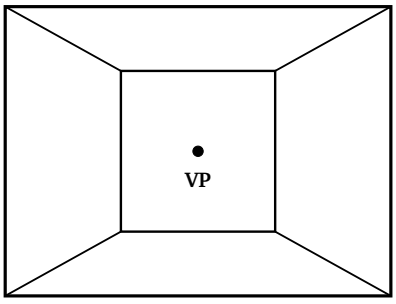
(A) 8

(B) 12

(C) 6

(D) 10

Q21. In the drawing below, all lines converge toward a **single point**. This type of drawing system is known as:



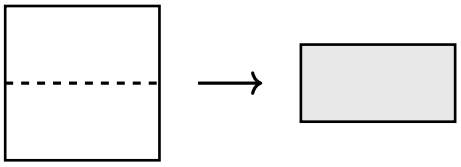
(A) Oblique projection

(B) Two-point perspective

(C) Isometric projection

(D) One-point perspective

Q22. A square sheet of paper is folded **along its horizontal centre line** as illustrated below. What is the shape of the resulting folded piece?



(A) A smaller square

(B) A rhombus

(C) A rectangle

(D) A triangle

Q23. Which of the following arrangements of **six squares cannot** be folded to form a closed cube?

(A) A cross-shaped net (one central square surrounded by four squares, plus one on a side)

(B) All six squares arranged in a single straight row (1×6 strip)

(C) An L-shaped net (four squares in a row with two attached at right angles)

(D) A T-shaped net (three squares in a row with three more branching from the middle)

Q24. In an **isometric drawing**, all vertical edges of the object are drawn:

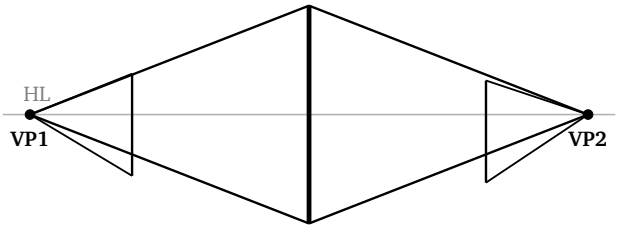
(A) Truly vertical — parallel to the page's vertical axis

(B) At 30° to the horizontal baseline

(C) At 45° to the horizontal baseline

(D) At 60° to the horizontal baseline

Q25. Examine the perspective drawing of a box below. Which statement correctly describes this type of perspective?



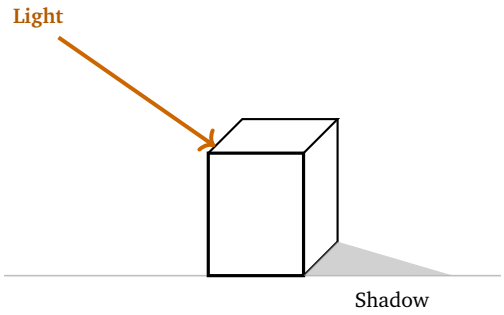
(A) The vanishing points lie above the horizon line

(B) All receding edges are parallel and never meet

(C) Only one vanishing point is used

(D) Two vanishing points both lie on the horizon line

Q26. A **light source** is positioned to the **upper left** of a cube, as indicated by the arrow in the diagram. In which direction does the **shadow** fall?



(A) Upper right

(B) Lower left, directly under the light

(C) Lower right (away from the light source)

(D) Directly below the object with no lateral shift

Q27. **Organic shapes** in visual design are best described as:

(A) Shapes defined exclusively by straight lines and precise geometric angles

(B) Irregular, free-flowing shapes inspired by natural forms (leaves, clouds, bodies)

(C) Always circular or oval in outline

(D) Geometric shapes used specifically in technical and engineering drawings

Q28. In drawing and painting, a **value scale** represents:

(A) The progression of hues from the warmest to the coolest on the colour wheel

(B) The relative size relationship between objects in a composition

(C) The intensity or saturation level of a single colour

(D) A stepped gradation from the lightest light (white) to the darkest dark (black)

Q29. An **implied line** in artwork is created when:

(A) A series of dots, edges, or directed gazes suggests a line that is not physically drawn

(B) The artist uses a faint pencil guideline later erased

(C) Two contrasting colour areas meet at a sharp, well-defined boundary

(D) Text is typeset in a straight horizontal row across the page

Q30. Count the number of **distinct tonal steps** in the value strip below, running from white to black.

(A) 3

(B) 4

(C) 5

(D) 7

Q31. **Radial patterns** in design are characterised by elements that:

(A) Repeat the same motif uniformly across a rectangular grid

(B) Emanate outward from a single central focal point

(C) Flow in one consistent horizontal or diagonal direction

(D) Are placed randomly with no repeating structure

Q32. **Visual weight** in a composition is primarily determined by:

(A) The actual physical weight of the paper or substrate used

(B) The total count of individual elements on the page

(C) The point size of the body text

(D) Factors such as element size, colour saturation, and position within the frame

Q33. A **flowing pattern** type in design is best characterised by:

(A) Curved, undulating lines that suggest organic movement and natural rhythm

(B) Strict 90° angles and rigidly uniform spacing between every element

(C) Identical motifs repeated at mathematically precise fixed intervals

(D) Elements arranged with mirror symmetry around a dominant central axis

Q34. The **Mughal miniature painting** tradition that flourished from the 16th century was primarily a synthesis of:

(A) Chinese scroll painting and European Renaissance traditions

(B) Persian (Safavid) miniature painting and indigenous Indian artistic traditions

(C) Greek mosaic art and Mesopotamian relief carving

(D) Egyptian papyrus illustration and Byzantine icon painting

Q35. **Warli art**, the tribal art form originating from the Palghar district of Maharashtra, is traditionally executed using:

(A) Multiple bright primary colours on a black cloth background

(B) Red and yellow ochre pigments on a white-washed wall

(C) White rice-paste pigment on a red-ochre or dark mud-plastered background

(D) Black ink fine-line drawing on white handmade paper

Q36. The **Art Nouveau** movement (approximately 1890–1910) is most readily identified by:

(A) Bold primary colour blocks and strict rectilinear geometry

(B) Industrial steel-and-glass construction and minimalist ornamentation

(C) Photorealistic depictions of urban everyday scenes

(D) Sinuous, whiplash lines and organic motifs drawn from plants and animals

Q37. The **De Stijl** movement, founded in the Netherlands in 1917 and associated with Piet Mondrian and Theo van Doesburg, is best characterised by:

(A) The exclusive use of primary colours (red, yellow, blue), black, white, and strict horizontal/vertical lines

(B) Free-form organic shapes, earth tones, and textural surface decoration

(C) Expressive, gestural brushwork and emotionally charged colour choices

(D) Photomontage, bold typography, and political protest messaging

Q38. **Madhubani** painting (also called Mithila painting) is a traditional art form associated with which Indian state?

(A) Rajasthan

(B) Bihar

(C) West Bengal

(D) Odisha

Q39. The warm red sandstone used extensively in Mughal monuments such as Agra Fort and Fatehpur Sikri is quarried primarily from the region of:

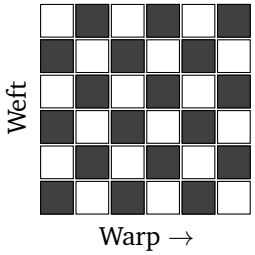
(A) Jodhpur (blue sandstone region)

(B) Jaisalmer (golden limestone region)

(C) Bharatpur / Dholpur (red sandstone region)

(D) Udaipur (white marble region)

Q40. The diagram below shows a fabric weave structure. Each filled (dark) cell represents the **weft thread passing over** a warp thread; each empty cell represents weft passing **under**. What type of weave is shown?



