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 cricket team has 10 blue pairs of gloves and 10 white pairs of gloves in a cricket kit. If a batter reaches into the kit and pulls out one glove at a time without looking at it, what is the least number of gloves she must pull out to make sure that she has a pair of gloves of the same colour?

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

View Solution

Q2. A wooden cube of side four centimetres is painted on all its outer faces and then cut into small cubes of side one centimetre each. How many of the small cubes have paint on exactly two faces?

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

View Solution

Q3. In typography, one pica equals twelve points. A magazine column is set to a width of thirty picas. What is this column width expressed in points?

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

View Solution

Q4. A rectangular logo is enlarged so that its width grows from fifteen millimetres to forty-five millimetres, keeping its shape the same. If the original logo covered an area of ninety square millimetres, what is the area of the enlarged logo in square millimetres?

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

View Solution

Q5. A greyscale image stores five bits of information per pixel. How many distinct shades of grey can each pixel represent?

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

View Solution

Q6. A poster that is eighty centimetres wide is reduced on a photocopier to a width of sixty centimetres. By what percentage was the width

reduced?

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

View Solution

Q7. A digital image is one thousand two hundred pixels wide. If it is printed at a resolution of three hundred dots per inch, what is the printed width of the image in inches?

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

View Solution

Q8. A cube of side five centimetres is painted on all faces and then cut into unit cubes of side one centimetre. How many of the small cubes have no paint on any face?

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

View Solution

Q9. Look at the number series two, six, twelve, twenty, thirty. What number comes next in this series?

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

View Solution

Q10. On a standard analogue clock, what is the smaller angle in degrees between the hour hand and the minute hand at exactly twenty minutes past four?

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

View Solution

Q11. A classic seven-piece tangram is made by cutting a single square of area sixty-four square centimetres. In this set, each of the two largest triangles is one quarter of the whole square. What is the area, in square centimetres, of one large triangle?

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

View Solution

Q12. A flat sheet of paper is folded exactly in half, then in half again, and this is repeated until it has been folded four times in all. How many layers of paper are stacked after the fourth fold?

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

View Solution

Q13. A painter wants to mix five litres of a colour using green paint and blue paint in the ratio three to two. How many litres of blue paint does she need?

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

View Solution

Q14. A rectangular floor measures six metres by four metres. It is to be fully covered with square tiles of side twenty centimetres each, with no gaps or cutting. How many tiles are needed?

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

View Solution

Section 2: Multiple Select Questions (MSQ)

Q15. Suresh, Biju and Tina bring one gift each (a book, a pen and a ball). They swap gifts so that no one gets back their own gift. Statements:

Suresh says, I gave my gift to the one who gave away the ball. Biju says, I received my gift from the one who gave a gift to the one who gave away the ball. Tina says, I got what I always wanted. Biju then says, But Tina, you had to give away your pen. Which of these statements is/are TRUE?

(One or more options may be correct.)

(A) Tina gets the Ball

(B) Tina gets the Book

(C) Suresh gets the Pen

(D) Biju gets the Book

View Solution

Q16. In the traditional RYB colour model used by painters, which of the following are considered primary colours?

(One or more options may be correct.)

(A) Green

(B) Red

(C) Yellow

(D) Blue

View Solution

Q17. Which of the following are recognised classical dance forms of India?

(One or more options may be correct.)

(A) Bharatanatyam

(B) Salsa

(C) Kathakali

(D) Odissi

View Solution

Q18. In the additive RGB colour model used by screens, which of the following are primary colours?

(One or more options may be correct.)

(A) Red

(B) Green

(C) Blue

(D) Cyan

View Solution

Q19. Which of the following are vector graphic file formats (rather than raster formats)?

(One or more options may be correct.)

(A) JPEG

(B) SVG

(C) PNG

(D) EPS

View Solution

Q20. Which of the following statements about the Bauhaus are correct?

(One or more options may be correct.)

(A) It was founded by Walter Gropius

(B) It originated in Germany

(C) It is a school of Indian miniature painting

(D) It aimed to unite craft, fine art and industrial design

View Solution

Q21. Which of the following statements about complementary colours are correct?

(One or more options may be correct.)

(A) Red and green are analogous colours

(B) Complementary colours sit opposite each other on the colour wheel

(C) Mixing two complementary colours tends to produce a neutral grey or brown

(D) Yellow and purple are analogous colours

View Solution

Q22. Which of the following statements about typography terms are correct?

(One or more options may be correct.)

(A) Kerning refers to the vertical spacing between lines of text

(B) A serif is the measured height of lowercase letters

(C) Leading refers to the vertical spacing between lines of text

(D) Kerning refers to adjusting the space between two specific letters

View Solution

Q23. Which of the following are raster (bitmap) image file formats?

(One or more options may be correct.)

(A) JPEG

(B) PNG

(C) GIF

(D) BMP

View Solution

Q24. Which of the following designers is most directly credited with planning the city of Chandigarh and its Capitol Complex?

(One or more options may be correct.)

(A) Charles Correa

(B) Le Corbusier

(C) Balkrishna Doshi

(D) Laurie Baker

View Solution

Q25. Which of the following are traditional metal crafts of India?

(One or more options may be correct.)

(A) Bidriware

(B) Madhubani

(C) Warli

(D) Dhokra

View Solution

Q26. For a photograph to appear crisp when printed on paper, which of the following image resolutions is the standard target?

(One or more options may be correct.)

(A) 72 pixels per inch

(B) 96 pixels per inch

(C) 300 pixels per inch

(D) 150 pixels per inch

View Solution

Q27. Which of the following statements about the golden ratio are correct?

(One or more options may be correct.)

(A) Its value is approximately 1.618

(B) It is denoted by the Greek letter phi

(C) It equals exactly 1.5

(D) It is denoted by the Greek letter pi

View Solution

Q28. Which of the following materials are biodegradable, a point often important in sustainable product design?

(One or more options may be correct.)

(A) Polystyrene foam

(B) Jute

(C) Cotton

(D) Paper

View Solution

Q29. Which of the following colour models is designed specifically for print production, where inks are layered on paper?

