

UCEED Sample Paper

Duration: 180 Minutes

Maximum Marks: 300

Instructions

- This is a full-length UCEED practice paper. **Part A** (Q1–Q57, 200 marks, computer-based) has three sections: **Section 1** NAT, Numerical Answer Type (Q1–Q14); **Section 2** MSQ, Multiple Select Questions (Q15–Q29); **Section 3** MCQ, Multiple Choice Questions (Q30–Q57). **Part B** (Q58–Q59, 100 marks, pen and paper) tests drawing and design aptitude.
- **Marking - Part A:** NAT: +4, no negative marking. MSQ: +4 if all correct options and no wrong option are chosen; +1 for each correct option chosen when no wrong option is chosen; –1 if any wrong option is chosen. MCQ: +3 for correct, –0.71 for wrong.
- **Marking - Part B:** each of the two questions carries **50 marks**, evaluated on your drawing and design response. There is no negative marking in Part B.
- Tap **View Solution** (Part A) or **View Model Approach** (Part B) under any question to jump to its worked explanation. Calculators and electronic gadgets are not allowed.

Section 1: Numerical Answer Type (NAT)

Q1. A wooden cube of side 5 cm is painted on all six outer faces and then cut into smaller cubes of side 1 cm each. How many of the small cubes have exactly two painted faces?

(Numerical Answer Type - enter a numerical value; no options.)

[View Solution](#)



Q2. In the ISO A paper series, each smaller size is made by halving the next larger size, so A4 has half the area of A3, A3 has half the area of A2, and so on. How many A4 sheets together have the same total area as one A0 sheet?

(Numerical Answer Type - enter a numerical value; no options.)

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Q3. In digital typography, 1 pica equals 12 points and 1 inch equals 6 picas. How many points are there in a length of 3.5 inches?

(Numerical Answer Type - enter a numerical value; no options.)

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Q4. A square logo is enlarged so that each of its linear dimensions increases by 50 percent. By what percentage does the area of the logo increase?

(Numerical Answer Type - enter a numerical value; no options.)

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Q5. A digital image is 1200 pixels wide. When it is printed at a resolution of 300 pixels per inch, what is the printed width of the image in inches?

(Numerical Answer Type - enter a numerical value; no options.)

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Q6. A person walks 6 metres due north and then 8 metres due east. What is the shortest straight-line distance, in metres, between the person's final position and the starting point?

(Numerical Answer Type - enter a numerical value; no options.)

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Q7. A designer wants a rectangle whose sides follow the golden ratio, taken as 1.618. If the shorter side is 25 cm, what is the length of the longer side in centimetres, rounded to the nearest whole number?

(Numerical Answer Type - enter a numerical value; no options.)

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Q8. A large gear with 40 teeth meshes with a small gear that has 10 teeth. When the large gear completes 3 full turns, how many full turns does the small gear complete?

(Numerical Answer Type - enter a numerical value; no options.)

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Q9. Consider the number sequence 2, 6, 12, 20, 30, ... where each term follows the pattern n times $(n+1)$. What is the 8th term of this sequence?

(Numerical Answer Type - enter a numerical value; no options.)

[View Solution](#)

Q10. A circular design motif has a radius of 14 cm. Taking π as $\frac{22}{7}$, what is the area of the motif in square centimetres?

(Numerical Answer Type - enter a numerical value; no options.)

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Q11. A floor plan is drawn to a scale of 1:50, meaning 1 unit on the plan represents 50 units in reality. A wall drawn as 8 cm long on the plan corresponds to what actual length in metres?

(Numerical Answer Type - enter a numerical value; no options.)

[View Solution](#)



Q12. A triangular prism is a solid with two triangular faces joined by three rectangular faces. How many edges does a triangular prism have in total?

(Numerical Answer Type - enter a numerical value; no options.)

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Q13. A design studio quotes a project fee of 12000 rupees. It then offers a discount of 15 percent on this fee. What is the final amount the client pays, in rupees?

(Numerical Answer Type - enter a numerical value; no options.)

[View Solution](#)

Q14. On a grid, 3 vertical lines and 4 horizontal lines are drawn so that every vertical line crosses every horizontal line. How many rectangles can be formed using these lines as sides?

(Numerical Answer Type - enter a numerical value; no options.)

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Section 2: Multiple Select Questions (MSQ)

Q15. Which of the following are traditional Indian resist-dyeing or block-printing textile crafts?

(One or more options may be correct.)

- (A) Warli
- (B) Bagru
- (C) Tanjore
- (D) Bandhani



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Q16. In colour theory, which single hue below is a primary colour in the additive RGB model but is NOT a primary colour in the traditional subtractive RYB model?

(One or more options may be correct.)

- (A) Red
- (B) Yellow
- (C) Green
- (D) Blue

[View Solution](#)

Q17. Which of the following are vector graphics file formats?

(One or more options may be correct.)

- (A) SVG
- (B) AI
- (C) EPS
- (D) JPEG

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Q18. Which of the following statements correctly match an artist or designer with their work or contribution?

(One or more options may be correct.)

- (A) Le Corbusier designed the Sydney Opera House
- (B) Charles and Ray Eames designed the Taj Mahal
- (C) M F Husain was a leading figure of modern Indian painting



(D) Raja Ravi Varma popularised oleograph prints of Indian deities

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Q19. In colour theory, which of the following is considered a warm colour?

(One or more options may be correct.)

(A) Blue

(B) Green

(C) Teal

(D) Orange

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Q20. Which of the following are recognised principles of design?

(One or more options may be correct.)

(A) Balance

(B) Contrast

(C) Rhythm

(D) Emphasis

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Q21. Which of the following Indian dance forms are classical dances recognised by the Sangeet Natak Akademi?

(One or more options may be correct.)

(A) Garba

(B) Kathak

(C) Odissi



(D) Bihu

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Q22. Which of the following are raster (bitmap) image formats?

(One or more options may be correct.)

(A) PNG

(B) SVG

(C) GIF

(D) TIFF

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Q23. The Bauhaus school, hugely influential on modern design and architecture, was founded in which country?

(One or more options may be correct.)

(A) France

(B) Germany

(C) Italy

(D) Netherlands

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Q24. Which of the following statements about typography are correct?

(One or more options may be correct.)

(A) Serif fonts have no small strokes at the ends of their letters

(B) Kerning is the spacing added between all lines of a paragraph

(C) A typeface family often includes regular, bold and italic styles



(D) Point size is a measure of the height of the type

[View Solution](#)

Q25. Which of the following are heritage architectural sites located in India?

(One or more options may be correct.)

- (A) Hawa Mahal
- (B) Sanchi Stupa
- (C) Petronas Towers
- (D) Konark Sun Temple

[View Solution](#)

Q26. Which of the following are sustainable or eco-friendly product design practices?

(One or more options may be correct.)

- (A) Using single-use plastic packaging
- (B) Designing products so they can be disassembled and recycled
- (C) Building in planned obsolescence to boost repeat sales
- (D) Choosing locally sourced, renewable materials

[View Solution](#)

Q27. Which colour model is used specifically for standard four-plate print production?

(One or more options may be correct.)

- (A) RGB
- (B) HSB



- (C) CMYK
- (D) Grayscale

[View Solution](#)

Q28. Which of the following are traditional Indian folk or tribal painting forms?

(One or more options may be correct.)

