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 4 cm is painted on all six faces and then cut into small 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. A cube of side 5 cm is painted on all faces and cut into 1 cm cubes. How many of the small cubes have exactly one painted face?

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

View Solution

Q3. In typography, 1 inch equals 72 points. A designer sets a headline that is 3 inches tall. What is its height in points?

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

View Solution

Q4. One pica equals 12 points. A page layout uses a margin of 5 picas. What is this margin in points?

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

View Solution

Q5. A logo is enlarged so that every dimension grows in the ratio $2 : 5$. If the original logo is 8 cm wide, what is the width of the enlarged logo, in cm?

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

View Solution

Q6. A rectangular poster measures 60 cm by 90 cm. What is its area in square centimetres?

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

View Solution

Q7. In the 8-bit RGB colour model, pure white is written as red 255, green

255, blue 255. What is the sum of the three channel values for pure white?

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

View Solution

Q8. An image is printed at 300 dots per inch (dpi). If the printed picture is 2 inches wide, how many pixels wide must the image be?

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

View Solution

Q9. A photo gallery is laid out as a grid with 6 columns and 4 rows of equal-sized thumbnails. How many thumbnails fit in the grid?

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

View Solution

Q10. A video frame has an aspect ratio of $16 : 9$. If its width is 1920 pixels, what is its height in pixels?

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

View Solution

Q11. A small gear with 20 teeth drives a larger gear with 60 teeth. If the small gear makes 9 full turns, how many full turns does the large gear make?

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

View Solution

Q12. A rangoli design has rotational symmetry of order 8. What is the

smallest angle, in degrees, through which it can be rotated so that it looks exactly the same?

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

View Solution

Q13. A designer builds a wireframe model of a closed rectangular box (a cuboid) using straight rods for the edges. How many rods (edges) does the cuboid need?

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

View Solution

Q14. A cube of side 6 cm is painted on all faces and cut into 1 cm cubes. How many of the small cubes have no painted face at all?

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

View Solution

Section 2: Multiple Select Questions (MSQ)

Q15. Select the statement(s) about the Indus Valley Civilization that is/are TRUE.

(One or more options may be correct.)

(A) At its peak, the Indus Valley Civilization encompassed nearly 200,000 square miles.

(B) Stone seals from the Indus Valley Civilization have been found as far afield as Greece and Macedonia.

(C) The largest Indus cities, such as Harappa and Mohenjo-daro, had populations of 100,000 and more.

(D) Despite highly ordered cities in the Indus Valley, there is no evidence of kings or pharaohs or any leader at all.

View Solution

Q16. In the traditional RYB (artists' subtractive) colour model, which of the following are PRIMARY colours?

(One or more options may be correct.)

(A) Green

(B) Red

(C) Yellow

(D) Orange

View Solution

Q17. Which of the following is/are a LOSSLESS raster image format?

(One or more options may be correct.)

(A) JPEG

(B) JPG

(C) PNG

(D) SVG

View Solution

Q18. Which of the following are recognised Indian CLASSICAL dance forms (not folk forms)?

(One or more options may be correct.)

(A) Garba

(B) Kathak

(C) Bhangra

(D) Odissi

View Solution

Q19. Which of the following buildings or landmarks was designed by the architect Le Corbusier?

(One or more options may be correct.)

(A) Lotus Temple, New Delhi

(B) Sabarmati Ashram, Ahmedabad

(C) Victoria Memorial, Kolkata

(D) The Palace of Assembly, Chandigarh

View Solution

Q20. Which of the following are considered WARM colours on the colour wheel?

(One or more options may be correct.)

(A) Red

(B) Blue

(C) Orange

(D) Green

View Solution

Q21. Which of the following are traditional INDIAN folk or tribal art forms?

(One or more options may be correct.)

(A) Ukiyo-e

(B) Madhubani

(C) Warli

(D) Pattachitra

View Solution

Q22. Which of the following units are used to measure type size and spacing in typography?

(One or more options may be correct.)

(A) Hertz

(B) Lumen

(C) Point

(D) Pica

View Solution

Q23. Which of the following are recognised PRINCIPLES of visual design?

(One or more options may be correct.)

(A) Balance

(B) Contrast

(C) Rhythm

(D) Emphasis

View Solution

Q24. Which of the following artists is/are most closely associated with the CUBISM movement?

(One or more options may be correct.)

(A) Raja Ravi Varma

(B) Pablo Picasso

(C) Claude Monet

(D) Salvador Dali

View Solution

Q25. Which of the following are VECTOR graphics file formats?

(One or more options may be correct.)

(A) BMP

(B) TIFF

(C) SVG

(D) AI

View Solution

Q26. Which of the following are PRIMARY colours of the additive (RGB) colour model?

(One or more options may be correct.)

(A) Red

(B) Yellow

(C) Cyan

(D) Green

View Solution

Q27. Which of the following statements about the National Institute of Design (NID) is/are TRUE?

(One or more options may be correct.)

(A) NID was established in the year 2010.

(B) The main NID campus is located in New Delhi.

(C) NID grew out of a report prepared only after 1980.

(D) The principal NID campus is located in Ahmedabad, Gujarat.

View Solution

Q28. In the RYB colour model, which of the following are SECONDARY colours?

(One or more options may be correct.)

(A) Red

(B) Green

(C) Orange

(D) Blue

View Solution

Q29. Which of the following are noted INDIAN architects?

(One or more options may be correct.)

(A) B. V. Doshi

(B) Charles Correa

(C) Zaha Hadid

(D) Antoni Gaudi

View Solution

Section 3: Multiple Choice Questions (MCQ)

Q30. Find the next number in the series: $2,\ 6,\ 12,\ 20,\ 30,\ \_\_$

(A) 40

(B) 42

(C) 44

(D) 36

View Solution

Q31. Choose the odd one out from the following shapes.

(A) Square

(B) Rectangle

(C) Rhombus

(D) Triangle

View Solution

Q32. If each letter is given its position value in the alphabet (A = 1, B = 2, and so on), what is the sum of the letters in the word 'BAD'?

(A) 7

(B) 8

(C) 6

(D) 9

View Solution

Q33. A person walks 5 km north, turns right and walks 3 km, then turns right again and walks 5 km. How far is the person from the starting point?

(A) 5 km

(B) 8 km

(C) 3 km

(D) 0 km

View Solution

Q34. Pointing to a photograph, a woman says, 'She is the daughter of my grandfather's only son.' How is the girl in the photograph related to the woman?

(A) Mother

(B) Sister

(C) Aunt

(D) Cousin

View Solution

Q35. Which of the following capital letters looks exactly the same as its reflection in a vertical mirror placed to its side?