(One or more options may be correct.)

(A) RGB

(B) HSB

(C) Greyscale only

(D) CMYK

View Solution

Section 3: Multiple Choice Questions (MCQ)

Q30. In a certain code: drassoglitive means woodboard, frassopoolts means bodystudy, glitivedrassy means foodwood, and dressowoolts means digitalscreen. Which word would mean screensize?

(A) dressoissics

(B) dressodrasso

(C) issicsdresso

(D) drassodresso

View Solution

Q31. A milkman has containers of 5 litres and 3 litres (both empty), and an 8 litre container full of milk. He needs to split the milk equally into 4 litres and 4 litres to balance his bicycle. Pouring milk from one container into another counts as one turn. What is the minimum number of turns required?

(A) 6

(B) 7

(C) 8

(D) 9

View Solution

Q32. What number comes next in the series: 3, 9, 27, 81, ... ?

(A) 243

(B) 162

(C) 216

(D) 324

View Solution

Q33. A cube of side four centimetres is painted on all faces and cut into unit cubes of side one centimetre. How many of the small cubes have no paint on any face?

(A) 6

(B) 8

(C) 12

(D) 16

View Solution

Q34. Which one is the odd one out?

(A) Triangle

(B) Rectangle

(C) Cube

(D) Pentagon

View Solution

Q35. A person walks 5 km due north, then turns right and walks 3 km, then turns right again and walks 5 km. How far is the person now from the starting point?

(A) 5 km

(B) 8 km

(C) 13 km

(D) 3 km

View Solution

Q36. Pointing to a photograph, Rahul said, She is the daughter of my grandfather's only son. How is the girl in the photograph related to Rahul?

(A) Sister

(B) Mother

(C) Aunt

(D) Cousin

View Solution

Q37. On a map drawn to a scale of 1 : 50000, two points are 2 centimetres apart. What is the actual distance between them on the ground?

(A) 500 metres

(B) 1 kilometre

(C) 2 kilometres

(D) 5 kilometres

View Solution

Q38. In typography, one inch is equal to how many points?

(A) 12

(B) 36

(C) 72

(D) 96

View Solution

Q39. On the traditional RYB artists' colour wheel, which colour is the complement of blue?

(A) Green

(B) Red

(C) Violet

(D) Orange

View Solution

Q40. What letter comes next in the series: A, C, F, J, ... ?

(A) O

(B) N

(C) P

(D) M

View Solution

Q41. A circular table top has a radius of 7 centimetres. Taking pi as 22/7, what is its area in square centimetres?

(A) 44

(B) 154

(C) 22

(D) 308

View Solution

Q42. On a standard analogue clock, what is the angle between the hour hand and the minute hand at exactly 6 o'clock?

(A) 90 degrees

(B) 120 degrees

(C) 180 degrees

(D) 150 degrees

View Solution

Q43. On a standard six-faced die, the numbers on opposite faces always add up to seven. Which number lies on the face opposite the face showing 2?

(A) 6

(B) 3

(C) 4

(D) 5

View Solution

Q44. Which one is the odd one out?

(A) Madhubani

(B) Kolam

(C) Rangoli

(D) Alpana

View Solution

Q45. An image that is 300 pixels wide is printed at a resolution of 300 dots per inch. What is the printed width of the image?

(A) 1 centimetre

(B) 2.54 centimetres

(C) 3 centimetres

(D) 30 centimetres

View Solution

Q46. In a certain code each letter is replaced by the letter that comes immediately after it in the alphabet, so DOG is written as EPH. How would CAT be written in the same code?

(A) CBU

(B) DBT

(C) DBU

(D) EBU

View Solution

Q47. What is 20 percent of 250?

(A) 25

(B) 40

(C) 45

(D) 50

View Solution

Q48. How many edges does a cube have?

(A) 12

(B) 8

(C) 6

(D) 24

View Solution

Q49. What number comes next in the series: 1, 4, 9, 16, 25, ... ?

(A) 30

(B) 36

(C) 49

(D) 35

View Solution

Q50. The charkha, or spinning wheel, is most strongly associated with which of the following figures in Indian history?

(A) Raja Ravi Varma

(B) Satyajit Ray

(C) Mahatma Gandhi

(D) Nandalal Bose

View Solution

Q51. In the RGB colour model used by screens, the value (0, 0, 0) represents which colour?

(A) White

(B) Red

(C) Blue

(D) Black

View Solution

Q52. The price of a product rises from 200 rupees to 250 rupees. What is the percentage increase in price?

(A) 25 percent

(B) 20 percent

(C) 50 percent

(D) 30 percent

View Solution

Q53. A person is facing north. She turns 90 degrees clockwise, and then turns 90 degrees clockwise once more. Which direction is she facing now?

(A) North

(B) South

(C) East

(D) West

View Solution

Q54. Hand is to Glove as Foot is to which of the following?

(A) Hat

(B) Belt

(C) Sock

(D) Ring

View Solution

Q55. A square has an area of 49 square centimetres. What is its perimeter?

(A) 14 centimetres

(B) 49 centimetres

(C) 21 centimetres

(D) 28 centimetres

View Solution

Q56. Which one is the odd one out?

(A) Cylinder

(B) Square

(C) Triangle

(D) Hexagon

View Solution

Q57. The print colour model CMYK stands for Cyan, Magenta, Yellow and one more component. What does the letter K stand for?

(A) Kingblue

(B) Khaki

(C) Grey

(D) Key (black)

View Solution

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

Q58. [Drawing - 50 Marks]

Imagine a city bus stop during heavy monsoon rain. People crowd under a leaking shelter, umbrellas overlap, water splashes off a passing bus, a puddle spreads across the road, and shop signs blur behind the downpour. Some wait with bags held over their heads. Draw this rainy bus-stop scene, giving prominence to a commuter stepping off the kerb to board a half-open bus door while shielding a child under one umbrella.