(A) Satin weave

(B) Twill weave

(C) Basket weave

(D) Plain weave

Q41. Among natural textile fibres, **wool** is particularly valued for:

(A) Its extreme lightness and naturally high sheen comparable to silk

(B) Its natural crimp structure that traps air, providing excellent thermal insulation

(C) Its exceptional tensile strength, making it ideal for heavy-load industrial fabrics

(D) Its complete resistance to moisture absorption in all conditions

Q42. **Vegetable tanning** of leather is carried out using:

(A) Tannins extracted from tree bark, leaves, or plant fruits (e.g., oak, mimosa)

(B) Chromium(III) sulphate salts in a short acidic bath

(C) Synthetic polymer emulsions applied under heat and pressure

(D) Formaldehyde and glutaraldehyde cross-linking agents

Q43. A **stiletto heel** in footwear design is best described as:

(A) A wide, block-shaped heel with a broad flat base for stability

(B) A heel that is thicker at the top attachment point and tapers only slightly toward the ground

(C) An extremely thin, tall heel with a very small ground contact point

(D) A wedge-style heel that runs continuously from heel to the ball of the foot

Q44. Compared to twill and satin weaves, a **plain weave** fabric is generally:

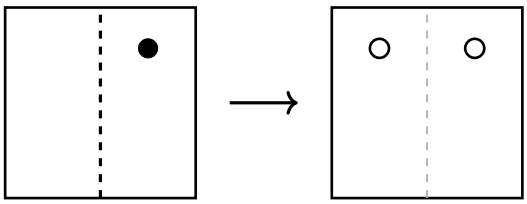
(A) More lustrous and significantly smoother to the touch

(B) Characterised by a prominent diagonal rib running across the fabric surface

(C) Weaker, because it has fewer interlacement points per unit area

(D) More durable and firm, because it has the highest number of interlacement points per unit area

Q45. A square piece of paper is folded in half from **left to right** (fold line shown by the dashed line). A single circular hole is punched through **both layers** at the position marked •. When the paper is **completely unfolded**, how many holes will be visible?



(A) 1

(B) 2

(C) 3

(D) 4

Q46. The **triangular number** sequence begins: $1,\ 3,\ 6,\ 10,\ \ldots$ What is the **next** term in this sequence?

(A) 15

(B) 12

(C) 14

(D) 16

Q47. A convex polyhedron has **8 vertices** and **12 edges**. Using Euler's polyhedron formula $V - E + F = 2$, how many **faces** does it have?

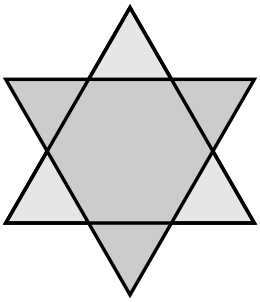
(A) 4

(B) 5

(C) 7

(D) 6

Q48. In the geometric motif below, which shape appears as an **embedded** (hidden) figure within the overall design?



(A) Square

(B) Hexagon

(C) Triangle

(D) Pentagon

Q49. Complete the **visual analogy**: Circle : Sphere :: Square : ____

(A) Cube

(B) Cylinder

(C) Cone

(D) Triangular prism

Q50. The pattern below shows a sequence of regular polygons with an increasing number of sides. What is the **next shape** in the sequence?

(A) Octagon (8 sides)

(B) Circle (infinite sides)

(C) Heptagon (7 sides)

(D) Decagon (10 sides)

Detailed Solutions

Q1.

Solution

Concept — Complementary colours on the RYB wheel: On the traditional artist's (RYB) colour wheel, complementary colours are positioned directly opposite each other, separated by exactly 180°. Orange sits between red and yellow; looking directly across the wheel places blue in the opposite position.

Step 1 — Locate orange on the RYB wheel: Orange occupies the segment between red (0°) and yellow (120°), centred around 60°.

Step 2 — Identify the colour directly opposite: Moving 180° from orange lands on blue (centred around 240°), confirming the complementary pair is orange–blue.

Why other options are wrong:

- Option A: Red is adjacent to orange (an analogous neighbour), not its complement.
- Option C: Green is the complement of red, not of orange.
- Option D: Yellow is adjacent to orange on the wheel — an analogous colour, not complementary.

Final Answer: The direct complementary of orange on the RYB wheel is blue. ⇒ B

Answer: (B) Go Back to Q1

Q2.

Solution

Concept — Split-complementary colour scheme: A split-complementary scheme takes one base colour and instead of pairing it with its direct complement, uses the two colours *adjacent* to that complement. For blue, the direct complement is orange; the two colours flanking orange are yellow-orange and red-orange.

Step 1 — Find blue's direct complement: On the RYB wheel, orange is directly opposite blue.

Step 2 — Split around orange: The two colours on either side of orange are yellow-orange and red-orange. The resulting trio is blue + yellow-orange + red-orange.

Why other options are wrong:

- Option B: Blue, green, and violet is an analogous scheme, not split-complementary.
- Option C: Blue, orange, and yellow — this mixes orange (direct complement) with an unrelated colour; it does not describe split-complementary.
- Option D: Blue, red, and yellow forms a primary triad, not a split-complementary scheme.

Final Answer: The split-complementary scheme from blue uses blue, yellow-orange, and red-orange. ⇒ A

Answer: (A) Go Back to Q2

Q3.

Solution

Concept — Identifying colour relationships from a wheel diagram: The two thickly outlined segments are orange (60°–120°) and blue (240°–300°). These segments are positioned exactly 180° apart on the six-segment RYB wheel, which is the defining characteristic of complementary colours.

Step 1 — Read the diagram: The thick borders highlight the orange segment (upper portion) and the blue segment (lower portion of the wheel).

Step 2 — Measure the angular separation: Orange is centred at 90° and blue at 270°, giving a separation of exactly 180° — the definition of a complementary pair.

Why other options are wrong:

- Option A: Analogous colours are adjacent to each other (within 60°), not 180° apart.
- Option B: Triadic schemes involve three colours spaced 120° apart, not two colours 180° apart.
- Option C: Split-complementary uses three colours — a base plus two flanking its complement — not just two.

Final Answer: Two segments directly opposite on the wheel represent a complementary relationship. ⇒ D

Answer: (D) Go Back to Q3

Q4.

Solution

Concept — Tint, shade, and tone definitions: In colour theory, a pure hue can be modified in three standard ways: adding white creates a *tint* (lighter, pastel version); adding black creates a *shade* (darker version); adding grey creates a *tone* (muted, greyed version).

Step 1 — Define tint: A tint is formed by mixing any amount of white into a pure hue, raising its lightness and reducing its apparent saturation.

Step 2 — Distinguish from shade and tone: Shade = black added; tone = grey added; mixing complementary hues produces a neutral/muted colour, not a true tint.

Why other options are wrong:

- Option A: Adding black produces a *shade*, not a tint.
- Option B: Adding grey produces a *tone*, not a tint.
- Option D: Mixing complementary hues creates a neutral or brownish mixture, which is neither a tint nor a shade by definition.

Final Answer: A tint is produced by adding white to a pure hue. $\Rightarrow$ C

Answer: (C) Go Back to Q4

Q5.

Solution

Concept — Tetradic (double-complementary) colour scheme: A tetradic or double-complementary scheme consists of two complementary pairs selected so that all four colours form a rectangle on the colour wheel. Because there are two pairs, the total count is four colours.

Step 1 — Recall the structure: Tetradic = two pairs of complementary colours, i.e., four hues placed at 90° intervals around the wheel.

Step 2 — Count the colours: Pair 1 has 2 colours; Pair 2 has 2 colours; total = 4 colours.

Why other options are wrong:

- Option A: Two colours describes a simple complementary (not double-complementary) scheme.
- Option C: Three colours describes a triadic scheme.

- Option D: Six colours does not correspond to any standard named scheme; hexadic schemes exist but are not what "tetradic" means.

Final Answer: A tetradic scheme uses four colours (two complementary pairs). $\Rightarrow$ B

Answer: (B) Go Back to Q5

Q6.

Solution

Concept — Josef Albers and simultaneous colour contrast: Josef Albers demonstrated through systematic experiments in *Interaction of Color* (1963) that colour perception is profoundly relative: the same hue appears visually different depending on the colours placed adjacent to or surrounding it — a phenomenon called simultaneous contrast.

Step 1 — Identify the core thesis: Albers showed the same grey square appears lighter on a dark background and darker on a light background. The physical colour is unchanged; only its surroundings differ.

Step 2 — Eliminate incorrect claims: The book does not claim primary colours cannot be mixed, nor that warm colours are heavier, nor that saturation has no depth effect.

Why other options are wrong:

- Option B: Albers actually demonstrated successful optical mixing; he never claimed primaries cannot produce secondaries.
- Option C: Albers' work focuses on perceived colour change, not physical weight; the warm/cool weight claim is a separate informal observation.
- Option D: Albers' work is entirely about how perception varies; claiming saturation has *no* effect contradicts his findings.