(A) A

(B) F

(C) G

(D) P

View Solution

Q36. On a standard six-faced die, opposite faces add up to 7. If one face shows 2, what number is on the face directly opposite to it?

(A) 4

(B) 6

(C) 5

(D) 7

View Solution

Q37. In typography, what is the name for adjusting the space between two specific individual letters?

(A) Leading

(B) Kerning

(C) Tracking

(D) Baseline

View Solution

Q38. What is the name of the invisible horizontal line on which most letters of a typeface sit?

(A) x-height

(B) Cap height

(C) Ascender

(D) Baseline

View Solution

Q39. In typography, the term 'leading' refers to which of the following?

(A) The vertical space between lines of text

(B) The space between two letters

(C) The thickness of a letter's stroke

(D) The slant applied to italic type

View Solution

Q40. On the traditional RYB colour wheel, which colour is the complement of red (the colour directly opposite it)?

(A) Orange

(B) Purple

(C) Green

(D) Yellow

View Solution

Q41. Which colour model is normally used for full-colour printing on paper?

(A) RGB

(B) HSL

(C) HEX

(D) CMYK

View Solution

Q42. Which colour model is used to display colours on digital screens such as monitors and phones?

(A) RGB

(B) CMYK

(C) Pantone

(D) Grayscale

View Solution

Q43. The three attributes used to describe a colour are hue, value (lightness) and which third property?

(A) Resolution

(B) Saturation

(C) Contrast

(D) Opacity

View Solution

Q44. Who designed the Indian Rupee symbol (Rs.) that was officially adopted in 2010?

(A) Nandan Nilekani

(B) M. F. Husain

(C) Satyajit Ray

(D) D. Udaya Kumar

View Solution

Q45. The Taj Mahal at Agra is a celebrated example of which architectural style?

(A) Gothic architecture

(B) Dravidian architecture

(C) Mughal architecture

(D) Art Deco

View Solution

Q46. The painter Piet Mondrian, known for grids of black lines with red, blue and yellow blocks, is associated with which movement?

(A) Impressionism

(B) De Stijl

(C) Baroque

(D) Pop Art

View Solution

Q47. The influential Bauhaus school of art, design and architecture was founded in which country?

(A) Germany

(B) France

(C) Italy

(D) United States

View Solution

Q48. Warli painting, known for its simple white geometric figures on an earthy background, originates from which Indian state?

(A) Rajasthan

(B) West Bengal

(C) Maharashtra

(D) Kerala

View Solution

Q49. Pattachitra, a traditional cloth-based scroll painting, is most closely associated with which Indian state?

(A) Gujarat

(B) Punjab

(C) Assam

(D) Odisha

View Solution

Q50. Gond art, famous for its dotted and lined depictions of animals and nature, belongs to the tribal community mainly of which state?

(A) Tamil Nadu

(B) Madhya Pradesh

(C) Haryana

(D) Goa

View Solution

Q51. In the ISO A-series, an A4 sheet is made by joining two A5 sheets along their long edges. Compared with an A5 sheet, the area of an A4 sheet is:

(A) doubled

(B) halved

(C) the same

(D) four times

View Solution

Q52. In the binary system used by computers, one kilobyte (KB) is equal to how many bytes?

(A) 100

(B) 1000

(C) 512

(D) 1024

View Solution

Q53. What is the ratio of the shorter side to the longer side of every sheet in the ISO A-series (A0, A1, A2, and so on)?

(A) $1 : 2$

(B) $2 : 3$

(C) $1 : \sqrt{2}$

(D) $3 : 4$

View Solution

Q54. How many faces does a triangular prism have?

(A) 4

(B) 5

(C) 6

(D) 3

View Solution

Q55. How many vertices (corners) does a cube have?

(A) 4

(B) 6

(C) 12

(D) 8

View Solution

Q56. A design has rotational symmetry of order 4. What is the smallest angle of rotation that maps the design exactly onto itself?

(A) 90°

(B) 45°

(C) 120°

(D) 180°

View Solution

Q57. In the design process, what is the main purpose of making a wireframe for a website or app?

(A) To choose the final brand colours

(B) To write the final marketing copy

(C) To plan the layout and structure of the content

(D) To test the loading speed of the server

View Solution

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

Q58. [Drawing - 50 Marks]

It is a warm afternoon in a village potter's open workshop. Rows of drying earthen pots sit on wooden planks, lumps of wet clay rest under a damp cloth, and a small wood fire smoulders near a stack of finished matkas. The focal subject is the potter, seated cross-legged at his spinning wheel, both wet hands cupped around a rising column of clay that is opening into the mouth of a pot as the wheel turns. Imagine this scene and draw it with the potter and his hands on the clay as the clear centre of interest. Show the heavy wheel, the water bowl and tools beside him, the racks of drying pots, the smouldering fire, and the workshop wall 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]

Families in small city flats have no balcony space and no room for a full clothes-drying stand, yet they must dry a daily load of washed clothes indoors, often draping them over chairs and doors. Design a clothes-drying rack that mounts on a wall, folds almost flat when not in use so it barely projects, and opens out to hold a family's daily washing when needed. Show your design in two states: (1) folded flat against the wall when dry and not in use, and (2) fully opened out and loaded with drying clothes.

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 4 cm is painted on all six faces and then cut into small cubes of side 1 cm each. How many of the small cubes have exactly two painted faces?

Solution

Concept - Painted cube, edge rule: Small cubes with exactly two painted faces come only from the edges of the big cube (not the corners).

Step 1 - Cubes per edge: A cube of side n has $(n-2)$ two-face cubes on each edge. Here $n=4$, so $4-2=2$ per edge.

Step 2 - Count edges: A cube has 12 edges, so total $= 12 \times 2 = 24$.

Tip: Corners always have three painted faces; only edge (non-corner) cubes have exactly two.

Answer: 24 Go Back to Q1

Q2.

Q. A cube of side 5 cm is painted on all faces and cut into 1 cm cubes. How many of the small cubes have exactly one painted face?

Solution

Concept - Painted cube, face-centre rule: Cubes with exactly one painted face lie at the centre of each face, away from all edges.

Step 1 - Per face: Each face contributes $(n-2)^2$ one-face cubes. With $n = 5$, $(5-2)^2 = 9$.

Step 2 - Six faces: Total $= 6 \times 9 = 54$.

Tip: Remember the trio: corners (3 faces), edges (2 faces), face-centres (1 face), inner core (0 faces).

Answer: 54 Go Back to Q2

Q3.

Q. In typography, 1 inch equals 72 points. A designer sets a headline that is 3 inches tall. What is its height in points?