- (A) Madhubani
- (B) Gond
- (C) Pattachitra
- (D) Kalighat

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Q29. Which of the following statements about the golden ratio in design are correct?

(One or more options may be correct.)

- (A) It is approximately equal to 1.618
- (B) It is commonly denoted by the Greek letter phi
- (C) It is exactly equal to 3.14
- (D) It can only be applied to circles

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Section 3: Multiple Choice Questions (MCQ)

Q30. Which of the following is the odd one out?

- (A) Circle



- (B) Square
- (C) Triangle
- (D) Rectangle

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Q31. Complete the letter series: A, C, E, G, ?

- (A) H
- (B) I
- (C) J
- (D) K

[View Solution](#)

Q32. Which Indian city was planned in the 1950s by the architect Le Corbusier?

- (A) Jaipur
- (B) Delhi
- (C) Chandigarh
- (D) Mumbai

[View Solution](#)

Q33. When seen in a mirror, a wall clock shows the time as 3:00. What is the actual time?

- (A) 6:00
- (B) 3:00
- (C) 12:00
- (D) 9:00



[View Solution](#)

Q34. On the traditional (RYB) colour wheel, which colour is the complement of red?

- (A) Green
- (B) Blue
- (C) Orange
- (D) Yellow

[View Solution](#)

Q35. A cube has how many faces, edges and vertices respectively?

- (A) 6, 8, 12
- (B) 6, 12, 8
- (C) 8, 6, 12
- (D) 12, 6, 8

[View Solution](#)

Q36. The Warli painting tradition, known for simple geometric human and animal figures, originates from which Indian state?

- (A) Bihar
- (B) Odisha
- (C) Maharashtra
- (D) Rajasthan

[View Solution](#)

Q37. In a certain code, CAT is written as DBU. Using the same rule, how is DOG written?



- (A) CPF
- (B) EOH
- (C) DPH
- (D) EPH

[View Solution](#)

Q38. In typography, which term describes the vertical space between successive lines of text?

- (A) Leading
- (B) Kerning
- (C) Tracking
- (D) Serif

[View Solution](#)

Q39. A is B's brother. C is B's mother. How is A related to C?

- (A) Father
- (B) Son
- (C) Uncle
- (D) Brother

[View Solution](#)

Q40. Which of the following is a raster (pixel-based) image format?

- (A) SVG
- (B) EPS
- (C) JPEG



(D) AI

[View Solution](#)

Q41. The Ajanta caves, famous for their ancient Buddhist murals, are located in which Indian state?

(A) Kerala

(B) Karnataka

(C) Tamil Nadu

(D) Maharashtra

[View Solution](#)

Q42. A regular polygon has exactly 5 equal sides and 5 lines of symmetry. Which shape is it?

(A) Regular pentagon

(B) Square

(C) Regular hexagon

(D) Five-pointed star

[View Solution](#)

Q43. In the additive RGB colour model, mixing red light and green light produces which colour?

(A) Cyan

(B) Yellow

(C) Magenta

(D) White

[View Solution](#)



Q44. A person is facing north. She turns 90 degrees clockwise and then turns a further 180 degrees. Which direction is she facing now?

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

[View Solution](#)

Q45. The painter Piet Mondrian, known for grids of black lines and primary colours, is most associated with which art movement?

- (A) Cubism
- (B) Surrealism
- (C) Bauhaus
- (D) De Stijl

[View Solution](#)

Q46. A cube of side 4 cm is painted on all faces and then cut into 1 cm cubes. How many of the small cubes have no painted face at all?

- (A) 8
- (B) 4
- (C) 12
- (D) 0

[View Solution](#)

Q47. In printing and imaging, what does the abbreviation DPI stand for?

- (A) Digital Print Ink



- (B) Dots Per Inch
- (C) Density Per Image
- (D) Design Print Index

[View Solution](#)

Q48. Which Indian textile craft uses a tie-and-dye resist technique to create dotted patterns and is famous in Gujarat and Rajasthan?

- (A) Kalamkari
- (B) Chikankari
- (C) Bandhani
- (D) Zardozi

[View Solution](#)

Q49. Find the next number in the series: 3, 9, 27, 81, ?

- (A) 108
- (B) 162
- (C) 216
- (D) 243

[View Solution](#)

Q50. Which of the following is NOT a principle of design?

- (A) Pixel
- (B) Balance
- (C) Contrast
- (D) Rhythm



[View Solution](#)

Q51. On a map, a scale states that 1 cm represents 5 km. Two towns are 7 cm apart on the map. What is the actual distance between them?

- (A) 12 km
- (B) 35 km
- (C) 25 km
- (D) 40 km

[View Solution](#)

Q52. The Meenakshi Temple, celebrated for its tall, colourful gopurams, is located in which city?

- (A) Thanjavur
- (B) Chennai
- (C) Madurai
- (D) Kochi

[View Solution](#)

Q53. In colour theory, which of the following is considered a cool colour?

- (A) Red
- (B) Orange
- (C) Yellow
- (D) Blue

[View Solution](#)

Q54. If '+' means multiply, 'x' means subtract, and '-' means add, then what is the value of $6 + 2 \times 4 - 3$?



- (A) 11
- (B) 9
- (C) 15
- (D) 7

[View Solution](#)

Q55. Which artist, famous for oleograph prints of Hindu deities, is often called a pioneer of modern Indian painting?

- (A) Nandalal Bose
- (B) Raja Ravi Varma
- (C) Jamini Roy
- (D) M F Husain

[View Solution](#)

Q56. A regular hexagon is divided by straight lines drawn from its centre to each vertex. Into how many equilateral triangles is it divided?

- (A) 3
- (B) 4
- (C) 6
- (D) 8

[View Solution](#)

Q57. The relationship '72 points equal 1 inch' is a standard unit used mainly in which field?

- (A) Photography
- (B) Cartography



- (C) Weaving
- (D) Typography

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Part B: Drawing and Design
Aptitude (Pen and Paper)

Q58. [Drawing - 50 Marks]

It is first light at a small fishing harbour. Wooden boats rock at the water's edge, coiled ropes and floats lie on the wet sand, and gulls wheel over crates of the morning catch. The focal subject is a fisherman standing beside his beached boat, leaning back as he hauls in a wide fishing net heavy with fish, the dripping net gathered in his arms while a second man steadies the boat. Imagine this scene and draw it with the fisherman hauling the net as the clear centre of interest. Show the wooden boat and its oars, the coiled ropes and floats, the crates of catch, the second fisherman, the wheeling gulls, and the sea meeting the sky behind.

Note: Make pencil sketches only. Do not use colour.

Evaluation criteria: observation; composition; perspective and proportion; quality of lines; attention to detail.

[View Model Approach](#)

Q59. [Design Aptitude - 50 Marks]

Many two-wheeler riders skip wearing a helmet on short trips because a rigid helmet is bulky to carry around once they reach a shop, a college or an office, and there is nowhere safe to keep it. Design a helmet for a two-wheeler rider that gives proper head protection when worn, yet folds or collapses into a compact form that is easy to carry in



a bag or hang on a hook when off the bike. Show your design in two states: (1) folded down into its compact carry form, and (2) opened out and worn on the head, protecting the rider.

Note: Make pencil sketches only. Do not use colour. Explain your design only through visuals and short labels; do not write separate explanations.