Final Answer: Albers showed that the perceived colour of a hue is altered by surrounding colours. $\Rightarrow$ A

Answer: (A) Go Back to Q6

Q7.

Solution

Concept — Colour temperature and visual depth: The electromagnetic spectrum runs from short-wavelength violet/blue (cool colours) to long-wavelength red/orange/yellow (warm colours). In design, warm colours are perceived as visually advancing toward the viewer, while cool colours recede.

Step 1 — Classify by wavelength: Red, orange, and yellow have the longest visible wavelengths (620–700 nm), classifying them as *warm* colours.

Step 2 — Apply the advance/recede rule: Warm colours advance (appear closer); cool colours recede. Therefore long-wavelength hues advance toward the viewer.

Why other options are wrong:

- Option A: Long-wavelength colours are warm, not cool; and they advance rather than recede.
- Option B: Red/orange/yellow are not neutral; they are distinctly warm and psychologically stimulating.
- Option C: Long-wavelength colours are warm (not cool), even though they can be energising.

Final Answer: Long-wavelength hues are warm colours that visually advance toward the viewer. $\Rightarrow$ D

Answer: (D) Go Back to Q7

Q8.

Solution

Concept — Subtractive (CMY) colour mixing: In the subtractive model used by pigments and inks, each colourant absorbs (subtracts) certain wavelengths of light. Cyan absorbs red, magenta absorbs green, and yellow absorbs blue. Combining all three in equal amounts absorbs virtually all visible wavelengths, theoretically producing black.

Step 1 — Apply subtractive mixing logic: Cyan + Magenta = absorb red + green $\rightarrow$ remaining wavelength blue; adding Yellow absorbs blue too $\rightarrow$ no light reflected $\rightarrow$ black.

Step 2 — Confirm for pigment model: In CMYK printing, the K (key/black) channel is necessary precisely because real CMY pigments mix to a muddy near-

black rather than a perfect black, confirming the theoretical outcome is black.

Why other options are wrong:

- Option A: White results from combining all colours in the *additive* (RGB light) model, not the subtractive model.
- Option B: A mid-grey is not the ideal theoretical result; it only occurs with impure real-world pigments.
- Option D: Brown is sometimes produced by impure mixing in practice, but is not the theoretical or intended result.

Final Answer: Cyan + magenta + yellow in subtractive mixing ideally produces black. $\Rightarrow$ C

Answer: (C) Go Back to Q8

Q9.

Solution

Concept — Tint, shade, and tone: The three standard modifications of a pure hue are: tint (white added), shade (black added), and tone (grey added). Tones are muted, greyed versions of the original hue — neither lighter nor darker in the same degree as tints and shades.

Step 1 — Define tone: A tone is created by mixing neutral grey into a pure hue, reducing its chroma (saturation) without dramatically shifting its value as much as adding pure black or pure white.

Step 2 — Distinguish tone from tint and shade: Adding white = tint; adding black = shade; mixing analogous hues = a different hue, not a tone.

Why other options are wrong:

- Option A: Adding white to a pure hue creates a *tint*, not a tone.
- Option C: Adding black creates a *shade*, not a tone.
- Option D: Layering two analogous hues produces a new blended hue — no standard colour term covers this as "tone."

Final Answer: A tone is created by adding grey to a pure hue. $\Rightarrow$ B

Answer: (B) Go Back to Q9

Q10.

Solution

Concept — The three dimensions of colour (Munsell system): In standard colour models (Munsell, HSL, HSB), colour has three dimensions: hue (which colour family), value (lightness/darkness), and saturation/chroma (purity or intensity relative to grey). Saturation measures how far a colour deviates from a neutral grey of the same lightness.

Step 1 — Identify "purity or intensity relative to grey": This definition precisely matches *saturation* (also called chroma) — it quantifies how vivid a colour is compared to grey at the same value level.

Step 2 — Eliminate the other dimensions: Hue identifies which colour family; value measures lightness; temperature is an informal perceptual quality, not a dimension in standard colour models.

Why other options are wrong:

- Option A: Hue names the colour family (red, blue, yellow, etc.) — it does not measure purity relative to grey.
- Option B: Value describes lightness or darkness — the position on the white-to-black scale.
- Option C: Temperature is a perceptual quality (warm vs. cool) rather than a measurable dimension in colour models.

Final Answer: Purity or intensity relative to a neutral grey is called saturation (chroma). $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q10

Q11.

Solution

Concept — Rhythm as a design principle: Rhythm in visual design mirrors its counterpart in music: it is the controlled repetition or progression of elements (shape, colour, size, texture) that creates a sense of movement and flow, drawing the viewer's eye across the composition in a predictable or satisfying pattern.

Step 1 — Identify the key feature of rhythm: Rhythm requires repetition (regular or alternating) of visual elements that together produce a sense of movement and beat.

Step 2 — Contrast with other principles: Hierarchy = arranging by importance;

contrast = opposing qualities; symmetrical balance = equal weight distribution. None of these define rhythm.

Why other options are wrong:

- Option B: Arranging from most to least important defines visual *hierarchy*, not rhythm.
- Option C: Using opposing qualities to create interest defines *contrast*.
- Option D: Equal distribution of visual weight on both sides defines *symmetrical (bilateral) balance*.

Final Answer: Rhythm is a repeated pattern of elements that creates visual movement and flow. $\Rightarrow$ A

Answer: (A) Go Back to Q11

Q12.

Solution

Concept — Negative space (white space) in design: Negative space — the empty area around and between elements — is a powerful design tool. Far from being wasted space, it provides visual breathing room, reduces cognitive load, and directs attention to the positive elements, thereby improving legibility and focus.

Step 1 — Understand white space function: White space separates elements, creates hierarchy, and allows the eye to rest. Designs with adequate white space are easier to read and navigate.

Step 2 — Evaluate each option: Only option B accurately states that negative space gives elements "room to breathe" — a widely accepted design principle.

Why other options are wrong:

- Option A: The opposite is true — adequate negative space *improves* legibility, not reduces it.
- Option C: Filling all space maximises clutter and reduces readability; good design uses selective white space.
- Option D: White space is not restricted to letterform spacing; it applies broadly to all layout elements.

Final Answer: Negative space gives elements room to breathe, improving readability and focus. $\Rightarrow$ B

Answer: (B) Go Back to Q12

Q13.

Solution

Concept — Establishing visual hierarchy: Visual hierarchy guides the viewer's eye by making some elements more prominent than others. The primary tools are contrast in size, weight (bold vs. light), colour intensity, and spatial placement — all communicating which elements deserve attention first.

Step 1 — Define hierarchy tools: Larger elements attract more attention; heavier weights stand out from lighter ones; more saturated colours draw the eye before muted ones. Together, these cues create a clear reading order.

Step 2 — Identify the correct approach: Varying size, colour intensity, and weight is the standard, multi-factor method for signalling relative importance — exactly what option C states.

Why other options are wrong:

- Option A: A single typeface may promote consistency but does not, by itself, establish hierarchy without variations in size/weight.
- Option B: Uniform size and weight *eliminates* hierarchy — everything competes equally for attention.
- Option D: Placing all important content in one corner creates a crowded, unbalanced layout rather than a clear hierarchy.

Final Answer: Visual hierarchy is most effectively established by varying size, colour intensity, and weight. $\Rightarrow$ C

Answer: (C) Go Back to Q13

Q14.

Solution

Concept — Rule of Thirds in composition: The Rule of Thirds is a compositional guideline that divides a frame with two equally spaced horizontal lines and two equally spaced vertical lines, creating a 3×3 grid. The four interior intersection points ("power points") are considered aesthetically strong positions for placing subjects.

Step 1 — Count the grid sections: Two vertical divisions × two horizontal divisions = 3 columns × 3 rows = 9 equal sections.

Step 2 — Count the intersection points: The two horizontal and two vertical dividing lines intersect at 4 points inside the frame — these are the key focal

positions.

Why other options are wrong:

- Option A: Dividing only into horizontal bands ignores the vertical divisions and is not the Rule of Thirds.
- Option B: Dividing only into vertical bands ignores horizontal divisions and is incomplete.
- Option C: Four equal quadrants describe a 2×2 grid — that is not the Rule of Thirds.