Solution

Concept - Unit conversion, points: The point is the base unit of type size, with 72 points in one inch.

Step 1 - Multiply: 3 inches $\times\ 72\ \frac{\text{points}}{\text{inch}} = 216$ points.

Tip: 72 pt $= 1$ inch $= 6$ picas is a handy print-design chain to memorise.

Answer: 216 Go Back to Q3

Q4.

Q. One pica equals 12 points. A page layout uses a margin of 5 picas. What is this margin in points?

Solution

Concept - Unit conversion, pica to point: A pica is a larger

typographic unit equal to 12 points.

Step 1 - Multiply: 5 picas $\times\ 12 = 60$ points.

Tip: Picas measure column widths and margins; points measure type size and leading.

Answer: 60 Go Back to Q4

Q5.

Q. A logo is enlarged so that every dimension grows in the ratio $2 : 5$. If the original logo is 8 cm wide, what is the width of the enlarged logo, in cm?

Solution

Concept - Scaling by ratio: A ratio $2 : 5$ means every length is multiplied by $\frac{5}{2}$.

Step 1 - Apply factor: New width $= 8 \times \frac{5}{2} = 20$ cm.

Tip: Enlarging by a length ratio $2 : 5$ multiplies area by $(5/2)^2$, not by $5/2$.

Answer: 20 Go Back to Q5

Q6.

Q. A rectangular poster measures 60 cm by 90 cm. What is its area in square centimetres?

Solution

Concept - Area of a rectangle: Area $=$ length $\times$ breadth.

Step 1 - Multiply: $60 \times 90 = 5400$ square cm.

Tip: Keep both sides in the same unit before multiplying, or the area unit will be wrong.

Answer: 5400 Go Back to Q6

Q7.

Q. In the 8-bit RGB colour model, pure white is written as red 255, green 255, blue 255. What is the sum of the three channel values for pure white?

Solution

Concept - RGB channels: Each channel ranges from 0 to 255; white uses the maximum in all three.

Step 1 - Add: $255 + 255 + 255 = 765$.

Tip: Pure black is $(0, 0, 0)$; equal values in all three channels always give a shade of grey.

Answer: 765 Go Back to Q7

Q8.

Q. An image is printed at 300 dots per inch (dpi). If the printed picture is 2 inches wide, how many pixels wide must the image be?

Solution

Concept - Resolution, dpi: Pixel count $=$ dpi $\times$ print size in inches.

Step 1 - Multiply: $300 \times 2 = 600$ pixels.

Tip: Higher dpi means more pixels are needed for the same physical size, giving a sharper print.

Answer: 600 Go Back to Q8

Q9.

Q. A photo gallery is laid out as a grid with 6 columns and 4 rows of equal-sized thumbnails. How many thumbnails fit in the grid?

Solution

Concept - Grid count: Total cells $=$ columns $\times$ rows.

Step 1 - Multiply: $6 \times 4 = 24$ thumbnails.

Tip: Grid systems keep spacing consistent; the total item count is simply the product of the two counts.

Answer: 24 Go Back to Q9

Q10.

Q. A video frame has an aspect ratio of $16 : 9$. If its width is 1920 pixels, what is its height in pixels?

Solution

Concept - Aspect ratio: Height $=$ width $\times \frac{9}{16}$.

Step 1 - Compute: $1920 \times \frac{9}{16} = 120 \times 9 = 1080$ pixels.

Tip: 1920×1080 is the standard Full HD frame, an exact $16 : 9$

rectangle.

Answer: 1080 Go Back to Q10

Q11.

Q. A small gear with 20 teeth drives a larger gear with 60 teeth. If the small gear makes 9 full turns, how many full turns does the large gear make?

Solution

Concept - Gear ratio: Turns are inversely proportional to teeth: (small teeth $\times$ small turns) $=$ (large teeth $\times$ large turns).

Step 1 - Teeth engaged: $20 \times 9 = 180$ teeth pass by.

Step 2 - Large gear turns: $180 \div 60 = 3$ turns.

Tip: A bigger driven gear always turns fewer times, giving more torque and less speed.

Answer: 3 Go Back to Q11

Q12.

Q. A rangoli design has rotational symmetry of order 8. What is the smallest angle, in degrees, through which it can be rotated so that it looks exactly the same?

Solution

Concept - Rotational symmetry: The smallest rotation angle $= \frac{360^\circ}{\text{order}}$.

Step 1 - Divide: $\frac{360}{8} = 45°$.

Tip: Order n symmetry means the shape repeats n times in one full turn, every $360/n$ degrees.

Answer: 45 Go Back to Q12

Q13.

Q. A designer builds a wireframe model of a closed rectangular box (a cuboid) using straight rods for the edges. How many rods (edges) does the cuboid need?

Solution

Concept - Edges of a cuboid: A cuboid has three groups of four parallel edges (length, breadth, height).

Step 1 - Count: $3 \times 4 = 12$ edges.

Tip: A cuboid also has 8 vertices and 6 faces; edges $=$ faces $+$ vertices -2 by Euler's formula.

Answer: 12 Go Back to Q13

Q14.

Q. A cube of side 6 cm is painted on all faces and cut into 1 cm cubes. How many of the small cubes have no painted face at all?

Solution

Concept - Painted cube, inner core: Unpainted cubes form the hidden inner block, one layer in from every face.

Step 1 - Inner side: The inner block has side $(n-2) = 6-2 = 4$.

Step 2 - Cube it: $4^3 = 64$ cubes have no paint.

Tip: No-paint cubes always number $(n-2)^3$, which is why a large cube hides many blank pieces.

Answer: 64 Go Back to Q14

Q15.

Q. Select the statement(s) about the Indus Valley Civilization that is/are TRUE.

(A) At its peak, the Indus Valley Civilization encompassed nearly 200,000 square miles.

(B) Stone seals from the Indus Valley Civilization have been found as far afield as Greece and Macedonia.

(C) The largest Indus cities, such as Harappa and Mohenjo-daro, had populations of 100,000 and more.

(D) Despite highly ordered cities in the Indus Valley, there is no evidence of kings or pharaohs or any leader at all.

Solution

Concept - Indus Valley Civilization facts: Evaluate each claim against established archaeology.

Step 1 - Option A: At its height the civilization spread over roughly $200{,}000$ square miles across the Indus basin. TRUE.

Step 2 - Option B: Indus seals travelled to Mesopotamia through trade, not to Greece or Macedonia. FALSE.

Step 3 - Option C: City populations are estimated in the tens of thousands, not $100{,}000+$. FALSE.

Step 4 - Option D: The cities show no palaces, royal tombs or clear rulers, so no evidence of kings. TRUE.