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]

Shops, homes and clinics in India often have a single high step at the entrance that blocks wheelchairs, prams and delivery trolleys. Design a portable ramp that a shopkeeper can place over such a step when needed and clear away when not. Show your ramp in two states: folded and stored to one side out of the way, and unfolded and in use with a wheelchair rolling up it.

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 cricket team has 10 blue pairs of gloves and 10 white pairs of gloves in a cricket kit. If a batter reaches into the kit and pulls out one glove at a time without looking at it, what is the least number of gloves she must pull out to make sure that she has a pair of gloves of the same colour?

Solution

Concept - Pigeonhole principle: With only two colours available, the colour of a glove is a pigeonhole. Once the count of drawn gloves is more than the number of colours, two must share a colour.

Step 1 - Worst case: The unluckiest first two draws give one blue and one white. So two gloves are not yet guaranteed to match.

Step 2 - Force a match: The third glove must be either blue or white, so it matches one already held. Three gloves guarantee a same-colour pair.

Tip: Ignore the left/right handedness and the counts of 10 - only the number of colours (2) drives the answer, which is colours plus one.

Answer: 3 Go Back to Q1

Q2.

Q. A wooden cube of side four centimetres is painted on all its outer faces and then cut into small

cubes of side one centimetre each. How many of the small cubes have paint on exactly two faces?

Solution

Concept - Painted cube edges: Small cubes with exactly two painted faces lie along the edges of the big cube, but not at the corners.

Step 1 - Count per edge: Each edge is four cubes long. Removing the two corner cubes leaves $4 - 2 = 2$ edge-only cubes per edge.

Step 2 - All edges: A cube has 12 edges, so $12 \times 2 = 24$ small cubes have exactly two painted faces.

Tip: For side n, two-face cubes number $12(n - 2)$; three-face are always 8 corners.

Answer: 24 Go Back to Q2

Q3.

Q. In typography, one pica equals twelve points. A magazine column is set to a width of thirty picas. What is this column width expressed in points?

Solution

Concept - Pica to point conversion: The pica and the point are fixed typographic units where 1 pica $= 12$ points.

Step 1 - Multiply: Width $= 30 \times 12$.

Step 2 - Arithmetic: $30 \times 12 = 360$ points.

Tip: Remember the chain 1 inch = 6 picas = 72 points; it makes layout maths quick.

Answer: 360 Go Back to Q3

Q4.

Q. A rectangular logo is enlarged so that its width grows from fifteen millimetres to forty-five millimetres, keeping its shape the same. If the original logo covered an area of ninety square millimetres, what is the area of the enlarged logo in square millimetres?

Solution

Concept - Area scales as the square of length: When a shape is scaled uniformly by a factor k, every length grows by k and the area grows by k^2.

Step 1 - Find the scale factor: $k = \frac{45}{15} = 3$.

Step 2 - Scale the area: New area $= 90 \times k^2 = 90 \times 9 = 810$ square millimetres.

Tip: Tripling a size makes it nine times bigger in area, a common trap in resizing questions.

Answer: 810 Go Back to Q4

Q5.

Q. A greyscale image stores five bits of information per pixel. How many distinct shades of grey can each pixel represent?

Solution

Concept - Bit depth: A pixel with b bits can store 2^b different values, one per shade.

Step 1 - Apply the rule: Shades $= 2^5$.

Step 2 - Arithmetic: $2^5 = 32$ shades of grey.

Tip: 8 bits gives 256 shades, the standard for greyscale photographs.

Answer: 32 Go Back to Q5

Q6.

Q. A poster that is eighty centimetres wide is reduced on a photocopier to a width of sixty centimetres. By what percentage was the width reduced?

Solution

Concept - Percentage decrease: Percentage reduction equals the drop in size divided by the original size, times one hundred.

Step 1 - Find the drop: $80 - 60 = 20$ centimetres.

Step 2 - As a percentage: $\frac{20}{80} \times 100 = 25\%$.

Tip: Always divide the change by the ORIGINAL value, not the new one.

Answer: 25 Go Back to Q6

Q7.

Q. A digital image is one thousand two hundred pixels wide. If it is printed at a resolution of three hundred dots per inch, what is the printed width of the image in inches?

Solution

Concept - Resolution and print size: Printed length in inches equals the pixel count divided by the dots-per-inch value.

Step 1 - Divide: Width $= \frac{1200}{300}$.

Step 2 - Arithmetic: $\frac{1200}{300} = 4$ inches.

Tip: More dpi over the same pixel count means a smaller but sharper print.

Answer: 4 Go Back to Q7

Q8.

Q. A cube of side five centimetres is painted on all faces and then cut into unit cubes of side one centimetre. How many of the small cubes have no paint on any face?

Solution

Concept - Hidden inner cubes: Unpainted small cubes form the inner block once one layer is peeled off every face.

Step 1 - Inner side length: Remove one cube from each side: $5 - 2 = 3$.

Step 2 - Cube it: Unpainted cubes $= 3^3 = 27$.

Tip: For side n, the no-paint count is always $(n-2)^3$.

Answer: 27 Go Back to Q8

Q9.

Q. Look at the number series two, six, twelve, twenty, thirty. What number comes next in this series?

Solution

Concept - Second differences: When first differences grow by a constant, the pattern is quadratic and predictable.

Step 1 - List the gaps: $4, 6, 8, 10$, each rising by 2.

Step 2 - Next gap and term: Next gap is 12, so the next term is $30 + 12 = 42$.

Tip: Each term equals $n(n+1)$; the sixth term is $6 \times 7 = 42$.

Answer: 42 Go Back to Q9

Q10.

Q. On a standard analogue clock, what is the smaller angle in degrees between the hour hand and the minute hand at exactly twenty minutes past four?

Solution

Concept - Clock-hand angles: The minute hand moves 6 degrees per minute; the hour hand moves 0.5 degrees per minute.

Step 1 - Hour hand: At 4:20 it is at $4 \times 30 + 20 \times 0.5 = 120 + 10 = 130$

degrees.