Final Answer: The Rule of Thirds creates a 3×3 grid of nine sections with four intersection points. ⇒ D

Answer: (D) Go Back to Q14

Q15.

Solution

Concept — Types of balance: radial vs. bilateral: Bilateral (reflective) symmetry mirrors elements across a central axis — left half equals right half. Radial balance radiates elements outward from a single central point in all directions, like spokes of a wheel or petals of a flower. The key distinction is the *centre* versus the *axis*.

Step 1 — Define radial balance: In radial balance, all elements originate from or orbit a central focal point, creating circular or rotational symmetry around that point rather than reflection across a line.

Step 2 — Distinguish from bilateral symmetry: Bilateral symmetry requires a mirror axis; radial balance requires a central point. Radial balance can apply to non-circular shapes (stars, mandalas), so it is not limited to circles.

Why other options are wrong:

- Option B: Two mirror-image halves with a vertical axis is the definition of *bilateral* symmetry, not radial balance.
- Option C: Radial balance is not restricted to circular compositions; it applies to any arrangement radiating from a central point.
- Option D: Asymmetrical balance deliberately avoids symmetry; it is distinct from radial balance which is a form of symmetry.

Final Answer: Radial balance has elements radiating from a single central point rather than mirroring across an axis. ⇒ A

Answer: (A) Go Back to Q15

Q16.

Solution

Concept — Movement as a design principle: In static design, "movement" does not mean literal animation. It refers to the way a designer uses line, shape, colour, and other elements to create a visual pathway — an implicit direction along which the viewer's eye travels through the composition.

Step 1 — Understand design "movement": Arrows, leading lines, a sequence of shapes, or a colour gradient can all guide the eye from one element to another, creating a sense of directed flow even in a still image.

Step 2 — Eliminate literal interpretations: Movement in design is about visual flow, not physical animation, production mechanics, or a single technique like diagonal lines.

Why other options are wrong:

- Option A: Animated or kinetic elements belong to motion design; the principle of "movement" in static design has nothing to do with literal animation.
- Option C: Physical displacement of elements during production is a manufacturing/print concept, not a design principle.
- Option D: Diagonal lines can suggest movement but movement as a principle is not exclusively defined by or limited to diagonal lines.

Final Answer: Movement is the path a viewer's eye is guided to follow through a composition. $\Rightarrow$ B

Answer: (B) Go Back to Q16

Q17.

Solution

Concept — Value contrast in design: Value refers to the lightness or darkness of a colour or tone. Value *contrast* measures the difference between the lightest and darkest tonal areas in a composition — high value contrast makes edges sharp and elements stand out; low contrast creates subtlety and unity.

Step 1 — Distinguish value from hue and texture: Value is on the lightness axis (white–grey–black), separate from hue (colour family) or texture (surface

quality).

Step 2 — Apply to the definition: Value contrast specifically describes the light-to-dark range within the same image, independent of which hues or colours are used.

Why other options are wrong:

- Option A: Colours opposite on the colour wheel produce *hue* or complementary contrast, not value contrast.
- Option B: Warm vs. cool hues side by side produce *temperature* contrast, not value contrast.
- Option D: Smooth vs. rough surfaces describe *texture* contrast, not value contrast.

Final Answer: Value contrast is the difference between light tonal areas and dark tonal areas within an image. $\Rightarrow$ C

Answer: (C) Go Back to Q17

Q18.

Solution

Concept — Progression (gradation) as a design principle: Progression or gradation occurs when repeated design elements systematically change along one or more attributes — such as size, colour, shape, or opacity — in a continuous or stepped manner across a composition, creating a sense of direction, depth, or movement.

Step 1 — Identify the defining feature: The key phrase is "gradually change ... from one end to the other" — this systematic transition is the hallmark of progression/gradation.

Step 2 — Distinguish from related principles: Harmony = pleasing agreement; unity = coherent wholeness; emphasis = drawing attention to one dominant element. None of these describe a gradient transition.

Why other options are wrong:

- Option A: Harmony describes the pleasing relationship between elements, not their gradual change across a composition.
- Option B: Unity describes the overall coherence of the design as a whole, not a directional transition.

- Option C: Emphasis highlights one dominant focal element; it does not involve a series of gradually changing elements.

Final Answer: Gradually changing elements across a composition describe the principle of progression (gradation). $\Rightarrow$ D

Answer: (D) Go Back to Q18

Q19.

Solution

Concept — Visible faces in an isometric view: A cube has six faces total. In a standard isometric view — where the cube is oriented with a corner pointing toward the viewer and viewed from slightly above — exactly three faces are simultaneously visible: the top face, the left face, and the right face. The remaining three faces are hidden behind the cube.

Step 1 — Analyse the diagram: The TikZ diagram shows three filled polygon regions: a lighter top parallelogram (top face), a medium-grey left parallelogram (left face), and a darker right parallelogram (right face).

Step 2 — Count visible faces: Three distinct polygonal faces are drawn and visible to the viewer.

Why other options are wrong:

- Option B: Four faces cannot be visible simultaneously in a standard isometric view of a cube.
- Option C: Six is the total number of faces, but three are always hidden in any standard view.
- Option D: Two is too few; a corner-on isometric view always reveals exactly three faces.

Final Answer: Three faces of the cube are visible in the isometric view. $\Rightarrow$ A

Answer: (A) Go Back to Q19

Q20.

Solution

Concept — Geometry of a cube (edges, faces, vertices): A cube is a regular hexahedron. Its geometric properties are: 6 faces (all squares), 8 vertices (corners), and 12 edges (line segments where two faces meet). These also satisfy Euler's formula: $V - E + F = 8 - 12 + 6 = 2$.

Step 1 — Count edges systematically: A cube has 4 edges on the top face, 4 edges on the bottom face, and 4 vertical edges connecting them, giving $4+4+4 = 12$ edges.

Step 2 — Verify with Euler's formula: $8 - 12 + 6 = 2$ ✓— confirms 12 edges is correct.

Why other options are wrong:

- Option A: 8 is the number of *vertices* (corners), not edges.
- Option C: 6 is the number of *faces*, not edges.
- Option D: 10 is incorrect for any standard count of cube elements.

Final Answer: A cube has 12 edges. $\Rightarrow$ B

Answer: (B) Go Back to Q20

Q21.

Solution

Concept — One-point perspective: In one-point perspective, all receding lines converge toward a single vanishing point positioned on the horizon line. This system is used when the viewer faces an object or scene directly, with one face of the object parallel to the picture plane.

Step 1 — Analyse the diagram: The TikZ drawing shows an outer frame (viewer's opening) and an inner rectangle (back wall), connected by four diagonal lines that all converge at a single labelled point "VP" at the centre.

Step 2 — Identify the system: One vanishing point, all lines converge to it — this is the defining characteristic of one-point perspective.

Why other options are wrong:

- Option A: Oblique projection uses parallel receding lines at an angle; lines do not converge to a vanishing point.

- Option B: Two-point perspective uses two vanishing points on the horizon line, not one central point.
- Option C: Isometric projection uses three sets of parallel (non-converging) lines at 120° to each other; there are no vanishing points.

Final Answer: Lines converging to a single vanishing point describe one-point perspective. ⇒ D

Answer: (D) Go Back to Q21

Q22.

Solution

Concept — Paper folding and resulting shapes: When a square sheet is folded along its horizontal centre line, the top half lands on the bottom half (or vice versa). The resulting shape has the same width as the original square but only half the height — making it a rectangle (specifically a 2:1 rectangle).

Step 1 — Apply the fold: A square with side length s folded horizontally becomes a shape of width s and height $s/2$. Since $s \neq s/2$, this is a non-square rectangle.

Step 2 — Confirm from the diagram: The "After fold" diagram in the question shows a clearly wider-than-tall rectangle, consistent with option C.

Why other options are wrong:

- Option A: A smaller square would require equal width and height after folding, which only happens if both fold lines are applied simultaneously.
- Option B: A rhombus has no right angles; folding a square along a straight horizontal line always produces right-angled corners.
- Option D: A triangle would result from a diagonal fold, not a fold along the horizontal centre line.

Final Answer: Folding a square along its horizontal centre line produces a rectangle. ⇒ C

Answer: (C) Go Back to Q22

Q23.