Tip: On history MSQs, treat exaggerated numbers ('100,000 and more') with suspicion unless well documented. Correct: A and D.

Answer: A, D Go Back to Q15

Q16.

Q. In the traditional RYB (artists' subtractive) colour model, which of the following are PRIMARY colours?

(A) Green
(B) Red
(C) Yellow
(D) Orange

Solution

Concept - RYB primary colours: In the artists' model the three primaries are red, yellow and blue.

Step 1 - Option A: Green is a secondary colour (blue + yellow). FALSE.

Step 2 - Option B: Red is a primary. TRUE.

Step 3 - Option C: Yellow is a primary. TRUE.

Step 4 - Option D: Orange is a secondary colour (red + yellow). FALSE.

Tip: Blue is the missing third primary here; the two secondaries listed are the distractors. Correct: B and C.

Answer: B, C Go Back to Q16

Q17.

Q. Which of the following is/are a LOSSLESS raster image format?

(A) JPEG

(B) JPG

(C) PNG

(D) SVG

Solution

Concept - Image formats: A lossless raster format stores pixels without discarding data on save.

Step 1 - Options A and B: JPEG and JPG are the same format, which uses lossy compression. FALSE.

Step 2 - Option C: PNG is a raster format with lossless compression. TRUE.

Step 3 - Option D: SVG is lossless but it is a vector format, not raster. FALSE.

Tip: Watch the two-part condition: the answer must be both raster AND lossless. Correct: C only.

Answer: C Go Back to Q17

Q18.

Q. Which of the following are recognised Indian CLASSICAL dance forms (not folk forms)?

(A) Garba
(B) Kathak
(C) Bhangra
(D) Odissi

Solution

Concept - Classical vs folk dance: Classical forms follow codified grammar (as in the Natya Shastra); folk forms are community/regional.

Step 1 - Option A: Garba is a folk dance of Gujarat. FALSE.

Step 2 - Option B: Kathak is a classical form of North India. TRUE.

Step 3 - Option C: Bhangra is a Punjabi folk dance. FALSE.

Step 4 - Option D: Odissi is a classical form of Odisha. TRUE.

Tip: The eight classical forms include Bharatanatyam, Kathak, Kathakali, Kuchipudi, Odissi, Manipuri, Mohiniyattam and Sattriya. Correct: B and D.

Answer: B, D Go Back to Q18

Q19.

Q. Which of the following buildings or landmarks was designed by the architect Le Corbusier?

(A) Lotus Temple, New Delhi

(B) Sabarmati Ashram, Ahmedabad

(C) Victoria Memorial, Kolkata

(D) The Palace of Assembly, Chandigarh

Solution

Concept - Le Corbusier in India: He master-planned Chandigarh and designed its Capitol Complex.

Step 1 - Option A: The Lotus Temple was designed by Fariborz Sahba. FALSE.

Step 2 - Option B: Sabarmati Ashram is associated with Mahatma Gandhi, not Le Corbusier. FALSE.

Step 3 - Option C: The Victoria Memorial was designed by William Emerson. FALSE.

Step 4 - Option D: The Palace of Assembly in Chandigarh's Capitol Complex is a Le Corbusier work. TRUE.

Tip: Link Le Corbusier firmly with Chandigarh's Capitol Complex (Assembly, High Court, Secretariat). Correct: D only.

Answer: D Go Back to Q19

Q20.

Q. Which of the following are considered WARM colours on the colour wheel?

(A) Red

(B) Blue

(C) Orange

(D) Green

Solution

Concept - Warm and cool colours: Warm colours (reds, oranges, yellows) suggest heat; cool colours (blues, greens, purples) suggest calm.

Step 1 - Option A: Red is warm. TRUE.

Step 2 - Option B: Blue is cool. FALSE.

Step 3 - Option C: Orange is warm. TRUE.

Step 4 - Option D: Green is cool. FALSE.

Tip: Warm colours tend to advance toward the viewer; cool colours seem to recede. Correct: A and C.

Answer: A, C Go Back to Q20

Q21.

Q. Which of the following are traditional INDIAN folk or tribal art forms?

(A) Ukiyo-e
(B) Madhubani
(C) Warli
(D) Pattachitra

Solution

Concept - Indian folk art: Identify styles native to India versus

foreign traditions.

Step 1 - Option A: Ukiyo-e is a Japanese woodblock print tradition. FALSE.

Step 2 - Option B: Madhubani (Mithila) painting is from Bihar. TRUE.

Step 3 - Option C: Warli painting is from Maharashtra. TRUE.

Step 4 - Option D: Pattachitra is a scroll-painting tradition of Odisha and Bengal. TRUE.

Tip: The odd one is the Japanese style; the other three are all Indian. Correct: B, C and D.

Answer: B, C, D Go Back to Q21

Q22.

Q. Which of the following units are used to measure type size and spacing in typography?

(A) Hertz
(B) Lumen
(C) Point
(D) Pica

Solution

Concept - Typographic units: Type is measured in points and picas.

Step 1 - Option A: Hertz measures frequency. FALSE.

Step 2 - Option B: Lumen measures luminous flux (light). FALSE.

Step 3 - Option C: The point is the base unit of type size. TRUE.

Step 4 - Option D: The pica (12 points) measures column widths. TRUE.

Tip: Remember 72 points = 6 picas = 1 inch. Correct: C and D.

Answer: C, D Go Back to Q22

Q23.

Q. Which of the following are recognised PRINCIPLES of visual design?

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

Solution

Concept - Principles of design: These are the guidelines used to organise elements into a composition.

Step 1 - Option A: Balance is the even distribution of visual weight. TRUE.

Step 2 - Option B: Contrast is the difference that creates interest. TRUE.

Step 3 - Option C: Rhythm is repetition that leads the eye. TRUE.

Step 4 - Option D: Emphasis directs attention to a focal point.

TRUE.

Tip: All four are principles; do not confuse them with elements like line, shape and colour. Correct: all four.

Answer: A, B, C, D Go Back to Q23

Q24.

Q. Which of the following artists is/are most closely associated with the CUBISM movement?

(A) Raja Ravi Varma
(B) Pablo Picasso
(C) Claude Monet
(D) Salvador Dali

Solution

Concept - Art movements: Match each artist to their movement.

Step 1 - Option A: Raja Ravi Varma is known for realistic Indian oil paintings, not Cubism. FALSE.

Step 2 - Option B: Pablo Picasso co-founded Cubism with Georges Braque. TRUE.

Step 3 - Option C: Claude Monet was a leader of Impressionism. FALSE.

Step 4 - Option D: Salvador Dali is linked with Surrealism. FALSE.