[View Model Approach](#)



Detailed Solutions

Q1.

Q. A wooden cube of side 5 cm is painted on all six outer faces and then cut into smaller cubes of side 1 cm each. How many of the small cubes have exactly two painted faces?

Solution

Concept - Painted cube (edge cubes): In an $n \times n \times n$ painted cube cut into unit cubes, the pieces with exactly two painted faces lie along the edges but not at the corners. Each edge holds $(n - 2)$ such cubes, and a cube has 12 edges.

Step 1 - Cubes per edge: Here $n = 5$, so each edge gives $n - 2 = 3$ two-face cubes.

Step 2 - Total: Multiply by 12 edges: $3 \times 12 = 36$.

Tip: Corners give three-face cubes, edges give two-face, face-centres give one-face, and the inner block gives zero-face cubes.

Answer: 36 [Go Back to Q1](#)

Q2.

Q. In the ISO A paper series, each smaller size is made by halving the next larger size, so A4 has half the area of A3, A3 has half the area of A2, and so on. How many A4 sheets together have the same total area as one A0 sheet?



Solution

Concept - A-series halving: Going from A0 down to A4 is four halving steps (A0 to A1 to A2 to A3 to A4). Each step doubles the number of sheets needed to match the area.

Step 1 - Count the doublings: Four steps mean the area of A0 equals 2^4 times the area of A4.

Step 2 - Compute: $2^4 = 16$.

Tip: The same logic tells you A0 equals 2 A1, 4 A2, or 8 A3 sheets.

Answer: 16 [Go Back to Q2](#)

Q3.

Q. In digital typography, 1 pica equals 12 points and 1 inch equals 6 picas. How many points are there in a length of 3.5 inches?

Solution

Concept - Typographic units: Convert step by step: inches to picas, then picas to points.

Step 1 - Inches to picas: $3.5 \times 6 = 21$ picas.

Step 2 - Picas to points: $21 \times 12 = 252$ points.

Tip: A quick shortcut is 1 inch = 72 points, so $3.5 \times 72 = 252$.

Answer: 252 [Go Back to Q3](#)

Q4.



Q. A square logo is enlarged so that each of its linear dimensions increases by 50 percent. By what percentage does the area of the logo increase?

Solution

Concept - Area scales with the square of length: If every length is multiplied by a factor k , the area is multiplied by k^2 .

Step 1 - Scale factor: A 50 percent increase means $k = 1.5$.

Step 2 - New area factor: $k^2 = 1.5^2 = 2.25$, so the area becomes 225 percent of the original, an increase of $225 - 100 = 125$ percent.

Tip: Percentage area change is never the same as length change; always square the length factor first.

Answer: 125 [Go Back to Q4](#)

Q5.

Q. A digital image is 1200 pixels wide. When it is printed at a resolution of 300 pixels per inch, what is the printed width of the image in inches?

Solution

Concept - Print size from resolution: Printed length in inches equals the pixel count divided by the pixels-per-inch value.

Step 1 - Set up: Width = $\frac{1200 \text{ pixels}}{300 \text{ pixels per inch}}$.

Step 2 - Compute: $1200 \div 300 = 4$ inches.

Tip: Higher ppi with the same pixel count means a smaller, sharper



print.

Answer: 4 [Go Back to Q5](#)

Q6.

Q. A person walks 6 metres due north and then 8 metres due east. What is the shortest straight-line distance, in metres, between the person's final position and the starting point?

Solution

Concept - Pythagoras theorem: A north leg and an east leg meet at a right angle, so the straight-line distance is the hypotenuse of a right triangle.

Step 1 - Square and add: $6^2 + 8^2 = 36 + 64 = 100$.

Step 2 - Take the root: $\sqrt{100} = 10$ metres.

Tip: The 6-8-10 set is just the 3-4-5 triangle doubled, a handy pattern to memorise.

Answer: 10 [Go Back to Q6](#)

Q7.

Q. A designer wants a rectangle whose sides follow the golden ratio, taken as 1.618. If the shorter side is 25 cm, what is the length of the longer side in centimetres, rounded to the nearest whole number?

Solution



Concept - Golden ratio: The longer side equals the shorter side multiplied by 1.618.

Step 1 - Multiply: $25 \times 1.618 = 40.45$ cm.

Step 2 - Round: 40.45 rounds to 40 cm.

Tip: The golden ratio, denoted by the Greek letter phi, appears often in layout and logo proportions.

Answer: 40 [Go Back to Q7](#)

Q8.

Q. A large gear with 40 teeth meshes with a small gear that has 10 teeth. When the large gear completes 3 full turns, how many full turns does the small gear complete?

Solution

Concept - Gear ratio: Meshing gears move the same number of teeth past the contact point, so turns are inversely proportional to tooth count.

Step 1 - Turn ratio: The small gear turns $\frac{40}{10} = 4$ times for each turn of the large gear.

Step 2 - For 3 turns: $4 \times 3 = 12$ turns.

Tip: A smaller gear always spins faster than the larger gear it meshes with.

Answer: 12 [Go Back to Q8](#)

Q9.



Q. Consider the number sequence 2, 6, 12, 20, 30, ... where each term follows the pattern n times $(n+1)$. What is the 8th term of this sequence?

Solution

Concept - Pattern spotting: Each term is $n(n+1)$: term 1 is $1 \times 2 = 2$, term 2 is $2 \times 3 = 6$, and so on.

Step 1 - Set $n = 8$: The 8th term is $8 \times (8 + 1)$.

Step 2 - Compute: $8 \times 9 = 72$.

Tip: Differences here grow as 4, 6, 8, 10, ..., confirming a quadratic rule.

Answer: 72 [Go Back to Q9](#)

Q10.

Q. A circular design motif has a radius of 14 cm. Taking pi as $\frac{22}{7}$, what is the area of the motif in square centimetres?

Solution

Concept - Area of a circle: $\text{Area} = \pi r^2$.

Step 1 - Square the radius: $14^2 = 196$.

Step 2 - Multiply by pi: $\frac{22}{7} \times 196 = 22 \times 28 = 616$ square cm.

Tip: Radii that are multiples of 7 cancel neatly with $\frac{22}{7}$, so keep an eye out for them.

Answer: 616 [Go Back to Q10](#)



Q11.

Q. A floor plan is drawn to a scale of 1:50, meaning 1 unit on the plan represents 50 units in reality. A wall drawn as 8 cm long on the plan corresponds to what actual length in metres?

Solution

Concept - Map and plan scale: Actual length equals drawn length multiplied by the scale factor.

Step 1 - Scale up: $8 \text{ cm} \times 50 = 400 \text{ cm}$.

Step 2 - Convert to metres: $400 \text{ cm} = 4 \text{ m}$.

Tip: Always convert to a single unit at the end; a scale factor itself has no units.

Answer: 4 [Go Back to Q11](#)

Q12.

Q. A triangular prism is a solid with two triangular faces joined by three rectangular faces. How many edges does a triangular prism have in total?

Solution

Concept - Counting edges of a prism: A prism has edges around its two identical end faces plus the edges joining them.

Step 1 - Edges of the two triangles: Each triangle has 3 edges, giving $3 + 3 = 6$.

Step 2 - Connecting edges: Three edges join matching corners,



giving $6 + 3 = 9$.

Tip: Check with Euler: faces 5 plus vertices 6 equals edges 9 plus 2, which holds.