Solution

Concept — Valid cube nets: A *net* of a cube is a flat arrangement of six connected squares that can be folded to form a closed cube. There are exactly 11 valid cube nets. A 1×6 strip (all six squares in a single straight line) is not among them — when you fold it, the two end squares cannot both cover faces without overlapping.

Step 1 — Test the 1×6 strip: In a straight row of 6 squares, folding produces a rectangular prism with open ends, not a closed cube. The two end squares would map to the same position, leaving two faces uncovered.

Step 2 — Confirm the others are valid: The cross-shaped net (option A), L-shaped net (option C), and T-shaped net (option D) are all among the 11 valid cube nets.

Why other options are wrong:

- Option A: The cross-shaped net (1 centre + 4 surrounding + 1 on the side) is a well-known valid cube net.
- Option C: An L-shaped arrangement of six squares can form a valid cube net.
- Option D: A T-shaped arrangement of six squares is also a valid cube net.

Final Answer: All six squares in a single straight 1×6 row cannot be folded into a closed cube. $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) Go Back to Q23

Q24.

Solution

Concept — Isometric drawing conventions: In isometric drawing, the three principal axes are: one vertical (90° to horizontal) and two receding axes at 30° above horizontal going left and right. Crucially, all vertical edges of the original object are drawn as truly vertical lines — parallel to the page's vertical axis — preserving their actual height without foreshortening.

Step 1 — Recall the three isometric axes: The vertical axis remains vertical (90°); the two receding axes are at 30° to the horizontal baseline. Vertical object edges are mapped to the vertical axis.

Step 2 — Confirm vertical edges stay vertical: Unlike oblique or two-point perspective drawings where edges may angle or foreshorten, isometric projection

maintains true vertical for all height edges.

Why other options are wrong:

- Option B: The 30° angle applies to the two *receding* (depth/width) axes, not to vertical edges.
- Option C: 45° is used in cabinet oblique projection, not isometric drawing.
- Option D: 60° is not the standard angle for any isometric axis; the receding axes are at 30° to horizontal (or equivalently 60° to vertical).

Final Answer: In isometric drawing, vertical edges remain truly vertical — parallel to the page's vertical axis. $\Rightarrow$ A

Answer: (A) Go Back to Q24

Q25.

Solution

Concept — Two-point perspective: In two-point perspective, vertical edges remain truly vertical, but the two sets of horizontal/receding edges each converge toward separate vanishing points. Both vanishing points lie on the horizon line (eye-level line), one to the left and one to the right of the object.

Step 1 — Read the diagram: The TikZ diagram clearly shows VP1 on the left and VP2 on the right, both marked as dots *on* the horizon line (labelled HL). All receding edges converge to one or the other VP.

Step 2 — Match to the correct statement: "Two vanishing points both lie on the horizon line" accurately describes what is shown and is the definition of two-point perspective.

Why other options are wrong:

- Option A: In the diagram, both VPs are clearly *on* the horizon line, not above it.
- Option B: All receding edges *do* meet (at their respective VPs); only parallel projection has non-converging lines.
- Option C: The diagram has two vanishing points, not one; one VP would indicate one-point perspective.

Final Answer: Two-point perspective has two vanishing points both lying on the horizon line. $\Rightarrow$ D

Answer: (D) Go Back to Q25

Q26.

Solution

Concept — Shadow direction relative to light source: A shadow always falls on the *opposite* side of an object from its light source. If light comes from the upper left, the shadow is cast toward the lower right — away from the light, extending along the ground plane in the direction opposite to the light's horizontal component.

Step 1 — Identify light direction: The arrow in the diagram points from upper left toward the cube, confirming the light source is upper left.

Step 2 — Determine shadow direction: The shadow falls away from the light — horizontally to the right and downward onto the ground plane, i.e., lower right.

Why other options are wrong:

- Option A: Upper right is in the same vertical half as the light source; shadows do not fall toward the light.
- Option B: "Directly under the light" would be the shadow's position only if light came from directly above (overhead); a left-positioned source casts the shadow to the right.
- Option D: "Directly below with no lateral shift" only occurs with perfectly vertical overhead lighting; an off-axis light always shifts the shadow laterally.

Final Answer: With the light upper left, the shadow falls to the lower right (away from the source). $\Rightarrow$ C

Answer: (C) Go Back to Q26

Q27.

Solution

Concept — Organic vs. geometric shapes: Shapes in design are broadly classified as geometric (defined by mathematical rules — circles, squares, triangles) or organic (free-flowing, irregular, inspired by natural forms such as leaves, clouds, rivers, and living bodies). Organic shapes are characterised by their fluid, non-uniform contours.

Step 1 — Define organic shapes: Organic shapes lack the rigid precision of geometry; they are irregular and curvilinear, imitating or abstracting natural objects. They can be curved or jagged, but always retain a naturalistic quality.

Step 2 — Identify the correct description: "Irregular, free-flowing shapes in-

spired by natural forms" matches the academic definition of organic shapes.

Why other options are wrong:

- Option A: Shapes defined by straight lines and precise angles describe *geometric* shapes, the opposite of organic.
- Option C: Organic shapes are not limited to ovals or circles — they can take any naturalistic, irregular outline.
- Option D: Geometric shapes used in technical drawings are the furthest from organic — they are mathematically precise.

Final Answer: Organic shapes are irregular, free-flowing shapes inspired by natural forms. $\Rightarrow$ B

Answer: (B) Go Back to Q27

Q28.

Solution

Concept — Value scale in art and design: A value scale is a systematic gradation strip showing the full range of tonal values from the lightest possible tone (white) through mid-tones (greys) to the darkest possible tone (black). It is used to train the eye to perceive and reproduce a full tonal range in drawing and painting.

Step 1 — Understand "value" in art: Value refers exclusively to the lightness or darkness of a tone, independent of its hue. A value scale arranges tones in stepped increments from white to black.

Step 2 — Eliminate colour-based answers: The value scale is achromatic (or applies to any hue) — it is not about warm-to-cool hues, size relationships, or saturation levels.

Why other options are wrong:

- Option A: A progression of hues from warmest to coolest describes a *colour temperature* arrangement, not a value scale.
- Option B: Size relationships between objects describe *scale* in the spatial sense — unrelated to tonal value.
- Option C: Intensity or saturation of a single colour describes *chroma*, not a value scale.

Final Answer: A value scale shows a stepped gradation from lightest (white) to darkest (black). $\Rightarrow$ D

Answer: (D) Go Back to Q28

Q29.

Solution

Concept — Implied line in artwork: An implied line is a line that the viewer perceives even though it is not physically drawn. It is created by a series of elements — such as aligned dots, the edges of objects, or the directed gaze of figures — that the brain connects into a continuous path through the perceptual principle of closure (Gestalt psychology).

Step 1 — Identify the mechanism: A sequence of dots, aligned object edges, or directed gazes each point in a direction; the viewer's eye automatically completes the line between them. No physical line is needed.

Step 2 — Distinguish from actual lines: A faint pencil guideline, a colour boundary, or typeset text are all physically present lines or edges — not implied lines in the technical sense.

Why other options are wrong:

- Option B: A faint pencil guideline is an actual (though light) line — its "implied" nature comes only after erasure, not during creation.
- Option C: A sharp colour boundary is a physically defined edge between two colour areas — it is a real edge, not an implied line.
- Option D: Horizontal typeset text creates an actual baseline and cap-height line — these are real, not implied.

Final Answer: An implied line is suggested by dots, edges, or directed gazes without being physically drawn. $\Rightarrow$ A

Answer: (A) Go Back to Q29

Q30.

Solution

Concept — Counting tonal steps in a value strip: The TikZ code generates five cells using `\foreach \i in {0,1,2,3,4}` with fill values of `black!0`, `black!25`, `black!50`, `black!75`, and `black!100` — representing 0%, 25%, 50%, 75%, and 100% black respectively.

Step 1 — Read the loop: The loop variable i runs from 0 to 4, producing exactly

5 rectangles.

Step 2 — Verify tonal distinctness: Each step is 25 percentage points apart, so all five tones (white, light grey, mid grey, dark grey, black) are visually distinct.