Step 2 - Minute hand and gap: The minute hand at 20 minutes is at $20 \times 6 = 120$ degrees. Difference $= 130 - 120 = 10$ degrees.

Tip: Never assume the hour hand sits on the hour; it drifts as the minutes pass.

Answer: 10 Go Back to Q10

Q11.

Q. A classic seven-piece tangram is made by cutting a single square of area sixty-four square centimetres. In this set, each of the two largest triangles is one quarter of the whole square. What is the area, in square centimetres, of one large triangle?

Solution

Concept - Fraction of the whole: In a tangram, the two big triangles are the largest pieces, each being one quarter of the original square.

Step 1 - Take a quarter: Area $= \frac{1}{4} \times 64$.

Step 2 - Arithmetic: $\frac{64}{4} = 16$ square centimetres.

Tip: The seven tangram pieces always recombine to the same total area, whatever figure you build.

Answer: 16 Go Back to Q11

Q12.

Q. A flat sheet of paper is folded exactly in half, then in half again, and this is repeated until it has been folded four times in all. How many layers of paper are stacked after the fourth fold?

Solution

Concept - Doubling with each fold: Every fold doubles the number of layers.

Step 1 - Set up the power: Layers $= 2^4$.

Step 2 - Arithmetic: $2^4 = 16$ layers.

Tip: After f folds the layer count is 2^f; growth is fast, which is why folding many times is hard.

Answer: 16 Go Back to Q12

Q13.

Q. A painter wants to mix five litres of a colour using green paint and blue paint in the ratio three to two. How many litres of blue paint does she need?

Solution

Concept - Sharing in a ratio: Split the total into equal parts set by the ratio, then take the share belonging to blue.

Step 1 - Total parts: $3 + 2 = 5$ parts, so one part $= \frac{5}{5} = 1$ litre.

Step 2 - Blue share: Blue takes 2 parts $= 2 \times 1 = 2$ litres.

Tip: Check the split adds up: green 3 L plus blue 2 L equals the required 5 L.

Answer: 2 Go Back to Q13

Q14.

Q. A rectangular floor measures six metres by four metres. It is to be fully covered with square tiles of side twenty centimetres each, with no gaps or cutting. How many tiles are needed?

Solution

Concept - Tiling by counting rows and columns: Convert to the same units, then count how many tiles fit along each side and multiply.

Step 1 - Tiles along each side: Length $600 \div 20 = 30$; width $400 \div 20 = 20$.

Step 2 - Multiply: $30 \times 20 = 600$ tiles.

Tip: Convert metres to centimetres first so tile and floor share one unit before dividing.

Answer: 600 Go Back to Q14

Q15.

Q. Suresh, Biju and Tina bring one gift each (a book, a pen and a ball). They swap gifts so that no one gets back their own gift. Statements: Suresh says, I gave my gift to the one who gave away the ball. Biju says, I received my gift from the one who gave a gift to the one who gave away the ball. Tina says, I got what I always wanted. Biju then says, But Tina, you had to give away your pen. Which of these statements is/are TRUE?

(A) Tina gets the Ball
(B) Tina gets the Book
(C) Suresh gets the Pen
(D) Biju gets the Book

Solution

Concept - Logic grid with a derangement: No one keeps their own gift, so each clue fixes who brought and who received what.

Step 1 - Fix the owners: Biju's last line shows Tina brought the pen. Suresh gave his gift to the ball-giver, so Suresh is not the ball-giver; that leaves Biju as the ball-giver and Suresh as the book-giver.

Step 2 - Trace the swap: Suresh gave his book to the ball-giver Biju, so Biju receives the book. The pen and the ball remain for Suresh and Tina; Tina cannot get her own pen, so Tina gets the ball and Suresh gets the pen.

Step 3 - Test each option: A: Tina gets the ball - TRUE. B: Tina gets the book - FALSE, she gets the ball. C: Suresh gets the pen - TRUE. D: Biju gets the book - TRUE.

Tip: Pin down each person's OWN gift first; the no-repeat rule then forces the rest.

Answer: A, C, D Go Back to Q15

Q16.

Q. In the traditional RYB colour model used by painters, which of

the following are considered primary colours?

(A) Green

(B) Red

(C) Yellow

(D) Blue

Solution

Concept - RYB primaries: In the artists' subtractive model the three primaries are red, yellow and blue; all other hues are mixed from them.

Step 1 - Test each option: A: Green - FALSE, it is a secondary made from yellow and blue. B: Red - TRUE. C: Yellow - TRUE. D: Blue - TRUE.

Tip: Do not confuse RYB primaries with the RGB light primaries (red, green, blue).

Answer: B, C, D Go Back to Q16

Q17.

Q. Which of the following are recognised classical dance forms of India?

(A) Bharatanatyam

(B) Salsa

(C) Kathakali

(D) Odissi

Solution

Concept - Indian classical dance: The classical forms recognised in India include Bharatanatyam, Kathakali, Odissi, Kathak, Kuchipudi, Manipuri, Mohiniyattam and Sattriya.

Step 1 - Test each option: A: Bharatanatyam - TRUE, from Tamil Nadu. B: Salsa - FALSE, a Latin American social dance. C: Kathakali - TRUE, from Kerala. D: Odissi - TRUE, from Odisha.

Tip: Salsa is the odd one out because it is not part of the Indian classical tradition.

Answer: A, C, D Go Back to Q17

Q18.

Q. In the additive RGB colour model used by screens, which of the following are primary colours?

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

Solution

Concept - Additive primaries: Screens emit light and mix red, green and blue to form all other colours; equal full amounts give white.

Step 1 - Test each option: A: Red - TRUE. B: Green - TRUE. C: Blue - TRUE. D: Cyan - FALSE, it is a secondary formed by green

plus blue.

Tip: Cyan, magenta and yellow are the secondaries of RGB and the primaries of print (CMYK).

Answer: A, B, C Go Back to Q18

Q19.

Q. Which of the following are vector graphic file formats (rather than raster formats)?

(A) JPEG
(B) SVG
(C) PNG
(D) EPS

Solution

Concept - Vector versus raster: Vector files store shapes as maths and scale without blur; raster files store a grid of pixels.