Answer: 9 [Go Back to Q12](#)

Q13.

Q. A design studio quotes a project fee of 12000 rupees. It then offers a discount of 15 percent on this fee. What is the final amount the client pays, in rupees?

Solution

Concept - Percentage discount: The client pays the original amount minus the discount, which is the same as paying $(100 - 15) = 85$ percent of the fee.

Step 1 - Pay fraction: $85\% = 0.85$.

Step 2 - Compute: $12000 \times 0.85 = 10200$ rupees.

Tip: Multiplying by the retained percentage is faster than finding the discount and subtracting.

Answer: 10200 [Go Back to Q13](#)

Q14.

Q. On a grid, 3 vertical lines and 4 horizontal lines are drawn so that every vertical line crosses every horizontal line. How many rectangles can be formed using these lines as sides?



Solution

Concept - Rectangles from a line grid: A rectangle needs 2 of the vertical lines and 2 of the horizontal lines, so count the ways to choose each pair.

Step 1 - Choose verticals: From 3 vertical lines, $\binom{3}{2} = 3$ pairs.

Step 2 - Choose horizontals and multiply: From 4 horizontal lines, $\binom{4}{2} = 6$ pairs. Total rectangles = $3 \times 6 = 18$.

Tip: Rectangle counting is always (ways to pick two vertical lines) times (ways to pick two horizontal lines).

Answer: 18 [Go Back to Q14](#)

Q15.

Q. Which of the following are traditional Indian resist-dyeing or block-printing textile crafts?

- (A) Warli
- (B) Bagru
- (C) Tanjore
- (D) Bandhani

Solution

Concept - Indian textile crafts: Resist-dyeing and block-printing crafts work directly on cloth, unlike painting traditions.

Step 1 - Evaluate A: Warli is a tribal wall-painting form from Maharashtra, not a textile craft. Incorrect.

Step 2 - Evaluate B: Bagru is a hand block-printing craft of



Rajasthan. Correct.

Step 3 - Evaluate C and D: Tanjore is a gold-leaf painting style, so incorrect. Bandhani is the tie-and-dye textile craft of Gujarat and Rajasthan, so correct.

Tip: Correct options are B and D; separate painting traditions from cloth-based crafts.

Answer: B, D [Go Back to Q15](#)

Q16.

Q. In colour theory, which single hue below is a primary colour in the additive RGB model but is NOT a primary colour in the traditional subtractive RYB model?

- (A) Red
- (B) Yellow
- (C) Green
- (D) Blue

Solution

Concept - RGB vs RYB primaries: RGB primaries are red, green, blue; RYB primaries are red, yellow, blue.

Step 1 - Evaluate A and D: Red and blue are primaries in both models, so neither qualifies.

Step 2 - Evaluate B: Yellow is an RYB primary but not an RGB primary, the opposite of what is asked, so incorrect.

Step 3 - Evaluate C: Green is an RGB primary and is not an RYB



primary. Correct.

Tip: Only option C fits; additive light mixing uses green as a primary, paint mixing does not.

Answer: C [Go Back to Q16](#)

Q17.

Q. Which of the following are vector graphics file formats?

- (A) SVG
- (B) AI
- (C) EPS
- (D) JPEG

Solution

Concept - Vector vs raster: Vector files store shapes as scalable math paths; raster files store a fixed grid of pixels.

Step 1 - Evaluate A and B: SVG is a scalable vector format and AI is Adobe Illustrator's native vector format. Both correct.

Step 2 - Evaluate C: EPS commonly stores vector artwork for print. Correct.

Step 3 - Evaluate D: JPEG is a compressed raster (pixel) format. Incorrect.

Tip: Correct options are A, B and C; only JPEG here is pixel-based.

Answer: A, B, C [Go Back to Q17](#)

Q18.



Q. Which of the following statements correctly match an artist or designer with their work or contribution?

- (A) Le Corbusier designed the Sydney Opera House
- (B) Charles and Ray Eames designed the Taj Mahal
- (C) M F Husain was a leading figure of modern Indian painting
- (D) Raja Ravi Varma popularised oleograph prints of Indian deities

Solution

Concept - Design and art history matches: Check each named creator against the work claimed.

Step 1 - Evaluate A: The Sydney Opera House was designed by Jørn Utzon; Le Corbusier planned Chandigarh. Incorrect.

Step 2 - Evaluate B: The Eameses were furniture and product designers; the Taj Mahal is 17th-century Mughal architecture. Incorrect.

Step 3 - Evaluate C and D: M F Husain was a founder-linked figure of modern Indian art, correct. Raja Ravi Varma is famous for mass-produced oleographs of gods, correct.

Tip: Correct options are C and D; the first two swap creators with the wrong works.

Answer: C, D [Go Back to Q18](#)

Q19.

Q. In colour theory, which of the following is considered a warm colour?



- (A) Blue
- (B) Green
- (C) Teal
- (D) Orange

Solution

Concept - Warm vs cool colours: Warm colours sit on the red-orange-yellow side of the wheel; cool colours sit on the blue-green side.

Step 1 - Evaluate A and B: Blue and green are classic cool colours. Incorrect.

Step 2 - Evaluate C: Teal is a blue-green, firmly a cool colour. Incorrect.

Step 3 - Evaluate D: Orange is a warm colour. Correct.

Tip: Only option D is warm; warm hues tend to advance visually while cool hues recede.

Answer: D [Go Back to Q19](#)

Q20.

Q. Which of the following are recognised principles of design?

- (A) Balance
- (B) Contrast
- (C) Rhythm
- (D) Emphasis



Solution

Concept - Principles of design: These principles describe how visual elements are organised on a page or in a product.

Step 1 - Evaluate A and B: Balance (visual weight distribution) and contrast (difference that draws attention) are both principles. Correct.

Step 2 - Evaluate C: Rhythm is the repetition that creates visual movement. Correct.

Step 3 - Evaluate D: Emphasis creates a focal point. Correct.

Tip: All four are correct; do not confuse these principles with the basic elements such as line, shape and colour.

Answer: A, B, C, D [Go Back to Q20](#)

Q21.

Q. Which of the following Indian dance forms are classical dances recognised by the Sangeet Natak Akademi?

- (A) Garba
- (B) Kathak
- (C) Odissi
- (D) Bihu

Solution

Concept - Classical vs folk dance: Classical forms follow codified grammar such as the Natya Shastra; folk dances are community and region based.



Step 1 - Evaluate A: Garba is a folk dance of Gujarat. Incorrect.

Step 2 - Evaluate B and C: Kathak (North India) and Odissi (Odisha) are recognised classical dances. Both correct.

Step 3 - Evaluate D: Bihu is a folk dance of Assam. Incorrect.

Tip: Correct options are B and C; festival and harvest dances are usually folk, not classical.

Answer: B, C [Go Back to Q21](#)

Q22.

Q. Which of the following are raster (bitmap) image formats?

- (A) PNG
- (B) SVG
- (C) GIF
- (D) TIFF

Solution

Concept - Raster formats: Raster images store a fixed grid of pixels and lose sharpness when scaled up.

Step 1 - Evaluate A: PNG is a lossless raster format. Correct.

Step 2 - Evaluate B: SVG is a vector format. Incorrect.

Step 3 - Evaluate C and D: GIF and TIFF both store pixel data, so both are raster. Correct.