Why other options are wrong:

- Option A: 3 steps would require only three cells; the code clearly produces five.
- Option B: 4 steps would mean only four cells; the loop `0,1,2,3,4` has five iterations.
- Option D: 7 steps would require seven cells; the code produces only five.

Final Answer: The value strip contains 5 distinct tonal steps. $\Rightarrow$ C

Answer: (C) Go Back to Q30

Q31.

Solution

Concept — Radial patterns in design: A radial pattern is characterised by the repetition of elements that originate from or revolve around a single central focal point, spreading outward in all directions like the spokes of a wheel, the petals of a flower, or the arms of a star.

Step 1 — Define the structural rule: In a radial pattern, all elements share a common centre; their angles and/or distances from that centre vary, but they always refer back to it.

Step 2 — Distinguish from grid, linear, and random patterns: A rectangular grid is not radial; one-directional flow is linear/progressive; random placement has no structural basis.

Why other options are wrong:

- Option A: Uniform repetition across a rectangular grid describes a *grid* or *all-over* pattern, not a radial one.
- Option C: Flowing in one horizontal or diagonal direction describes a *linear* or *progressive* pattern.
- Option D: Random placement with no repeating structure describes a *random* or *organic* scattered pattern.

Final Answer: Radial patterns are characterised by elements emanating outward from a single central focal point. $\Rightarrow$ B

Answer: (B) Go Back to Q31

Q32.

Solution

Concept — Visual weight in composition: Visual weight is the perceived "heaviness" or dominance of an element in a layout — how much it attracts the viewer's attention relative to others. It is determined by multiple factors: larger elements carry more weight; highly saturated or dark colours appear heavier; elements near the edges or corners can carry additional tension.

Step 1 — List the primary visual weight factors: Size (larger = heavier), colour saturation and value (darker/more saturated = heavier), and position within the frame (off-centre or near edges can increase tension).

Step 2 — Identify the correct option: Option D correctly names three major determinants: element size, colour saturation, and position within the frame.

Why other options are wrong:

- Option A: The physical weight of the paper is a material property irrelevant to visual weight as a design principle.
- Option B: Total element count does not determine visual weight; one large bold element can outweigh twenty small light ones.
- Option C: Body text point size is only one factor among many and is too narrow to define visual weight broadly.

Final Answer: Visual weight is primarily determined by element size, colour saturation, and position within the frame. $\Rightarrow \boxed{D}$

Answer: (D) Go Back to Q32

Q33.

Solution

Concept — Flowing pattern type: A flowing pattern uses curved, undulating lines and organic forms to create a sense of continuous, graceful movement through the composition. It evokes natural rhythms — waves, vines, wind, or water — and stands in contrast to rigid geometric or grid-based patterns.

Step 1 — Identify the key visual quality: Curved, undulating lines that suggest organic movement and natural rhythm are the defining feature of a flowing

pattern.

Step 2 — Distinguish from grid and radial patterns: Strict 90° angles and uniform spacing describe a *grid* pattern; mathematically precise fixed intervals describe a *regular repeat* pattern; mirror symmetry around an axis describes a *bilateral symmetry* pattern.

Why other options are wrong:

- Option B: Strict 90° angles and rigid uniform spacing describe a geometric grid pattern, which is the opposite of flowing.
- Option C: Identical motifs at mathematically precise intervals describe a *regular repeat* (block print or tile) pattern.
- Option D: Mirror symmetry around a central axis describes bilateral symmetry, which is a structural balance type, not a flowing pattern.

Final Answer: A flowing pattern is characterised by curved, undulating lines suggesting organic movement. $\Rightarrow$ A

Answer: (A) Go Back to Q33

Q34.

Solution

Concept — Origins of Mughal miniature painting: The Mughal school of miniature painting emerged under Emperor Humayun and flourished under Akbar in the 16th century. It was created when Persian (Safavid) master painters — brought to the court by Humayun from the Safavid court in Iran — collaborated with indigenous Indian painters, fusing two distinct visual traditions.

Step 1 — Identify the two parent traditions: Persian (Safavid) miniature painting contributed refined line work, jewel-like colour, and architectural settings. Indigenous Indian art contributed earthy colour, narrative scenes, and portraiture rooted in local traditions (including Jain and pre-Mughal Hindu manuscript painting).

Step 2 — Confirm the synthesis: The resulting Mughal style — exemplified by the Hamzanama and Akbarnama manuscripts — is universally described as a fusion of these two traditions.

Why other options are wrong:

- Option A: Chinese scroll painting and European Renaissance are both incorrect source traditions; contact with China and Europe came later and was

peripheral.

- Option C: Greek mosaic and Mesopotamian relief carving are ancient traditions with no documented direct connection to the Mughal court.
- Option D: Egyptian papyrus illustration and Byzantine icon painting were geographically and temporally distant from 16th-century Mughal India.

Final Answer: Mughal miniature painting synthesised Persian (Safavid) and indigenous Indian artistic traditions. $\Rightarrow$ B

Answer: (B) Go Back to Q34

Q35.

Solution

Concept — Warli art materials and technique: Warli is the tribal art of the Warli people of the Palghar (formerly Thane) district of Maharashtra. Traditionally, women painted on the interior walls of huts using a paste of rice flour and water mixed with gum — producing white motifs — applied onto a background prepared with red-ochre earth (geru) mixed with cow dung and mud, creating a characteristic warm dark ground.

Step 1 — Identify the pigment: The painting medium is white rice-paste (rice flour + water), applied with a bamboo stick or twig.

Step 2 — Identify the background: The background is the plastered wall surface treated with red ochre (geru) — giving a warm reddish-brown or dark tone against which the white motifs are clearly visible.

Why other options are wrong:

- Option A: Bright primary colours on black cloth is associated with Gond or Phad art styles, not Warli.
- Option B: Red and yellow ochre on a white-washed wall reverses the colour relationship; Warli uses white on a dark/red background, not the reverse.
- Option D: Black ink on white paper is associated with modern graphic art or Madhubani adaptations; traditional Warli uses white on red/dark ground.

Final Answer: Warli art uses white rice-paste pigment on a red-ochre or dark mud-plastered background. $\Rightarrow$ C

Answer: (C) Go Back to Q35

Q36.

Solution

Concept — Art Nouveau characteristics: Art Nouveau (c. 1890–1910) was an international style characterised by the use of sinuous, curvilinear lines often described as "whiplash" curves, and by decorative motifs derived from the natural world — especially plant stems, flowers, leaves, peacock feathers, and insect wings. It was a reaction against the rigid historicism of 19th-century academic art.

Step 1 — Identify the hallmark visual style: Sinuous "whiplash" lines and organic, nature-derived motifs are the most immediately recognisable qualities of Art Nouveau across architecture, graphic design, jewellery, and glasswork.

Step 2 — Contrast with other movements: Bold primary blocks and rectilinear geometry describe De Stijl; industrial steel-and-glass with minimal ornamentation describes the International Style/Modernism; photorealism describes academic Realism.

Why other options are wrong:

- Option A: Bold primary colour blocks and strict rectilinear geometry are hallmarks of *De Stijl* (Mondrian), not Art Nouveau.
- Option B: Industrial steel-and-glass construction with minimalist ornamentation describes early *Modernist* architecture (Bauhaus, International Style).
- Option C: Photorealistic depictions of everyday scenes describe 19th-century *Realism*, not Art Nouveau.

Final Answer: Art Nouveau is identified by sinuous, whiplash lines and organic motifs drawn from plants and animals. $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q36

Q37.

Solution

Concept — De Stijl movement: De Stijl ("The Style"), founded in 1917 in the Netherlands by Piet Mondrian, Theo van Doesburg, and others, advocated for a radical reduction of visual art to its absolute essentials: only primary colours (red, yellow, blue) plus black and white, and only horizontal and vertical lines — no diagonals, no curves, no secondary colours.

Step 1 — Recall the core rules of De Stijl: Primary colours only (red, yellow, blue); achromatic neutrals (black, white, grey); strictly horizontal and vertical

orientations; absolute geometric abstraction.

Step 2 — Confirm option A: "Exclusive use of primary colours, black, white, and strict horizontal/vertical lines" matches all of these principles precisely.