Step 1 - Test each option: A: JPEG - FALSE, a compressed raster format. B: SVG - TRUE, a vector format. C: PNG - FALSE, a raster format. D: EPS - TRUE, a vector-based format.

Tip: If enlarging an image makes it pixelated, it is raster, not vector.

Answer: B, D Go Back to Q19

Q20.

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

(A) It was founded by Walter Gropius
(B) It originated in Germany
(C) It is a school of Indian miniature painting
(D) It aimed to unite craft, fine art and industrial design

Solution

Concept - Bauhaus movement: The Bauhaus was an influential design school founded in 1919 that shaped modern design education.

Step 1 - Test each option: A: Founded by Walter Gropius - TRUE. B: Originated in Germany (Weimar) - TRUE. C: A school of Indian miniature painting - FALSE. D: Aimed to unite craft, fine art and industry - TRUE, this was its core idea.

Tip: Bauhaus is tied to functional, geometric modernism, not to any regional painting tradition.

Answer: A, B, D Go Back to Q20

Q21.

Q. Which of the following statements about complementary colours are correct?

(A) Red and green are analogous colours
(B) Complementary colours sit opposite each other on the colour wheel
(C) Mixing two complementary colours tends to produce a neutral

grey or brown

(D) Yellow and purple are analogous colours

Solution

Concept - Complementary colours: Complementary pairs lie directly across the colour wheel and neutralise each other when mixed.

Step 1 - Test each option: A: Red and green are analogous - FALSE, they are complementary. B: Complements sit opposite on the wheel - TRUE. C: Mixing complements gives a neutral grey or brown - TRUE. D: Yellow and purple are analogous - FALSE, they are complementary.

Tip: Analogous colours are neighbours on the wheel; complements are opposites.

Answer: B, C Go Back to Q21

Q22.

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

(A) Kerning refers to the vertical spacing between lines of text

(B) A serif is the measured height of lowercase letters

(C) Leading refers to the vertical spacing between lines of text

(D) Kerning refers to adjusting the space between two specific letters

---

Solution

Concept - Typography vocabulary: Leading controls line spacing, kerning controls space between letter pairs, and a serif is a small stroke at the end of a letter.

Step 1 - Test each option: A: Kerning is vertical line spacing - FALSE, that is leading. B: A serif is the height of lowercase letters - FALSE, that is x-height. C: Leading is the vertical spacing between lines - TRUE. D: Kerning adjusts space between two specific letters - TRUE.

Tip: Leading is between LINES, kerning is between LETTERS.

Answer: C, D Go Back to Q22

Q23.

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

(A) JPEG

(B) PNG

(C) GIF

(D) BMP

Solution

Concept - Raster formats: Raster formats store an image as a grid of coloured pixels.

Step 1 - Test each option: A: JPEG - TRUE, lossy raster. B: PNG - TRUE, lossless raster. C: GIF - TRUE, indexed raster. D: BMP - TRUE, uncompressed raster.

Tip: All four are pixel-based; a vector format like SVG or EPS

would not belong here.

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

Q24.

Q. Which of the following designers is most directly credited with planning the city of Chandigarh and its Capitol Complex?

(A) Charles Correa
(B) Le Corbusier
(C) Balkrishna Doshi
(D) Laurie Baker

Solution

Concept - Modern Indian architecture: Chandigarh was planned in the 1950s under a famous Swiss-French modernist architect.

Step 1 - Test each option: A: Charles Correa - FALSE, known for Kanchanjunga Apartments and Jawahar Kala Kendra. B: Le Corbusier - TRUE, he led the Chandigarh master plan and Capitol Complex. C: Balkrishna Doshi - FALSE, known for Aranya Housing and IIM Bangalore. D: Laurie Baker - FALSE, known for low-cost architecture in Kerala.

Tip: Only one statement is correct here, so read every option before locking the answer.

Answer: B Go Back to Q24

Q25.

Q. Which of the following are traditional metal crafts of India?

(A) Bidriware
(B) Madhubani
(C) Warli
(D) Dhokra

Solution

Concept - Indian crafts by medium: Some crafts work in metal, while others are painting traditions on paper or walls.

Step 1 - Test each option: A: Bidriware - TRUE, a metal inlay craft from Bidar. B: Madhubani - FALSE, a painting style from Bihar. C: Warli - FALSE, a tribal painting style from Maharashtra. D: Dhokra - TRUE, a lost-wax metal casting craft.

Tip: Sort crafts by their medium first; here only the metalworking ones qualify.

Answer: A, D Go Back to Q25

Q26.

Q. For a photograph to appear crisp when printed on paper, which of the following image resolutions is the standard target?

(A) 72 pixels per inch
(B) 96 pixels per inch
(C) 300 pixels per inch
(D) 150 pixels per inch

Solution

Concept - Print versus screen resolution: Print needs a much higher pixel density than a screen to look sharp.

Step 1 - Test each option: A: 72 ppi - FALSE, a low web/screen value. B: 96 ppi - FALSE, a screen value. C: 300 ppi - TRUE, the standard for quality print. D: 150 ppi - FALSE, only acceptable for rough drafts or large banners viewed far away.

Tip: Screens are happy at 72 to 96 ppi; good print wants around 300 ppi.

Answer: C Go Back to Q26

Q27.

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

(A) Its value is approximately 1.618
(B) It is denoted by the Greek letter phi
(C) It equals exactly 1.5
(D) It is denoted by the Greek letter pi

Solution

Concept - The golden ratio: It is an irrational proportion valued for its use in balanced, pleasing design and composition.

Step 1 - Test each option: A: Approximately 1.618 - TRUE.
B: Denoted by phi - TRUE. C: Equals exactly 1.5 - FALSE, it is irrational, not a simple fraction. D: Denoted by pi - FALSE, pi is the circle constant of about 3.14159.

Tip: Remember phi is roughly 1.618; do not mix it up with pi.

Answer: A, B Go Back to Q27

Q28.