Tip: Cubism breaks objects into geometric planes seen from many angles at once. Correct: B only.

Answer: B Go Back to Q24

Q25.

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

(A) BMP

(B) TIFF

(C) SVG

(D) AI

Solution

Concept - Vector vs raster: Vector files store shapes as maths and scale without blur; raster files store pixels.

Step 1 - Option A: BMP is a raster bitmap format. FALSE.

Step 2 - Option B: TIFF is a raster format. FALSE.

Step 3 - Option C: SVG (Scalable Vector Graphics) is vector. TRUE.

Step 4 - Option D: AI (Adobe Illustrator) is a vector format. TRUE.

Tip: Logos are best kept as vectors so they stay sharp at any size.

Correct: C and D.

Answer: C, D Go Back to Q25

Q26.

Q. Which of the following are PRIMARY colours of the additive (RGB) colour model?

(A) Red

(B) Yellow

(C) Cyan

(D) Green

Solution

Concept - Additive primaries: The RGB model uses red, green and blue light as primaries.

Step 1 - Option A: Red is an RGB primary. TRUE.

Step 2 - Option B: Yellow is a secondary of light (red + green). FALSE.

Step 3 - Option C: Cyan is a secondary of light (green + blue). FALSE.

Step 4 - Option D: Green is an RGB primary. TRUE.

Tip: Blue, the third RGB primary, is not listed; yellow and cyan are its secondary distractors. Correct: A and D.

Answer: A, D Go Back to Q26

Q27.

Q. Which of the following statements about the National Institute of Design (NID) is/are TRUE?

(A) NID was established in the year 2010.

(B) The main NID campus is located in New Delhi.

(C) NID grew out of a report prepared only after 1980.

(D) The principal NID campus is located in Ahmedabad, Gujarat.

Solution

Concept - NID history: NID was founded in 1961, based on the 1958 India Report by Charles and Ray Eames.

Step 1 - Option A: It was set up in 1961, not 2010. FALSE.

Step 2 - Option B: The main campus is in Ahmedabad, not New Delhi. FALSE.

Step 3 - Option C: The founding report (the Eames Report) dates to 1958, not after 1980. FALSE.

Step 4 - Option D: The principal campus is indeed in Ahmedabad, Gujarat. TRUE.

Tip: Tie NID to Ahmedabad, 1961, and the Eames Report. Correct: D only.

Answer: D Go Back to Q27

Q28.

Q. In the RYB colour model, which of the following are SECONDARY colours?

(A) Red
(B) Green
(C) Orange
(D) Blue

Solution

Concept - Secondary colours: A secondary colour is made by

mixing two primaries. In RYB these are green, orange and purple.

Step 1 - Option A: Red is a primary. FALSE.

Step 2 - Option B: Green (blue + yellow) is a secondary. TRUE.

Step 3 - Option C: Orange (red + yellow) is a secondary. TRUE.

Step 4 - Option D: Blue is a primary. FALSE.

Tip: Purple, the third secondary, is not listed here. Correct: B and C.

Answer: B, C Go Back to Q28

Q29.

Q. Which of the following are noted INDIAN architects?

(A) B. V. Doshi
(B) Charles Correa
(C) Zaha Hadid
(D) Antoni Gaudi

Solution

Concept - Indian architects: Identify nationality of each architect.

Step 1 - Option A: B. V. Doshi is an Indian architect and Pritzker Prize winner (2018). TRUE.

Step 2 - Option B: Charles Correa was a leading Indian architect and urban planner. TRUE.

Step 3 - Option C: Zaha Hadid was an Iraqi-British architect. FALSE.

Step 4 - Option D: Antoni Gaudi was a Spanish (Catalan) architect. FALSE.

Tip: Doshi trained under Le Corbusier and shaped modern Indian architecture. Correct: A and B.

Answer: A, B Go Back to Q29

Q30.

Q. Find the next number in the series: $2,\ 6,\ 12,\ 20,\ 30,\ \_\_$

(A) 40

(B) 42

(C) 44

(D) 36

Solution

Concept - Number series, growing gaps: Check the differences between consecutive terms.

Step 1 - Differences: $4, 6, 8, 10$, rising by 2 each time.

Step 2 - Next gap: The next difference is 12, so $30 + 12 = 42$.

Tip: Each term is $n(n+1)$: $1 \cdot 2, 2 \cdot 3, \ldots, 6 \cdot 7 = 42$.

Answer: B Go Back to Q30

Q31.

Q. Choose the odd one out from the following shapes.

(A) Square

(B) Rectangle

(C) Rhombus

(D) Triangle

Solution

Concept - Classification by sides: Group the shapes by number of sides.

Step 1 - Count sides: Square, rectangle and rhombus are all four-sided (quadrilaterals).

Step 2 - Find the misfit: A triangle has three sides.

Tip: Look for the shared property first; the item that breaks it is the odd one out.

Answer: D Go Back to Q31

Q32.

Q. If each letter is given its position value in the alphabet (A = 1, B = 2, and so on), what is the sum of the letters in the word 'BAD'?

(A) 7

(B) 8

(C) 6

(D) 9

Solution

Concept - Letter coding: Replace each letter with its alphabet position and add.

Step 1 - Values: $\mathrm{B} = 2$, $\mathrm{A} = 1$, $\mathrm{D} = 4$.

Step 2 - Add: $2 + 1 + 4 = 7$.

Tip: Memorising a few anchor letters (E=5, J=10, O=15, T=20, Z=26) speeds up these sums.

Answer: A Go Back to Q32

Q33.

Q. A person walks 5 km north, turns right and walks 3 km, then turns right again and walks 5 km. How far is the person from the starting point?

(A) 5 km
(B) 8 km
(C) 3 km
(D) 0 km

Solution

Concept - Direction sense: Track each leg on a mental grid.

Step 1 - Legs: 5 km north, then 3 km east, then 5 km south.

Step 2 - Net move: North and south cancel, leaving 3 km east of start.

Tip: Two 'right' turns after going north point you east then south; opposite legs of equal length cancel.

Answer: C Go Back to Q33

Q34.

Q. Pointing to a photograph, a woman says, 'She is the daughter of my grandfather's only son.' How is the girl in the photograph related to the woman?

(A) Mother
(B) Sister
(C) Aunt
(D) Cousin

Solution

Concept - Blood relations: Work outward from the woman.

Step 1 - Identify the son: The grandfather's only son is the woman's father.

Step 2 - The girl: The daughter of the woman's father is the woman's sister.

Tip: 'Only son' of a grandparent is almost always the speaker's own parent.

Answer: B Go Back to Q34

Q35.