Tip: Correct options are A, C and D; SVG is the only vector format in the list.



Answer: A, C, D [Go Back to Q22](#)

Q23.

Q. The Bauhaus school, hugely influential on modern design and architecture, was founded in which country?

- (A) France
- (B) Germany
- (C) Italy
- (D) Netherlands

Solution

Concept - Design history, Bauhaus: The Bauhaus was founded by Walter Gropius in 1919 in Weimar.

Step 1 - Evaluate A and C: France and Italy had their own movements but not the Bauhaus. Incorrect.

Step 2 - Evaluate D: The Netherlands was home to De Stijl, a different movement. Incorrect.

Step 3 - Evaluate B: Germany, at Weimar and later Dessau, is where the Bauhaus operated. Correct.

Tip: Only option B is correct; link Bauhaus to Germany and De Stijl to the Netherlands.

Answer: B [Go Back to Q23](#)

Q24.



Q. Which of the following statements about typography are correct?

- (A) Serif fonts have no small strokes at the ends of their letters
- (B) Kerning is the spacing added between all lines of a paragraph
- (C) A typeface family often includes regular, bold and italic styles
- (D) Point size is a measure of the height of the type

Solution

Concept - Typography terms: Test each statement against the standard definitions.

Step 1 - Evaluate A: Serifs ARE the small end strokes, so a serif font does have them. Incorrect.

Step 2 - Evaluate B: Kerning adjusts space between two specific characters; spacing between lines is leading. Incorrect.

Step 3 - Evaluate C and D: A typeface family bundles weights and styles such as regular, bold and italic, correct. Point size measures the height of the type, correct.

Tip: Correct options are C and D; do not mix up kerning (letters) with leading (lines).

Answer: C, D [Go Back to Q24](#)

Q25.

Q. Which of the following are heritage architectural sites located in India?

- (A) Hawa Mahal



- (B) Sanchi Stupa
- (C) Petronas Towers
- (D) Konark Sun Temple

Solution

Concept - Indian architecture: Identify structures that stand within India.

Step 1 - Evaluate A: Hawa Mahal is in Jaipur, Rajasthan. Correct.

Step 2 - Evaluate B: Sanchi Stupa is in Madhya Pradesh. Correct.

Step 3 - Evaluate C and D: The Petronas Towers are in Kuala Lumpur, Malaysia, so incorrect. The Konark Sun Temple is in Odisha, so correct.

Tip: Correct options are A, B and D; only the Petronas Towers lie outside India.

Answer: A, B, D [Go Back to Q25](#)

Q26.

Q. Which of the following are sustainable or eco-friendly product design practices?

- (A) Using single-use plastic packaging
- (B) Designing products so they can be disassembled and recycled
- (C) Building in planned obsolescence to boost repeat sales
- (D) Choosing locally sourced, renewable materials

Solution



Concept - Sustainable design: Good practice reduces waste, extends life and lowers resource use.

Step 1 - Evaluate A: Single-use plastic packaging creates waste. Incorrect.

Step 2 - Evaluate B: Designing for disassembly and recycling supports a circular economy. Correct.

Step 3 - Evaluate C and D: Planned obsolescence deliberately shortens product life, so incorrect. Locally sourced renewable materials cut transport and depletion, so correct.

Tip: Correct options are B and D; sustainable choices lengthen life and close material loops.

Answer: B, D [Go Back to Q26](#)

Q27.

Q. Which colour model is used specifically for standard four-plate print production?

- (A) RGB
- (B) HSB
- (C) CMYK
- (D) Grayscale

Solution

Concept - Print colour model: Commercial printing lays down four ink plates.

Step 1 - Evaluate A and B: RGB is for screens and HSB is a way to



pick colours, not a printing model. Incorrect.

Step 2 - Evaluate D: Grayscale uses only shades of grey, not full-colour printing. Incorrect.

Step 3 - Evaluate C: CMYK (cyan, magenta, yellow, key/black) is the four-plate print model. Correct.

Tip: Only option C is correct; screens are additive RGB, print is subtractive CMYK.

Answer: C [Go Back to Q27](#)

Q28.

Q. Which of the following are traditional Indian folk or tribal painting forms?

- (A) Madhubani
- (B) Gond
- (C) Pattachitra
- (D) Kalighat

Solution

Concept - Indian folk painting: Each of these is a regional painting tradition passed down through communities.

Step 1 - Evaluate A and B: Madhubani is from Bihar and Gond is a tribal form from Madhya Pradesh. Both correct.

Step 2 - Evaluate C: Pattachitra is a cloth or palm-leaf painting tradition of Odisha and Bengal. Correct.

Step 3 - Evaluate D: Kalighat painting developed in 19th-century



Bengal. Correct.

Tip: All four are correct; each is tied to a specific Indian region.

Answer: A, B, C, D [Go Back to Q28](#)

Q29.

Q. Which of the following statements about the golden ratio in design are correct?

- (A) It is approximately equal to 1.618
- (B) It is commonly denoted by the Greek letter phi
- (C) It is exactly equal to 3.14
- (D) It can only be applied to circles

Solution

Concept - Golden ratio: A proportion widely used to create pleasing layouts and forms.

Step 1 - Evaluate A: Its value is about 1.618. Correct.

Step 2 - Evaluate B: It is denoted by phi. Correct.

Step 3 - Evaluate C and D: 3.14 is pi, not the golden ratio, so incorrect. The ratio applies to rectangles, spirals, layouts and more, not only circles, so incorrect.

Tip: Correct options are A and B; keep phi (about 1.618) separate from pi (about 3.14).

Answer: A, B [Go Back to Q29](#)

Q30.



Q. Which of the following is the odd one out?

- (A) Circle
- (B) Square
- (C) Triangle
- (D) Rectangle

Solution

Concept - Odd one out by shape property: Group the figures by whether they have straight sides and corners.

Step 1 - Compare: Square, triangle and rectangle are all straight-sided polygons with corners.

Step 2 - Spot the difference: A circle has no straight sides and no corners.

Tip: The circle is the odd one out, so the answer is A.

Answer: A [Go Back to Q30](#)

Q31.

Q. Complete the letter series: A, C, E, G, ?

- (A) H
- (B) I
- (C) J
- (D) K

Solution



Concept - Alphabet skip series: Find the fixed jump between consecutive letters.

Step 1 - Find the gap: A to C, C to E, E to G each skip one letter (a step of 2).

Step 2 - Next term: Two letters after G is I.

Tip: These are the odd-positioned letters, so the answer is B.

Answer: B [Go Back to Q31](#)

Q32.

Q. Which Indian city was planned in the 1950s by the architect Le Corbusier?

- (A) Jaipur
- (B) Delhi
- (C) Chandigarh
- (D) Mumbai

Solution

Concept - Modern Indian urban design: Chandigarh was India's first major planned modern city.

Step 1 - Eliminate: Jaipur is an 18th-century planned city, while Delhi and Mumbai grew over long periods.

Step 2 - Identify: Le Corbusier led the master plan and key buildings of Chandigarh.

Tip: Chandigarh is the answer, so the answer is C.



Answer: C [Go Back to Q32](#)

Q33.

Q. When seen in a mirror, a wall clock shows the time as 3:00.
What is the actual time?

- (A) 6:00
- (B) 3:00
- (C) 12:00
- (D) 9:00

Solution

Concept - Mirror image of a clock: The actual time equals 11:60 minus the time seen in the mirror.