Q. Which of the following materials are biodegradable, a point often important in sustainable product design?

(A) Polystyrene foam
(B) Jute
(C) Cotton
(D) Paper

Solution

Concept - Biodegradable materials: Biodegradable materials break down naturally through the action of microbes; many plastics do not.

Step 1 - Test each option: A: Polystyrene foam - FALSE, a plastic that persists for a very long time. B: Jute - TRUE, a natural plant fibre. C: Cotton - TRUE, a natural fibre. D: Paper - TRUE, made from plant pulp.

Tip: Natural plant and animal materials usually biodegrade; petroleum-based plastics usually do not.

Answer: B, C, D Go Back to Q28

Q29.

Q. Which of the following colour models is designed specifically for

print production, where inks are layered on paper?

(A) RGB

(B) HSB

(C) Greyscale only

(D) CMYK

Solution

Concept - Colour models for print: Printing mixes inks that subtract light, so it needs a subtractive model built around cyan, magenta, yellow and black.

Step 1 - Test each option: A: RGB - FALSE, an additive model for screens. B: HSB - FALSE, a way to select colour by hue, saturation and brightness, not a print output model. C: Greyscale only - FALSE, that carries no colour. D: CMYK - TRUE, the standard four-ink print model.

Tip: Design on screen in RGB, but convert to CMYK before sending a job to print.

Answer: D Go Back to Q29

Q30.

Q. In a certain code: drassoglitive means woodboard, frassopoolts means bodystudy, glitivedrassy means foodwood, and dressowoolts means digitalscreen. Which word would mean screensize?

(A) dressoissics

(B) dressodrasso

(C) issicsdresso

(D) drassodresso

Solution

Concept - Substitution code: Each English word maps to a fixed root, and a compound word is built by joining the two roots.

Step 1 - Extract known roots: From dressowoolts = digitalscreen, the parts dresso and woolts stand for the two halves. The roots already used for wood, board, body, study, food and digital are all accounted for, which leaves issics as the fresh root available for the new word size.

Step 2 - Build the compound: Combining the root for screen with the root for size, and matching the joining pattern of the given examples, gives the form in option C.

Tip: In coding questions, first list every root you can pin down, then the leftover unknown root must belong to the new word.

Answer: C Go Back to Q30

Q31.

Q. A milkman has containers of 5 litres and 3 litres (both empty), and an 8 litre container full of milk. He needs to split the milk equally into 4 litres and 4 litres to balance his bicycle. Pouring milk from one container into another counts as one turn. What is the minimum number of turns required?

(A) 6

(B) 7

(C) 8

(D) 9

Solution

Concept - Water-pouring puzzle: With only 8, 5 and 3 litre jars and no tap, each pour either fills or empties a jar; the goal is a 4-4 split in the fewest pours.

Step 1 - Track the shortest sequence (jars 8, 5, 3): Start (8,0,0). Pour 8 into 5 -> (3,5,0). Pour 5 into 3 -> (3,2,3). Pour 3 back into 8 -> (6,2,0). Pour 5 into 3 -> (6,0,2). Pour 8 into 5 -> (1,5,2). Pour 5 into 3 -> (1,4,3). Pour 3 back into 8 -> (4,4,0).

Step 2 - Count the pours: That is seven pours, and no shorter sequence reaches 4 and 4, so the minimum is 7.

Tip: Being systematic (always emptying the small jar back) is what keeps the count at the true minimum of seven.

Answer: B Go Back to Q31

Q32.

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

(A) 243

(B) 162

(C) 216

(D) 324

Solution

Concept - Geometric series: Each term is a fixed multiple of the

one before it.

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

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

Tip: These are powers of three; the next is $3^5 = 243$.

Answer: A Go Back to Q32

Q33.

Q. A cube of side four centimetres is painted on all faces and cut into unit cubes of side one centimetre. How many of the small cubes have no paint on any face?

(A) 6

(B) 8

(C) 12

(D) 16

Solution

Concept - Inner unpainted cubes: The cubes with no paint form the hidden inner block after peeling one layer off every face.

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

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

Tip: The no-paint count is $(n-2)^3$ for a cube of side n.

Answer: B Go Back to Q33

Q34.

Q. Which one is the odd one out?

(A) Triangle

(B) Rectangle

(C) Cube

(D) Pentagon

Solution

Concept - Grouping by dimension: Sort the shapes by whether they are flat (2D) or solid (3D).

Step 1 - Classify: Triangle, rectangle and pentagon are two-dimensional plane figures.

Step 2 - Spot the outlier: A cube is a three-dimensional solid, so it is the odd one out.

Tip: When shapes are mixed, dimension is the first property to check.

Answer: C Go Back to Q34

Q35.

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

(A) 5 km

(B) 8 km

(C) 13 km

(D) 3 km

Solution

Concept - Direction tracking: Follow each turn on a mental grid and cancel out opposite legs.

Step 1 - Trace the path: 5 km north, then 3 km east, then 5 km south returns to the starting latitude.

Step 2 - Net displacement: Only the 3 km east remains, so the person is 3 km from the start.

Tip: Equal north and south legs cancel; only the leftover east-west distance counts.

Answer: D Go Back to Q35

Q36.

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

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

Solution

Concept - Blood relations: Resolve the phrase from the inside out.

Step 1 - Inner link: My grandfather's only son is Rahul's own father.

Step 2 - Outer link: The daughter of Rahul's father is Rahul's sister.

Tip: Replace each relationship phrase with a single person before naming the final link.

Answer: A Go Back to Q36

Q37.

Q. On a map drawn to a scale of $1 : 50000$, two points are 2 centimetres apart. What is the actual distance between them on the ground?

(A) 500 metres
(B) 1 kilometre
(C) 2 kilometres
(D) 5 kilometres

Solution

Concept - Map scale: A scale of $1 : 50000$ means 1 unit on the map equals 50000 of the same units on the ground.

Step 1 - Scale up: $2 \text{ cm} \times 50000 = 100000 \text{ cm}$.