Q. Which of the following capital letters looks exactly the same as its reflection in a vertical mirror placed to its side?

(A) A
(B) F
(C) G
(D) P

Solution

Concept - Mirror symmetry: A vertical mirror flips left and right; symmetric letters are unchanged.

Step 1 - Test the letters: F, G and P are not left-right symmetric.

Step 2 - The symmetric one: A has a vertical axis of symmetry, so it reflects onto itself.

Tip: Other vertically symmetric capitals include H, I, M, O, T, U, V, W, X and Y.

Answer: A Go Back to Q35

Q36.

Q. On a standard six-faced die, opposite faces add up to 7. If one face shows 2, what number is on the face directly opposite to it?

(A) 4
(B) 6
(C) 5
(D) 7

Solution

Concept - Standard die rule: Opposite faces sum to 7.

Step 1 - Solve: Opposite of 2 is $7 - 2 = 5$.

Tip: The three opposite pairs on a die are 1-6, 2-5 and 3-4.

Answer: C Go Back to Q36

Q37.

Q. In typography, what is the name for adjusting the space between two specific individual letters?

(A) Leading
(B) Kerning
(C) Tracking
(D) Baseline

Solution

Concept - Typography terms: Different terms describe different kinds of spacing.

Step 1 - Rule out: Leading is line spacing; tracking is uniform spacing across a range; baseline is a reference line.

Step 2 - Match: Adjusting the gap between two particular letters is kerning.

Tip: Kerning is local (a letter pair); tracking is global (a whole word or line).

Answer: B Go Back to Q37

Q38.

Q. What is the name of the invisible horizontal line on which most letters of a typeface sit?

(A) x-height
(B) Cap height
(C) Ascender

(D) Baseline

Solution

Concept - Anatomy of type: Each guide line has a specific role.

Step 1 - Rule out: x-height is the height of lowercase letters; cap height is the height of capitals; ascenders rise above the x-height.

Step 2 - Match: The line the letters rest on is the baseline.

Tip: Descenders (as in g, y, p) are the only parts that drop below the baseline.

Answer: D Go Back to Q38

Q39.

Q. In typography, the term 'leading' refers to which of the following?

(A) The vertical space between lines of text
(B) The space between two letters
(C) The thickness of a letter's stroke
(D) The slant applied to italic type

Solution

Concept - Leading: Leading is the vertical distance between the baselines of successive lines.

Step 1 - Match: Option A describes line spacing, which is leading.

Step 2 - Rule out: B is kerning/tracking, C is stroke weight, D is

obliqueness.

Tip: The word comes from the thin lead strips once placed between lines of metal type.

Answer: A Go Back to Q39

Q40.

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

(A) Orange
(B) Purple
(C) Green
(D) Yellow

Solution

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

Step 1 - Locate: Opposite red is green.

Step 2 - Rule out: Orange and yellow sit near red; purple is opposite yellow.

Tip: Complementary pairs create strong contrast: red-green, blue-orange, yellow-purple.

Answer: C Go Back to Q40

Q41.

Q. Which colour model is normally used for full-colour printing on paper?

(A) RGB
(B) HSL
(C) HEX
(D) CMYK

Solution

Concept - Print colour model: Printing uses subtractive inks.

Step 1 - Match: CMYK (cyan, magenta, yellow, key/black) is the standard print model.

Step 2 - Rule out: RGB, HSL and HEX describe colour for screens.

Tip: Convert artwork from RGB to CMYK before printing to avoid colour shifts.

Answer: D Go Back to Q41

Q42.

Q. Which colour model is used to display colours on digital screens such as monitors and phones?

(A) RGB
(B) CMYK
(C) Pantone
(D) Grayscale

Solution

Concept - Screen colour model: Screens emit light and mix colours additively.

Step 1 - Match: RGB (red, green, blue light) is the screen model.

Step 2 - Rule out: CMYK is for print, Pantone is a spot-colour system, grayscale has no colour.

Tip: Adding all three RGB channels at full strength gives white light.

Answer: A Go Back to Q42

Q43.

Q. The three attributes used to describe a colour are hue, value (lightness) and which third property?

(A) Resolution
(B) Saturation
(C) Contrast
(D) Opacity

Solution

Concept - Dimensions of colour: Colour is fully described by hue, value and saturation.

Step 1 - Match: Saturation is the third property, meaning the intensity or purity of the colour.

Step 2 - Rule out: Resolution, contrast and opacity are not colour dimensions in this scheme.

Tip: High saturation looks vivid; low saturation looks greyed or

muted.

Answer: B Go Back to Q43

Q44.

Q. Who designed the Indian Rupee symbol (Rs.) that was officially adopted in 2010?

(A) Nandan Nilekani
(B) M. F. Husain
(C) Satyajit Ray
(D) D. Udaya Kumar

Solution

Concept - Indian design history: The rupee sign came from a public design competition.

Step 1 - Match: D. Udaya Kumar, an IIT-trained designer, created the winning symbol.

Step 2 - Rule out: Nilekani is a tech entrepreneur, Husain a painter, Ray a filmmaker.

Tip: The symbol blends the Devanagari 'Ra' with the Latin 'R' and two horizontal strokes.

Answer: D Go Back to Q44

Q45.

Q. The Taj Mahal at Agra is a celebrated example of which architectural style?

(A) Gothic architecture
(B) Dravidian architecture
(C) Mughal architecture
(D) Art Deco

Solution

Concept - Architectural styles: Match the monument to its tradition.

Step 1 - Match: The Taj Mahal is a masterpiece of Mughal architecture, blending Persian, Islamic and Indian elements.

Step 2 - Rule out: Gothic is European, Dravidian is South Indian temple style, Art Deco is 20th century.

Tip: Symmetry, a central dome, minarets and pietra dura inlay mark Mughal design.

Answer: C Go Back to Q45

Q46.

Q. The painter Piet Mondrian, known for grids of black lines with red, blue and yellow blocks, is associated with which movement?

(A) Impressionism
(B) De Stijl
(C) Baroque
(D) Pop Art

Solution

Concept - Modern art movements: Match artist to movement.

Step 1 - Match: Mondrian was a founder of De Stijl (Neoplasticism), using pure geometry and primary colours.

Step 2 - Rule out: Impressionism, Baroque and Pop Art each have very different aims and eras.

Tip: De Stijl means 'The Style' in Dutch and stressed straight lines and primary colours.

Answer: B Go Back to Q46

Q47.

Q. The influential Bauhaus school of art, design and architecture was founded in which country?

(A) Germany
(B) France
(C) Italy
(D) United States

Solution

Concept - Design history: Locate the Bauhaus.