Why other options are wrong:

- Option B: Free-form organic shapes and earth tones describe *Art Nouveau* or expressive craft movements, not the rigidly geometric De Stijl.
- Option C: Expressive gestural brushwork and emotional colour are hallmarks of *Expressionism* (e.g., Kandinsky), not De Stijl.
- Option D: Photomontage, bold typography, and political protest describe *Dada* and later *Constructivism*, not De Stijl.

Final Answer: De Stijl exclusively used primary colours, black, white, and horizontal/vertical lines. $\Rightarrow$ A

Answer: (A) Go Back to Q37

Q38.

Solution

Concept — Madhubani/Mithila painting: Madhubani painting (also known as Mithila painting, from the ancient Mithila region) originates from the Madhubani district and the broader Mithila cultural zone of Bihar, in northern India. It is characterised by intricate geometric patterns, vibrant mineral and vegetable colours, and subjects drawn from Hindu mythology and nature.

Step 1 — Identify the geographic region: Mithila/Madhubani is firmly located in Bihar — specifically the Darbhanga, Madhubani, and Sitamarhi districts of north Bihar.

Step 2 — Distinguish from other regional art forms: Rajasthan is associated with Phad and Pichwai; West Bengal with Kalighat and Pattachitra (shared with Odisha); Odisha has its own Pattachitra tradition.

Why other options are wrong:

- Option A: Rajasthan is home to Phad painting and miniature painting traditions, not Madhubani.
- Option C: West Bengal is associated with Kalighat pat painting and Bengali scroll art, not Madhubani.
- Option D: Odisha is known for Pattachitra painting of the Jagannath tradition, not Madhubani.

Final Answer: Madhubani (Mithila) painting is associated with Bihar. $\Rightarrow$ B

Answer: (B) Go Back to Q38

Q39.

Solution

Concept — Mughal red sandstone source: The distinctive warm red sandstone used in Agra Fort, Fatehpur Sikri, the Red Fort in Delhi, and many other Mughal structures is quarried from the Bharatpur and Dholpur region in eastern Rajasthan and Madhya Pradesh border zone. This "Dholpur stone" or "Agra red sandstone" has been the primary source for Mughal imperial construction.

Step 1 — Identify the quarrying region: The Dholpur district (now in Rajasthan) and nearby Bharatpur provided the pink-to-red sandstone used extensively from Akbar's reign onward. The proximity to Agra (approximately 50–60 km) made it the natural supply source.

Step 2 — Eliminate other regional stones: Jodhpur supplies blue-grey sandstone; Jaisalmer supplies golden-yellow limestone; Udaipur's area (Makrana) supplies white marble.

Why other options are wrong:

- Option A: Jodhpur is associated with blue-grey sandstone, not the warm red variety used in Mughal monuments.
- Option B: Jaisalmer is famous for its golden-yellow limestone (used locally in Jaisalmer Fort), not red sandstone.
- Option D: Udaipur/Makrana is known for the white marble used in the Taj Mahal and Jain temples, not red sandstone.

Final Answer: The Mughal red sandstone comes primarily from the Bharatpur/Dholpur region. $\Rightarrow$ C

Answer: (C) Go Back to Q39

Q40.

Solution

Concept — Identifying weave structures from diagrams: In a plain weave diagram, the pattern of filled (weft over warp) and empty (weft under warp) cells alternates in a perfect checkerboard pattern — every thread interlaces with every adjacent thread. This gives the highest interlacement frequency of any weave type.

Step 1 — Analyse the TikZ code: The code fills cells where `mod(row+col, 2) == 0` — this creates a perfect alternating checkerboard (every other cell is filled), which is the definition of a plain weave structure.

Step 2 — Match to plain weave: A plain weave has a 1-over-1-under repeat in both warp and weft directions, producing the highest possible interlacement and the most firm, durable fabric.

Why other options are wrong:

- Option A: Satin weave has very long floats (4-over or 5-over) with minimal interlacement, producing a smooth, lustrous surface — the opposite of the checkerboard shown.
- Option B: Twill weave shows diagonal lines of floats (e.g., 2-over-2-under shifted each row), not the uniform alternating pattern shown.
- Option C: Basket weave is a 2-over-2-under plain weave variant — pairs of threads alternate, not single threads; the shown pattern is 1-over-1-under.

Final Answer: The alternating checkerboard pattern represents a plain weave. $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q40

Q41.

Solution

Concept — Properties of wool as a textile fibre: Wool fibres are unique among natural fibres for their crimped (wavy) structure. This natural crimp causes the fibres to interlock and trap air between them, creating millions of tiny air pockets that act as insulation — slowing the transfer of body heat to the outside environment. This makes wool the premier natural insulating fibre.

Step 1 — Identify wool's structural advantage: The crimp in wool fibres creates air pockets $\rightarrow$ air is a poor thermal conductor $\rightarrow$ the trapped air resists heat flow $\rightarrow$ excellent thermal insulation results.

Step 2 — Evaluate the other options: Wool has moderate weight and low natural sheen (unlike silk); its tensile strength is lower than cotton or linen (far less than synthetic fibres); and wool is hygroscopic — it absorbs significant moisture (up to 30% of its weight without feeling wet).

Why other options are wrong:

- Option A: Silk — not wool — is valued for its extreme lightness and high natural sheen. Wool is denser and has low lustre.
- Option C: Wool's tensile strength is lower than cotton, linen, or synthetics; it is not suited for heavy-load industrial fabrics.
- Option D: Wool is hygroscopic and absorbs significant moisture; it is not moisture-resistant.

Final Answer: Wool's natural crimp traps air, providing excellent thermal insulation. $\Rightarrow$ B

Answer: (B) Go Back to Q41

Q42.

Solution

Concept — Vegetable tanning of leather: Vegetable tanning is the oldest and most traditional method of tanning leather. It uses tannins — polyphenolic compounds naturally occurring in the bark, leaves, fruits, and wood of various plants such as oak, chestnut, mimosa (wattle), quebracho, and sumac. The process is slow (weeks to months) but produces firm, durable, and age-developing leather.

Step 1 — Define the active agent: Tannins from plant sources (bark, leaves, fruits) are the tanning agents. They bind to the collagen fibres in the hide, cross-linking and stabilising them.

Step 2 — Contrast with other tanning methods: Chrome tanning uses chromium(III) sulphate salts (the most common modern method, much faster); aldehyde tanning uses formaldehyde/glutaraldehyde; synthetic (synthan) tanning uses polymer emulsions.

Why other options are wrong:

- Option B: Chromium(III) sulphate salts in an acidic bath describe *chrome tanning* — the most widely used industrial method, not vegetable tanning.
- Option C: Synthetic polymer emulsions describe *synthetic tanning* (synthan process), not vegetable tanning.

- Option D: Formaldehyde and glutaraldehyde cross-linking agents describe *aldehyde tanning*, used for specialty leathers, not vegetable tanning.

Final Answer: Vegetable tanning uses tannins extracted from tree bark, leaves, or plant fruits. $\Rightarrow$ A

Answer: (A) Go Back to Q42

Q43.

Solution

Concept — Types of heels in footwear design: The stiletto heel is the most distinctive heel type, characterised by its extreme thinness, considerable height (typically 7–13 cm), and very small ground contact area — often as little as a few square centimetres. It creates an elongating, dramatic silhouette and originated in the 1950s.

Step 1 — Define stiletto's physical characteristics: Extremely thin shaft, tall height, tiny contact point with the ground. The shaft may be reinforced with a metal rod internally.

Step 2 — Contrast with other heel types: A block heel has a wide, stable base; a tapered-but-chunky heel (like a kitten heel) is thicker throughout; a wedge heel runs continuously from heel to ball — none of these are stilettos.

Why other options are wrong:

- Option A: A wide block heel with a broad flat base describes a *block heel* or *chunky heel* — the opposite of a stiletto.
- Option B: A heel that is thicker at the top and tapers only slightly describes a *kitten heel* or tapered heel, not a stiletto.
- Option D: A wedge running from heel to toe describes a *wedge heel* — a continuous platform, not a stiletto.

Final Answer: A stiletto heel is an extremely thin, tall heel with a very small ground contact point. $\Rightarrow$ C

Answer: (C) Go Back to Q43

Q44.

Solution

Concept — Durability comparison of weave types: Weave durability is directly related to the number of interlacement points (where weft crosses over or under warp) per unit area. Plain weave has the most interlacement points (1-over-1-under in every row and column), making it the most structurally stable and durable. Twill has fewer interlacement points (creating the diagonal rib), and satin has the fewest (long floats = smooth surface but prone to snagging).