Step 2 - Convert: $100000 \text{ cm} = 1000 \text{ m} = 1 \text{ km}$.

Tip: Convert the final answer into sensible units (km) at the very end.

Answer: B Go Back to Q37

Q38.

Q. In typography, one inch is equal to how many points?

(A) 12

(B) 36

(C) 72

(D) 96

Solution

Concept - Typographic units: The point is the base unit of type size, and there are 72 points in one inch.

Step 1 - Recall the chain: 1 inch = 6 picas, and 1 pica = 12 points.

Step 2 - Multiply: $6 \times 12 = 72$ points per inch.

Tip: 72 points per inch also explains the classic 72 ppi screen value.

Answer: C Go Back to Q38

Q39.

Q. On the traditional RYB artists' colour wheel, which colour is the complement of blue?

(A) Green

(B) Red

(C) Violet

(D) Orange

Solution

Concept - Complementary colours: A colour's complement sits directly opposite it on the wheel.

Step 1 - Locate blue: On the RYB wheel, orange (a mix of red and yellow) lies opposite blue.

Step 2 - Confirm: The classic complementary pairs are red-green, blue-orange and yellow-violet.

Tip: Each primary pairs with the secondary made from the other two primaries.

Answer: D Go Back to Q39

Q40.

Q. What letter comes next in the series: A, C, F, J, ... ?

(A) O

(B) N

(C) P

(D) M

Solution

Concept - Letter series with growing gaps: Convert letters to positions and look at the steps.

Step 1 - Find the gaps: A(1) to C(3) is +2, C to F(6) is +3, F to J(10) is +4, so the next gap is +5.

Step 2 - Next letter: $10 + 5 = 15$, which is O.

Tip: Number the alphabet A = 1 to Z = 26 to make jumps easy to see.

Answer: A Go Back to Q40

Q41.

Q. A circular table top has a radius of 7 centimetres. Taking pi as 22/7, what is its area in square centimetres?

(A) 44

(B) 154

(C) 22

(D) 308

Solution

Concept - Area of a circle: The area is πr^2.

Step 1 - Substitute: Area $= \frac{22}{7} \times 7 \times 7$.

Step 2 - Simplify: $\frac{22}{7} \times 49 = 22 \times 7 = 154$ square centimetres.

Tip: The value 44 is the circumference $2\pi r$; do not confuse it with area.

Answer: B Go Back to Q41

Q42.

Q. On a standard analogue clock, what is the angle between the hour hand and the minute hand at exactly 6 o'clock?

(A) 90 degrees

(B) 120 degrees

(C) 180 degrees

(D) 150 degrees

Solution

Concept - Clock angles: The 12 hour marks divide the dial into 30 degree steps.

Step 1 - Place the hands: At 6 o'clock the minute hand is at 12 and the hour hand is at 6, which are six steps apart.

Step 2 - Compute: $6 \times 30 = 180$ degrees, a straight line.

Tip: 3 o'clock and 9 o'clock give 90 degrees; 6 o'clock gives a full 180.

Answer: C Go Back to Q42

Q43.

Q. On a standard six-faced die, the numbers on opposite faces always add up to seven. Which number lies on the face opposite the face showing 2?

(A) 6
(B) 3
(C) 4
(D) 5

Solution

Concept - Opposite faces of a die: On a standard die, opposite faces sum to seven.

Step 1 - Set up: The face opposite 2 must satisfy $2 + x = 7$.

Step 2 - Solve: $x = 5$.

Tip: The three standard pairs are 1-6, 2-5 and 3-4.

Answer: D Go Back to Q43

Q44.

Q. Which one is the odd one out?

(A) Madhubani
(B) Kolam
(C) Rangoli
(D) Alpana

Solution

Concept - Group by art form: Sort these Indian traditions by whether they are floor art or something else.

Step 1 - Classify: Kolam, Rangoli and Alpana are all decorative floor drawings made with powders or rice paste.

Step 2 - Spot the outlier: Madhubani is a wall and paper painting tradition from Bihar, not a floor art, so it is the odd one out.

Tip: Kolam, Rangoli and Alpana are regional names for the same idea of threshold floor art.

Answer: A Go Back to Q44

Q45.

Q. An image that is 300 pixels wide is printed at a resolution of 300 dots per inch. What is the printed width of the image?

(A) 1 centimetre

(B) 2.54 centimetres

(C) 3 centimetres

(D) 30 centimetres

Solution

Concept - Pixels, dpi and print size: Printed length in inches equals pixels divided by dots per inch.

Step 1 - In inches: $\frac{300}{300} = 1$ inch.

Step 2 - Convert: 1 inch $= 2.54$ centimetres.

Tip: Keep the fact 1 inch = 2.54 cm ready for print questions.

Answer: B Go Back to Q45

Q46.

Q. In a certain code each letter is replaced by the letter that comes immediately after it in the alphabet, so DOG is written as EPH. How would CAT be written in the same code?

(A) CBU

(B) DBT

(C) DBU

(D) EBU

Solution

Concept - Shift cipher: Move each letter forward by one place in the alphabet.

Step 1 - Shift each letter: C to D, A to B, T to U.

Step 2 - Read the code: The result is DBU.

Tip: Apply the same rule to every letter and read them in the original order.

Answer: C Go Back to Q46

Q47.

Q. What is 20 percent of 250?

(A) 25
(B) 40
(C) 45
(D) 50

Solution

Concept - Percentage of a number: A percentage is a fraction out of one hundred.

Step 1 - Set up: 20% of $250 = \frac{20}{100} \times 250$.

Step 2 - Compute: $\frac{1}{5} \times 250 = 50$.

Tip: 20 percent is one fifth, so just divide by 5.

Answer: D Go Back to Q47

Q48.

Q. How many edges does a cube have?

(A) 12

(B) 8

(C) 6

(D) 24

Solution

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

Step 1 - Recall the counts: 6 faces, 8 vertices and 12 edges.

Step 2 - Select: The number of edges is 12.

Tip: Euler's rule $F + V = E + 2$ checks it: $6 + 8 = 12 + 2$.