Step 1 - Match: The Bauhaus was founded by Walter Gropius in Weimar, Germany, in 1919.

Step 2 - Rule out: France, Italy and the USA were not its birthplace, though its ideas later spread to the USA.

Tip: The Bauhaus united art with craft and industry, shaping modern product and graphic design.

Answer: A Go Back to Q47

Q48.

Q. Warli painting, known for its simple white geometric figures on an earthy background, originates from which Indian state?

(A) Rajasthan
(B) West Bengal
(C) Maharashtra
(D) Kerala

Solution

Concept - Indian folk art origins: Link the style to its region.

Step 1 - Match: Warli art comes from the Warli tribe of Maharashtra.

Step 2 - Rule out: Rajasthan (Phad), Bengal (Kalighat) and Kerala have their own distinct forms.

Tip: Warli uses basic shapes - circle, triangle and square - to show daily life and nature.

Answer: C Go Back to Q48

Q49.

Q. Pattachitra, a traditional cloth-based scroll painting, is most closely associated with which Indian state?

(A) Gujarat
(B) Punjab

(C) Assam

(D) Odisha

Solution

Concept - Regional art forms: Identify the home state.

Step 1 - Match: Pattachitra is a classic art of Odisha (also practised in Bengal).

Step 2 - Rule out: Gujarat, Punjab and Assam are known for other crafts.

Tip: 'Patta' means cloth and 'chitra' means picture, describing the painted cloth scroll.

Answer: D Go Back to Q49

Q50.

Q. Gond art, famous for its dotted and lined depictions of animals and nature, belongs to the tribal community mainly of which state?

(A) Tamil Nadu

(B) Madhya Pradesh

(C) Haryana

(D) Goa

Solution

Concept - Tribal art origins: Place the Gond community.

Step 1 - Match: The Gond are a large tribal group of Madhya Pradesh and central India.

Step 2 - Rule out: Tamil Nadu, Haryana and Goa are not the Gond heartland.

Tip: Gond artists build images from fine patterns of dots and dashes filled with bright colour.

Answer: B Go Back to Q50

Q51.

Q. In the ISO A-series, an A4 sheet is made by joining two A5 sheets along their long edges. Compared with an A5 sheet, the area of an A4 sheet is:

(A) doubled
(B) halved
(C) the same
(D) four times

Solution

Concept - A-series paper sizes: Each step down the series halves the area.

Step 1 - Relate: A4 is one size larger than A5, so its area is twice that of A5.

Step 2 - Confirm: Two A5 sheets exactly make one A4, so the area doubles.

Tip: Folding A4 in half gives A5; the aspect ratio $1 : \sqrt{2}$ stays the same throughout.

Answer: A Go Back to Q51

Q52.

Q. In the binary system used by computers, one kilobyte (KB) is equal to how many bytes?

(A) 100
(B) 1000
(C) 512
(D) 1024

Solution

Concept - Binary units: Computer memory counts in powers of two.

Step 1 - Compute: 1 KB $= 2^{10} = 1024$ bytes.

Step 2 - Rule out: 1000 is the decimal (SI) approximation, not the binary value.

Tip: The same rule gives 1 MB $= 1024$ KB and 1 GB $= 1024$ MB.

Answer: D Go Back to Q52

Q53.

Q. What is the ratio of the shorter side to the longer side of every sheet in the ISO A-series (A0, A1, A2, and so on)?

(A) $1 : 2$
(B) $2 : 3$
(C) $1 : \sqrt{2}$
(D) $3 : 4$

Solution

Concept - A-series proportion: The special ratio keeps the shape identical when halved.

Step 1 - Identify: The side ratio is $1 : \sqrt{2} \approx 1 : 1.414$.

Step 2 - Why: Folding the long side in half preserves this ratio, so every A size looks the same.

Tip: This is the only ratio that stays constant under repeated halving.

Answer: C Go Back to Q53

Q54.

Q. How many faces does a triangular prism have?

(A) 4

(B) 5

(C) 6

(D) 3

Solution

Concept - Faces of a prism: A prism has two identical end faces plus rectangular sides.

Step 1 - Count: Two triangular ends $+$ three rectangular sides $= 5$ faces.

Tip: A triangular prism also has 9 edges and 6 vertices.

Answer: B Go Back to Q54

Q55.

Q. How many vertices (corners) does a cube have?

(A) 4

(B) 6

(C) 12

(D) 8

Solution

Concept - Parts of a cube: A cube has faces, edges and vertices.

Step 1 - Count: A cube has 8 vertices.

Step 2 - Rule out: 6 is the face count and 12 is the edge count.

Tip: Euler's formula holds: $V - E + F = 8 - 12 + 6 = 2$.

Answer: D Go Back to Q55

Q56.

Q. A design has rotational symmetry of order 4. What is the smallest angle of rotation that maps the design exactly onto itself?

(A) 90°

(B) 45°

(C) 120°

(D) 180°

Solution

Concept - Rotational symmetry: Smallest angle $= \frac{360^\circ}{\text{order}}$.

Step 1 - Compute: $\frac{360}{4} = 90°$.

Tip: A square is the classic order-4 shape, repeating every $90°$.

Answer: A Go Back to Q56

Q57.

Q. In the design process, what is the main purpose of making a wireframe for a website or app?

(A) To choose the final brand colours
(B) To write the final marketing copy
(C) To plan the layout and structure of the content
(D) To test the loading speed of the server

Solution

Concept - Wireframing: A wireframe is a low-detail blueprint of a screen.

Step 1 - Match: Its main job is to plan layout, hierarchy and placement of content before visual styling.

Step 2 - Rule out: Colours, copy and server speed come at later or unrelated stages.

Tip: Wireframes stay deliberately plain (boxes and lines) so the focus is on structure, not looks.

Answer: C Go Back to Q57

Q58.

Q (Drawing). It is a warm afternoon in a village potter's open workshop. Rows of drying earthen pots sit on wooden planks, lumps of wet clay rest under a damp cloth, and a small wood fire smoulders near a stack of finished matkas. The focal subject is the potter, seated cross-legged at his spinning wheel, both wet hands cupped around a rising column of clay that is opening into the mouth of a pot as the wheel turns. Imagine this scene and draw it with the potter and his hands on the clay as the clear centre of interest. Show the heavy wheel, the water bowl and tools beside him, the racks of drying pots, the smouldering fire, and the workshop wall 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 a quiet, focused craft scene where the hands on the clay are the whole story. Plan the potter's seated posture first.

Step 1 - Set perspective and the ground: Choose a low, close eye level, roughly at the wheel, so students feel seated across from the potter. Let the racks of pots and the wall recede gently to one side. Keep a solid floor plane so the heavy wheel sits firmly.