Step 1 - Subtract: $11 : 60 - 3 : 00 = 8 : 60$.

Step 2 - Simplify: 8 : 60 is the same as 9 : 00.

Tip: The actual time is 9:00, so the answer is D.

Answer: D [Go Back to Q33](#)

Q34.

Q. On the traditional (RYB) colour wheel, which colour is the complement of red?

- (A) Green
- (B) Blue
- (C) Orange
- (D) Yellow



Solution

Concept - Complementary colours: Complements sit directly opposite each other on the colour wheel.

Step 1 - Locate red: Red is a primary colour on the RYB wheel.

Step 2 - Find the opposite: Directly across from red is green.

Tip: Red and green are complements, so the answer is A.

Answer: A [Go Back to Q34](#)

Q35.

Q. A cube has how many faces, edges and vertices respectively?

- (A) 6, 8, 12
- (B) 6, 12, 8
- (C) 8, 6, 12
- (D) 12, 6, 8

Solution

Concept - Cube counts: Recall the standard counts for a cube.

Step 1 - Count: A cube has 6 faces, 12 edges and 8 vertices.

Step 2 - Verify with Euler: Faces plus vertices = $6 + 8 = 14$, which equals edges plus 2 = $12 + 2$. It checks out.

Tip: The order 6, 12, 8 matches, so the answer is B.

Answer: B [Go Back to Q35](#)

Q36.



Q. The Warli painting tradition, known for simple geometric human and animal figures, originates from which Indian state?

- (A) Bihar
- (B) Odisha
- (C) Maharashtra
- (D) Rajasthan

Solution

Concept - Indian folk art origins: Match each art form to its home region.

Step 1 - Eliminate: Madhubani is Bihar, Pattachitra is Odisha, and Phad is Rajasthan.

Step 2 - Identify: Warli is a tribal art of Maharashtra.

Tip: Warli belongs to Maharashtra, so the answer is C.

Answer: C [Go Back to Q36](#)

Q37.

Q. In a certain code, CAT is written as DBU. Using the same rule, how is DOG written?

- (A) CPF
- (B) EOH
- (C) DPH
- (D) EPH

Solution



Concept - Letter-shift coding: Find the constant shift from the given example.

Step 1 - Find the shift: C to D, A to B, T to U is a shift of +1 for each letter.

Step 2 - Apply to DOG: D to E, O to P, G to H gives EPH.

Tip: The code is EPH, so the answer is D.

Answer: D [Go Back to Q37](#)

Q38.

Q. In typography, which term describes the vertical space between successive lines of text?

- (A) Leading
- (B) Kerning
- (C) Tracking
- (D) Serif

Solution

Concept - Typography spacing terms: Each term controls a different kind of spacing.

Step 1 - Eliminate: Kerning adjusts space between two letters, tracking adjusts spacing across a run of letters, and a serif is an end stroke.

Step 2 - Identify: Leading is the space between lines of text.

Tip: Line spacing is leading, so the answer is A.



Answer: A [Go Back to Q38](#)

Q39.

Q. A is B's brother. C is B's mother. How is A related to C?

- (A) Father
- (B) Son
- (C) Uncle
- (D) Brother

Solution

Concept - Blood relations: Trace the family links one step at a time.

Step 1 - Link A and B: A and B are siblings, so they share the same parents.

Step 2 - Link to C: C is B's mother, so C is also A's mother, which makes A her son.

Tip: A is C's son, so the answer is B.

Answer: B [Go Back to Q39](#)

Q40.

Q. Which of the following is a raster (pixel-based) image format?

- (A) SVG
- (B) EPS
- (C) JPEG
- (D) AI



Solution

Concept - Raster vs vector: Raster stores pixels; vector stores scalable paths.

Step 1 - Eliminate: SVG, EPS and AI all store vector artwork.

Step 2 - Identify: JPEG stores a grid of pixels, so it is raster.

Tip: JPEG is the raster format, so the answer is C.

Answer: C [Go Back to Q40](#)

Q41.

Q. The Ajanta caves, famous for their ancient Buddhist murals, are located in which Indian state?

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

Solution

Concept - Indian heritage sites: Recall the location of the Ajanta rock-cut caves.

Step 1 - Eliminate: The listed southern states are not home to Ajanta.

Step 2 - Identify: The Ajanta caves are near Aurangabad in Maharashtra.



Tip: Ajanta is in Maharashtra, so the answer is D.

Answer: D [Go Back to Q41](#)

Q42.

Q. A regular polygon has exactly 5 equal sides and 5 lines of symmetry. Which shape is it?

- (A) Regular pentagon
- (B) Square
- (C) Regular hexagon
- (D) Five-pointed star

Solution

Concept - Symmetry of regular polygons: A regular polygon with n sides has n lines of symmetry.

Step 1 - Match sides: Five equal sides point to a pentagon.

Step 2 - Check symmetry: A regular pentagon has exactly 5 lines of symmetry.

Tip: The shape is a regular pentagon, so the answer is A.

Answer: A [Go Back to Q42](#)

Q43.

Q. In the additive RGB colour model, mixing red light and green light produces which colour?

- (A) Cyan
- (B) Yellow



(C) Magenta

(D) White

Solution

Concept - Additive light mixing: Overlapping coloured lights add to make new colours.

Step 1 - Recall the pairs: Green plus blue gives cyan, red plus blue gives magenta.

Step 2 - Red plus green: These two lights combine to make yellow.

Tip: Red and green light make yellow, so the answer is B.

Answer: B [Go Back to Q43](#)

Q44.

Q. A person is facing north. She turns 90 degrees clockwise and then turns a further 180 degrees. Which direction is she facing now?

(A) North

(B) East

(C) West

(D) South

Solution

Concept - Turning directions: Track the facing direction after each turn.



Step 1 - First turn: From north, 90 degrees clockwise faces east.

Step 2 - Second turn: A 180 degree turn from east faces west.

Tip: She ends up facing west, so the answer is C.

Answer: C [Go Back to Q44](#)

Q45.

Q. The painter Piet Mondrian, known for grids of black lines and primary colours, is most associated with which art movement?

- (A) Cubism
- (B) Surrealism
- (C) Bauhaus
- (D) De Stijl

Solution

Concept - Modern art movements: Match the artist to the movement he helped define.

Step 1 - Eliminate: Cubism links to Picasso and Braque, Surrealism to Dali, and the Bauhaus was a design school.

Step 2 - Identify: Mondrian co-founded De Stijl in the Netherlands.

Tip: Mondrian belongs to De Stijl, so the answer is D.

Answer: D [Go Back to Q45](#)

Q46.



Q. A cube of side 4 cm is painted on all faces and then cut into 1 cm cubes. How many of the small cubes have no painted face at all?

- (A) 8
- (B) 4
- (C) 12
- (D) 0

Solution

Concept - Painted cube (inner core): Unpainted cubes form the inner block, an $(n - 2) \times (n - 2) \times (n - 2)$ cube.

Step 1 - Inner side: $n - 2 = 4 - 2 = 2$.

Step 2 - Cube it: $2^3 = 8$.

Tip: Eight inner cubes stay unpainted, so the answer is A.

Answer: A [Go Back to Q46](#)

Q47.