Step 1 — Count interlacement frequency: Plain weave: every thread interlaces with every adjacent thread (maximum density). Twill: 2-over or 3-over patterns reduce interlacement per unit area. Satin: 4-over or 5-over floats minimise interlacement.

Step 2 — Apply to durability: More interlacement = more bond points = higher resistance to distortion and abrasion = more durable fabric.

Why other options are wrong:

- Option A: Lustre and smoothness are properties of *satin weave* (long floats reflect light), not plain weave.
- Option B: A prominent diagonal rib is the hallmark of a *twill weave*, not plain weave.
- Option C: This reverses the truth — plain weave has the *most* interlacement points, making it the most durable, not the weakest.

Final Answer: Plain weave is most durable because it has the highest number of interlacement points per unit area. $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q44

Q45.

Solution

Concept — Paper folding and hole punching: When a sheet is folded once (left half onto right half, or right onto left), both layers are stacked together. A hole punched through both layers creates a hole in each layer. When unfolded, the hole in the top layer and the hole in the bottom layer are now mirror images of each other across the fold line — giving two holes in the unfolded sheet.

Step 1 — Analyse the fold: The paper is folded left-to-right along a vertical centre line. The right half folds onto the left (or left onto right), creating two layers.

Step 2 — Punch and unfold: One punch through both layers creates one hole in the left half and one hole in the right half — symmetric about the fold line. Unfolding reveals two holes.

Why other options are wrong:

- Option A: 1 hole would only result if the punch went through just one layer, or if the fold were along the very edge — neither applies here.
- Option C: 3 holes would require two folds or an off-edge fold; a single fold through the centre always produces 2 mirror-image holes.
- Option D: 4 holes would result from two folds (folding twice before punching).

Final Answer: When unfolded, two holes are visible — mirror images across the fold line. $\Rightarrow$ B

Answer: (B) Go Back to Q45

Q46.

Solution

Concept — Triangular numbers: Triangular numbers are the sequence formed by the sum of consecutive natural numbers: $T_n = \frac{n(n+1)}{2}$. The sequence is: $T_1 = 1,\ T_2 = 3,\ T_3 = 6,\ T_4 = 10,\ T_5 = 15,\ \ldots$ Each term is obtained from the previous by adding the next natural number.

Step 1 — Identify the pattern of differences: $3 - 1 = 2$; $6 - 3 = 3$; $10 - 6 = 4$; so the next difference is 5, giving $T_5 = 10 + 5 = 15$.

Step 2 — Verify with formula: $T_5 = \frac{5\times 6}{2} = \frac{30}{2} = 15$ ✓.

Why other options are wrong:

- Option B: 12 would require adding 2 to 10, but the differences increase by 1 each step; the next difference is 5, not 2.
- Option C: 14 would require adding 4 to 10; the correct next difference is 5, not 4.
- Option D: 16 would require adding 6 to 10; but the next increment is 5 (not 6), as the differences increase by exactly 1 each step.

Final Answer: The next triangular number after 10 is $10 + 5 = 15$. $\Rightarrow$ A

Answer: (A) Go Back to Q46

Q47.

Solution

Concept — Euler's polyhedron formula: Euler's formula for convex polyhedra states $V - E + F = 2$, where V = vertices, E = edges, and F = faces. This relationship holds for all convex (and many non-convex) polyhedra.

Step 1 — Substitute known values: Given $V = 8$ and $E = 12$: $8 - 12 + F = 2$.

Step 2 — Solve for F: $-4+F = 2 \Rightarrow F = 6$. (This is consistent with a cuboid/cube, which has 8 vertices, 12 edges, and 6 faces.)

Why other options are wrong:

- Option A: $F = 4$ gives $8 - 12 + 4 = 0 \neq 2$; does not satisfy Euler's formula.
- Option B: $F = 5$ gives $8 - 12 + 5 = 1 \neq 2$; does not satisfy Euler's formula.
- Option C: $F = 7$ gives $8 - 12 + 7 = 3 \neq 2$; does not satisfy Euler's formula.

Final Answer: Using $V - E + F = 2$: $8 - 12 + F = 2 \Rightarrow F = 6$. $\Rightarrow$ D

Answer: (D) Go Back to Q47

Q48.

Solution

Concept — Embedded figures in geometric motifs: A hexagram (Star of David / Magen David) is formed by overlapping two equilateral triangles — one pointing up and one pointing down. The overlapping region and the overall structure contain multiple embedded shapes: the two original triangles, a central regular hexagon, and six smaller triangles around the perimeter.

Step 1 — Identify the construction: Two overlapping equilateral triangles (one pointing up, one pointing down) form the hexagram. Each original triangle is an embedded figure.

Step 2 — Confirm the visible embedded shape: Both of the large equilateral triangles (upward and downward pointing) are visually embedded and immediately recognisable as triangles within the hexagram design.

Why other options are wrong:

- Option A: A square cannot be embedded in a hexagram constructed from equilateral triangles; squares require 90° angles, which are absent.
- Option B: A regular hexagon is embedded at the *centre* of the hexagram, but the question asks about the most prominent embedded figure; in the

diagram the two full triangles are the most obvious overlapping shapes.
- Option D: A pentagon requires five equal sides and 108° angles; the hexagram's geometry (60° angles) does not contain pentagons.

Final Answer: A triangle is the embedded figure within the hexagram (two overlapping equilateral triangles). $\Rightarrow$ C

Answer: (C) Go Back to Q48

Q49.

Solution

Concept — Shape analogies: 2D to 3D: This analogy tests knowledge of the relationship between flat (2D) shapes and their three-dimensional solid counterparts. A circle is the 2D cross-section of a sphere; a square is the 2D face of a cube. The relationship is: 2D shape $\rightarrow$ its corresponding 3D solid.

Step 1 — Decode the analogy structure: Circle : Sphere = the 2D shape and its 3D counterpart obtained by rotating it around an axis or extruding/inflating it into space. Square : ? follows the same logic.

Step 2 — Apply to square: A square has four equal sides and four 90° corners. Extending this into three equal dimensions with all faces as squares gives a *cube*.

Why other options are wrong:

- Option B: A cylinder is the 3D counterpart of a *circle* (extruded, not inflated into sphere), or more precisely, it is associated with a rectangle extruded around a circular cross-section; it is not the square's equivalent.
- Option C: A cone is the 3D counterpart of a *triangle* (in some analogies) or is derived from a circle with a single apex — it is not the counterpart of a square.
- Option D: A triangular prism is the 3D counterpart of a *triangle* (extruded), not a square.

Final Answer: Circle : Sphere :: Square : Cube (each 2D shape maps to its 3D counterpart). $\Rightarrow$ A

Answer: (A) Go Back to Q49

Q50.

Solution

Concept — Regular polygon sequence by number of sides: The sequence of regular polygons is ordered by increasing number of sides: triangle (3), square (4), pentagon (5), hexagon (6), heptagon (7), octagon (8), and so on. Each successive polygon adds one side.

Step 1 — Read the sequence: The diagram shows polygons with 3, 4, 5, and 6 sides in order.

Step 2 — Identify the next term: $6 + 1 = 7$ sides. A regular polygon with 7 sides is called a *heptagon*.

Why other options are wrong:

- Option A: An octagon has 8 sides — that would be the term *after* the next one (two steps ahead, not one).
- Option B: A circle with infinite sides is a conceptual limit, not the next discrete step in a polygon sequence that increments by one side.
- Option D: A decagon has 10 sides — four steps ahead of hexagon, not one.

Final Answer: The next polygon in the sequence (after hexagon) is the heptagon (7 sides). $\Rightarrow$ C

Answer: (C) Go Back to Q50

Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	B	2	A	3	D	4	C	5	B
6	A	7	D	8	C	9	B	10	D
11	A	12	B	13	C	14	D	15	A
16	B	17	C	18	D	19	A	20	B
21	D	22	C	23	B	24	A	25	D
26	C	27	B	28	D	29	A	30	C
31	B	32	D	33	A	34	B	35	C
36	D	37	A	38	B	39	C	40	D
41	B	42	A	43	C	44	D	45	B
46	A	47	D	48	C	49	A	50	C