Step 2 - Compose in layers: Build three depths - the potter, wheel and clay in front, the tools and water bowl in the middle, the drying racks and wall behind. Overlap the pot rows so they read as many, receding in size for depth.

Step 3 - Make the focal subject win: Place the wet hands and

rising clay near the centre of interest and give them the highest contrast and finest detail. Let the potter's bent arms and gaze all funnel down to that point so the eye lands there.

Step 4 - Fix proportion, then refine line quality: Check the cross-legged proportions and that the wheel, pots and clay read at believable relative sizes. Then vary line weight - firm dark strokes on the potter and clay, soft light strokes on the far racks and the smoke.

Tip: Wet clay and hands are about smooth, curved, continuous lines. Keep those strokes flowing and unbroken so the clay looks soft and turning, not stiff. **Go Back to Q58**

Q59.

Q (Design Aptitude). Families in small city flats have no balcony space and no room for a full clothes-drying stand, yet they must dry a daily load of washed clothes indoors, often draping them over chairs and doors. Design a clothes-drying rack that mounts on a wall, folds almost flat when not in use so it barely projects, and opens out to hold a family's daily washing when needed. Show your design in two states: (1) folded flat against the wall when dry and not in use, and (2) fully opened out and loaded with drying clothes.

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 space-saving mechanism problem - it must vanish flat, then hold real weight. Sketch the hinge and the load.

Step 1 - Nail the requirements: Pin the constraints - mounts firmly to a wall, folds to a slim profile, opens to enough hanging length for a daily wash, and holds wet weight without sagging. Let each sketched feature serve one of these.

Step 2 - Show the two required states: Draw state one as the rack folded flat, arms tucked down against a slim wall plate. Draw state two with the arms swung out and rods extended, clothes hanging. Draw the same wall plate in both so it reads as one object opening.

Step 3 - Label features, do not write essays: Use short leader labels - "wall plate", "folding arm", "lock catch", "pull-out rod", "drip lip". Two or three words each, pointing at the part.

Step 4 - Prove it works: Add a small detail of the hinge and lock catch showing how the arm stays rigid when loaded, and a side view showing the slim folded depth against the wall. This proves both the flat-fold and that it can bear wet clothes.

Tip: A drying rack lives or dies on the locking hinge. Show clearly how the arm locks open under load and releases to fold, and the design instantly reads as trustworthy. **Go Back to Q59**

Answer Key (Part A)

Section 1 - NAT (Numerical Answer Type)

Q1	Q2	Q3	Q4	Q5	Q6	Q7
24	54	216	60	20	5400	765

Q8	Q9	Q10	Q11	Q12	Q13	Q14
600	24	1080	3	45	12	64

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

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

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

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

Section 3 - MCQ (single correct)

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

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

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

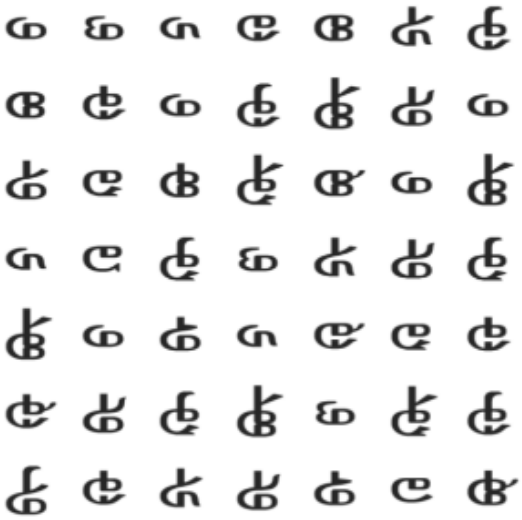
Q51	Q52	Q53	Q54	Q55	Q56	Q57
A	D	C	B	D	A	C

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.

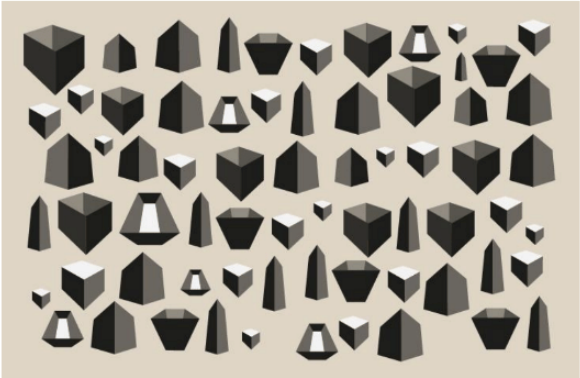
P1. **(Past UCEED)** How many distinct types of characters appear in the figure given below?



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.

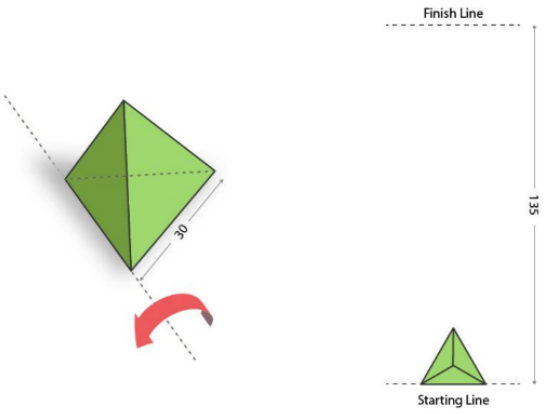
P2. **(Past UCEED)** Objects made out of cardboard are shown in the image below. Count the number of objects shown as open containers in this image.



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)** A triangular pyramid with equal sides can be flipped on its edges without slipping or sliding as shown on the left. What is the minimum number of flips needed for the pyramid to reach the finishing line if the starting position is as shown on the right?

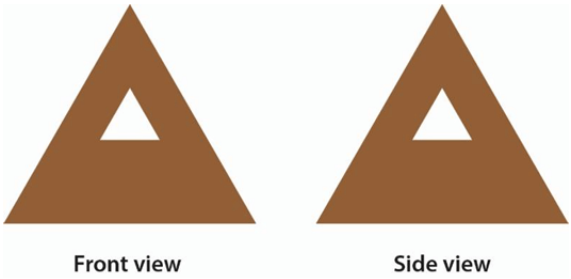


How to approach

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)** A solid square pyramid has triangular cut-outs that pass through and through, as shown in the figure. How many surfaces are there in the resultant solid?



How to approach

Track how the operation changes faces. Start from the number of faces of the original solid, then add the new faces created by the cut/drill/join and subtract any original faces that are removed or split. Visualise the top, front and side views to be sure no hidden face is missed.