Q. In printing and imaging, what does the abbreviation DPI stand for?

- (A) Digital Print Ink
- (B) Dots Per Inch
- (C) Density Per Image
- (D) Design Print Index

Solution



Concept - Print resolution term: DPI measures how finely dots are placed when printing.

Step 1 - Expand: DPI stands for dots per inch.

Step 2 - Meaning: A higher DPI means more dots in the same space and a sharper print.

Tip: DPI is dots per inch, so the answer is B.

Answer: B [Go Back to Q47](#)

Q48.

Q. Which Indian textile craft uses a tie-and-dye resist technique to create dotted patterns and is famous in Gujarat and Rajasthan?

- (A) Kalamkari
- (B) Chikankari
- (C) Bandhani
- (D) Zardozi

Solution

Concept - Indian textile techniques: Each craft uses a distinct method.

Step 1 - Eliminate: Kalamkari is hand or block painting, Chikankari is white embroidery, and Zardozi is metallic thread embroidery.

Step 2 - Identify: Bandhani is the tie-and-dye craft producing dotted patterns.

Tip: Tie-and-dye is Bandhani, so the answer is C.



Answer: C [Go Back to Q48](#)

Q49.

Q. Find the next number in the series: 3, 9, 27, 81, ?

- (A) 108
- (B) 162
- (C) 216
- (D) 243

Solution

Concept - Geometric progression: Each term is the previous one multiplied by a fixed ratio.

Step 1 - Find the ratio: $9 \div 3 = 3$, and the pattern of multiplying by 3 continues.

Step 2 - Next term: $81 \times 3 = 243$.

Tip: These are powers of 3, so the next is 243 and the answer is D.

Answer: D [Go Back to Q49](#)

Q50.

Q. Which of the following is NOT a principle of design?

- (A) Pixel
 - (B) Balance
 - (C) Contrast
 - (D) Rhythm
-



Solution

Concept - Principles of design: Principles describe how elements are arranged, not the technology behind an image.

Step 1 - Check the valid ones: Balance, contrast and rhythm are all recognised principles of design.

Step 2 - Spot the outsider: A pixel is the smallest unit of a raster image, not a design principle.

Tip: Pixel is the odd term out, so the answer is A.

Answer: A [Go Back to Q50](#)

Q51.

Q. On a map, a scale states that 1 cm represents 5 km. Two towns are 7 cm apart on the map. What is the actual distance between them?

- (A) 12 km
- (B) 35 km
- (C) 25 km
- (D) 40 km

Solution

Concept - Map scale: Multiply the map distance by the ground distance each unit represents.

Step 1 - Set up: Actual distance = 7 cm $\times$ 5 km per cm.

Step 2 - Compute: $7 \times 5 = 35$ km.



Tip: The towns are 35 km apart, so the answer is B.

Answer: B [Go Back to Q51](#)

Q52.

Q. The Meenakshi Temple, celebrated for its tall, colourful gopurams, is located in which city?

- (A) Thanjavur
- (B) Chennai
- (C) Madurai
- (D) Kochi

Solution

Concept - South Indian temple architecture: Match the temple to its city.

Step 1 - Eliminate: Thanjavur is known for the Brihadeeswarar Temple, while Chennai and Kochi are not the site of the Meenakshi Temple.

Step 2 - Identify: The Meenakshi Temple stands in Madurai, Tamil Nadu.

Tip: Meenakshi Temple is in Madurai, so the answer is C.

Answer: C [Go Back to Q52](#)

Q53.

Q. In colour theory, which of the following is considered a cool colour?



- (A) Red
- (B) Orange
- (C) Yellow
- (D) Blue

Solution

Concept - Warm vs cool colours: Cool colours lie on the blue-green side of the wheel.

Step 1 - Eliminate: Red, orange and yellow are all warm colours.

Step 2 - Identify: Blue is a cool colour.

Tip: Blue is the cool colour, so the answer is D.

Answer: D [Go Back to Q53](#)

Q54.

Q. If '+' means multiply, 'x' means subtract, and '-' means add, then what is the value of $6 + 2 \times 4 - 3$?

- (A) 11
- (B) 9
- (C) 15
- (D) 7

Solution

Concept - Symbol substitution: Replace each symbol with its real operation, then use normal order of operations.



Step 1 - Translate: $6 + 2 \times 4 - 3$ becomes $6 \times 2 - 4 + 3$.

Step 2 - Evaluate: $6 \times 2 = 12$; then $12 - 4 + 3 = 11$.

Tip: The value is 11, so the answer is A.

Answer: A [Go Back to Q54](#)

Q55.

Q. Which artist, famous for oleograph prints of Hindu deities, is often called a pioneer of modern Indian painting?

- (A) Nandalal Bose
- (B) Raja Ravi Varma
- (C) Jamini Roy
- (D) M F Husain

Solution

Concept - Indian art history: Identify the artist tied to mass-produced deity prints.

Step 1 - Eliminate: Nandalal Bose and Jamini Roy drew on folk styles, and M F Husain belongs to the later modernist generation.

Step 2 - Identify: Raja Ravi Varma is famous for oleograph prints of gods and is a pioneer of modern Indian painting.

Tip: The pioneer here is Raja Ravi Varma, so the answer is B.

Answer: B [Go Back to Q55](#)

Q56.



Q. A regular hexagon is divided by straight lines drawn from its centre to each vertex. Into how many equilateral triangles is it divided?

- (A) 3
- (B) 4
- (C) 6
- (D) 8

Solution

Concept - Regular hexagon geometry: Lines from the centre to all vertices split a regular hexagon into equal triangles.

Step 1 - Count the pieces: A hexagon has 6 vertices, giving 6 triangular slices.

Step 2 - Confirm shape: Each slice is equilateral because the side and both radii are equal.

Tip: There are 6 equilateral triangles, so the answer is C.

Answer: C [Go Back to Q56](#)

Q57.

Q. The relationship '72 points equal 1 inch' is a standard unit used mainly in which field?

- (A) Photography
- (B) Cartography
- (C) Weaving
- (D) Typography



Solution

Concept - Units by field: The point is a unit of type size.

Step 1 - Eliminate: Photography, cartography and weaving do not measure with points.

Step 2 - Identify: Typography sizes type in points, with 72 points to the inch.

Tip: Points belong to typography, so the answer is D.

Answer: D [Go Back to Q57](#)

Q58.

Q (Drawing). It is first light at a small fishing harbour. Wooden boats rock at the water's edge, coiled ropes and floats lie on the wet sand, and gulls wheel over crates of the morning catch. The focal subject is a fisherman standing beside his beached boat, leaning back as he hauls in a wide fishing net heavy with fish, the dripping net gathered in his arms while a second man steadies the boat. Imagine this scene and draw it with the fisherman hauling the net as the clear centre of interest. Show the wooden boat and its oars, the coiled ropes and floats, the crates of catch, the second fisherman, the wheeling gulls, and the sea meeting the sky behind.

Note: Make pencil sketches only. Do not use colour.

Evaluation criteria: observation; composition; perspective and proportion; quality of lines; attention to detail.

Model Approach and Evaluation



Read this as an outdoor action scene with a big open horizon and one straining figure. Plan the boat, the horizon and the haul first.

Step 1 - Set perspective and the shore: Choose a low eye level near the waterline and set the sea horizon high enough to leave a broad beach in front. Let the boat recede to a vanishing point so its length reads in perspective, not side-on and flat.

Step 2 - Compose in layers: Build three depths - the fisherman and net up front, the boat, ropes and second man in the middle, the sea and gulls behind. Overlap the net over the fisherman's body so the weight and effort read clearly.

Step 3 - Make the focal subject win: Place the fisherman and the bulging net near a strong third and give them the sharpest, darkest lines. Let the boat's lines, the ropes and the second man all point toward the haul so the eye lands there.

Step 4 - Fix proportion, then refine line quality: Check the backward-leaning, straining posture and that the boat, crates, net and figures sit at believable sizes. Then vary weight - firm dark strokes on the fisherman, net and boat, and light strokes for the sea, sky and distant gulls.

Tip: Sell the effort through the lean. A body tilted back with bent knees and a heavy sagging net says weight far better than fine detail on every fish. [Go Back to Q58](#)

Q59.

Q (Design Aptitude). Many two-wheeler riders skip wearing a helmet on short trips because a rigid helmet is bulky to carry around once they reach a shop, a college or an office, and there is



nowhere safe to keep it. Design a helmet for a two-wheeler rider that gives proper head protection when worn, yet folds or collapses into a compact form that is easy to carry in a bag or hang on a hook when off the bike. Show your design in two states: (1) folded down into its compact carry form, and (2) opened out and worn on the head, protecting the rider.

Note: Make pencil sketches only. Do not use colour.

Explain your design only through visuals and short labels; do not write separate explanations.

Model Approach and Evaluation

Approach this as a protection-versus-portability problem - it must shrink to carry yet lock rigid to guard the head. Sketch the collapse mechanism.

Step 1 - Nail the requirements: Fix the constraints - full firm protection when worn, a compact flat or small folded form to carry, a quick and clear open-and-lock action, and enough rigidity that it cannot collapse on impact. Let each drawn feature serve one of these.

Step 2 - Show the two required states: Draw state one as the helmet collapsed into overlapping segments, slim enough to slide into a bag. Draw state two fully expanded and locked on the head with the chin strap done up. Keep the same shell segments visible in both so it reads as one folding object.

Step 3 - Label features, do not write essays: Use short leader labels - "nesting shell bands", "lock ring", "foam liner", "chin strap", "fold hinge". Two or three words each, pointing at the part.



Step 4 - Prove it works: Add a fold sequence showing the shell bands nesting down into the compact form, and a section showing the bands locking into a rigid dome when open. This proves both the compact carry and that it holds firm when worn.

Tip: Safety is the make-or-break here. Show the locking ring or catch that makes the folded shell rigid very clearly, because the examiner must believe the helmet cannot fold in on the rider during a fall. [Go Back to Q59](#)



Answer Key (Part A)

Section 1 - NAT (Numerical Answer Type)

Q1	Q2	Q3	Q4	Q5	Q6	Q7
36	16	252	125	4	10	40

Q8	Q9	Q10	Q11	Q12	Q13	Q14
12	72	616	4	9	10200	18

Section 2 - MSQ (Multiple Select - one or more correct)

Q15	Q16	Q17	Q18	Q19
B, D	C	A, B, C	C, D	D

Q20	Q21	Q22	Q23	Q24
A, B, C, D	B, C	A, C, D	B	C, D

Q25	Q26	Q27	Q28	Q29
A, B, D	B, D	C	A, B, C, D	A, B

Section 3 - MCQ (single correct)

Q30	Q31	Q32	Q33	Q34	Q35	Q36
A	B	C	D	A	B	C

Q37	Q38	Q39	Q40	Q41	Q42	Q43
D	A	B	C	D	A	B

Q44	Q45	Q46	Q47	Q48	Q49	Q50
C	D	A	B	C	D	A



Q51	Q52	Q53	Q54	Q55	Q56	Q57
B	C	D	A	B	C	D

Part B (Q58-Q59) is subjective; see the Model Approach for each under Detailed Solutions.



Appendix: Visual Reasoning

Practice from Past UCEED Papers

These are **real questions from past UCEED papers**, included so you can practise on the actual figure style the exam uses. They are visual-reasoning questions, so work each one out yourself - no answer key is given here (this mirrors how such questions feel in the real test). A short **How to approach** note follows each figure.

P1. (Past UCEED) If colour and size differences are not to be counted as unique, how many types of leaves occur only once?

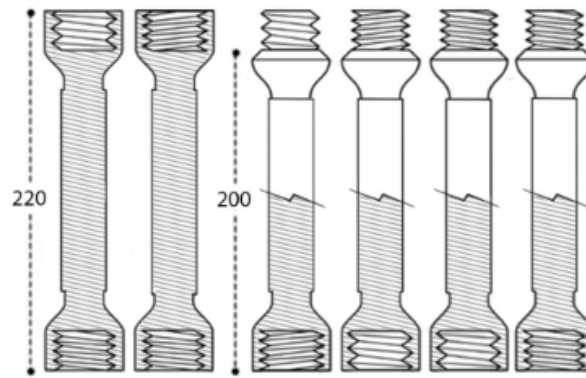


How to approach

Study the figure carefully and note what is fixed and what changes. Break the problem into smaller parts, use any symmetry in the figure, and count or compute each part systematically before combining. A quick rough redraw usually makes the answer clear.

P2. (Past UCEED) The figure shows illustrations of six metal rods which have internal or external screw thread patterns at their ends. The shaded portion in the figure shows the cross section view. What is the maximum length possible by connecting the rods? Threads cannot be connected partially.





How to approach

Study the figure carefully and note what is fixed and what changes. Break the problem into smaller parts, use any symmetry in the figure, and count or compute each part systematically before combining. A quick rough redraw usually makes the answer clear.

- P3. (Past UCEED)** The attached image shows a corridor floor that is covered with square tiles of the same size. How many tiles are covered by the green patch?

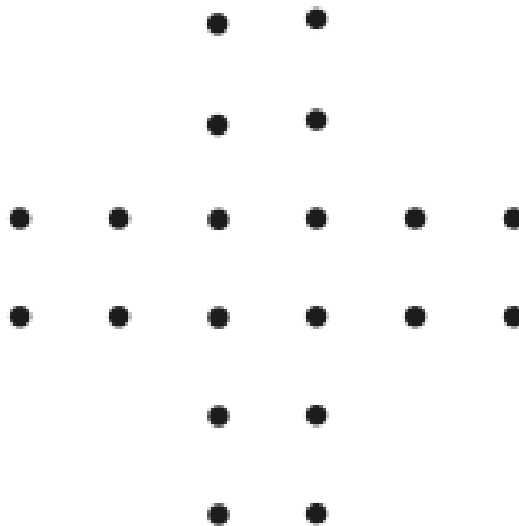


How to approach

Study the figure carefully and note what is fixed and what changes. Break the problem into smaller parts, use any symmetry in the figure, and count or compute each part systematically before combining. A quick rough redraw usually makes the answer clear.



- P4. (Past UCEED)** Twenty points are arranged on a plane as shown in the figure below. What is the highest number of squares that can be drawn using any four points as corners?



How to approach

Study the figure carefully and note what is fixed and what changes. Break the problem into smaller parts, use any symmetry in the figure, and count or compute each part systematically before combining. A quick rough redraw usually makes the answer clear.