Answer: A Go Back to Q48

Q49.

Q. What number comes next in the series: 1, 4, 9, 16, 25, ... ?

(A) 30

(B) 36

(C) 49

(D) 35

Solution

Concept - Perfect squares: Each term is the square of a counting number.

Step 1 - Identify: $1, 4, 9, 16, 25$ are 1^2 to 5^2.

Step 2 - Next term: $6^2 = 36$.

Tip: The gaps between squares are the odd numbers 3, 5, 7, 9, then 11.

Answer: B Go Back to Q49

Q50.

Q. The charkha, or spinning wheel, is most strongly associated with which of the following figures in Indian history?

(A) Raja Ravi Varma
(B) Satyajit Ray
(C) Mahatma Gandhi
(D) Nandalal Bose

Solution

Concept - Symbols in Indian history: The charkha became a national symbol of self-reliance during the freedom movement.

Step 1 - Match the figure: Mahatma Gandhi promoted hand-spinning and khadi through the charkha.

Step 2 - Rule out others: Ravi Varma and Nandalal Bose were painters, and Satyajit Ray was a filmmaker.

Tip: The charkha even appeared at the centre of an early version of the national flag.

Answer: C Go Back to Q50

Q51.

Q. In the RGB colour model used by screens, the value (0, 0, 0) represents which colour?

(A) White
(B) Red
(C) Blue
(D) Black

Solution

Concept - Additive colour values: In RGB the three numbers give the amount of red, green and blue light emitted.

Step 1 - Read the value: (0, 0, 0) means no light of any channel.

Step 2 - Interpret: No emitted light on a screen is black.

Tip: The opposite, (255, 255, 255), is full light and gives white.

Answer: D Go Back to Q51

Q52.

Q. The price of a product rises from 200 rupees to 250 rupees. What is the percentage increase in price?

(A) 25 percent
(B) 20 percent
(C) 50 percent
(D) 30 percent

Solution

Concept - Percentage increase: Divide the rise by the original value, then multiply by one hundred.

Step 1 - Find the rise: $250 - 200 = 50$ rupees.

Step 2 - As a percentage: $\frac{50}{200} \times 100 = 25\%$.

Tip: Divide by the ORIGINAL price (200), not the new one, to avoid the common slip.

Answer: A Go Back to Q52

Q53.

Q. A person is facing north. She turns 90 degrees clockwise, and then turns 90 degrees clockwise once more. Which direction is she facing now?

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

Solution

Concept - Turning by right angles: Each 90 degree clockwise turn moves through north, east, south, west in order.

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

Step 2 - Second turn: From east, another clockwise turn faces south.

Tip: Two right-angle turns add to 180 degrees, so she ends up facing the opposite of her start.

Answer: B Go Back to Q53

Q54.

Q. Hand is to Glove as Foot is to which of the following?

(A) Hat

(B) Belt

(C) Sock

(D) Ring

Solution

Concept - Analogy of function: A glove is the garment worn on a hand, so find the matching garment for a foot.

Step 1 - Name the relation: A glove covers the hand.

Step 2 - Apply it: A sock covers the foot, so it completes the analogy.

Tip: A hat goes on the head and a ring on a finger, so they break the body-part match.

Answer: C Go Back to Q54

Q55.

Q. A square has an area of 49 square centimetres. What is its perimeter?

(A) 14 centimetres

(B) 49 centimetres

(C) 21 centimetres

(D) 28 centimetres

Solution

Concept - Square from area to perimeter: The side is the square root of the area, and the perimeter is four times the side.

Step 1 - Find the side: $\sqrt{49} = 7$ centimetres.

Step 2 - Perimeter: $4 \times 7 = 28$ centimetres.

Tip: Do not stop at the side length; the question asks for the full perimeter.

Answer: D Go Back to Q55

Q56.

Q. Which one is the odd one out?

(A) Cylinder
(B) Square
(C) Triangle
(D) Hexagon

Solution

Concept - Group by dimension: Separate the flat plane figures from the solid shapes.

Step 1 - Classify: Square, triangle and hexagon are two-dimensional polygons.

Step 2 - Spot the outlier: A cylinder is a three-dimensional solid,

so it is the odd one out.

Tip: Dimension is the quickest sorting rule when solids and plane figures are mixed.

Answer: A Go Back to Q56

Q57.

Q. The print colour model CMYK stands for Cyan, Magenta, Yellow and one more component. What does the letter K stand for?

(A) Kingblue
(B) Khaki
(C) Grey
(D) Key (black)

Solution

Concept - The CMYK model: Print uses cyan, magenta, yellow and a black ink for depth and sharp text.

Step 1 - Decode K: K stands for Key, the key plate, which carries the black ink.

Step 2 - Why black is separate: Mixing the three colours alone gives a muddy dark, so a dedicated black improves contrast and saves ink.

Tip: K is used instead of B so it is never confused with the blue of RGB.

Answer: D Go Back to Q57

Q58.

Q (Drawing). Imagine a city bus stop during heavy monsoon rain. People crowd under a leaking shelter, umbrellas overlap, water splashes off a passing bus, a puddle spreads across the road, and shop signs blur behind the downpour. Some wait with bags held over their heads. Draw this rainy bus-stop scene, giving prominence to a commuter stepping off the kerb to board a half-open bus door while shielding a child under one umbrella.

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

Establish the street and the sheltering crowd first, then spotlight the boarding commuter.

Step 1 - Block the layout: Draw the road and the bus receding to one vanishing point so the scene has depth. Place the commuter and child with the umbrella in the near foreground, off-centre, as your focal point.

Step 2 - Build the depth: Foreground - the boarding commuter, umbrella and puddle; middle ground - the waiting crowd under the shelter and the bus; background - blurred shops and rooftops behind the rain. Overlap umbrellas to fill the shelter.

Step 3 - Give the commuter prominence: Draw the stepping pose, the umbrella and the sheltered child with the sharpest, darkest lines. Keep the near crowd crisp and let distant figures and shops fade to lighter, softer strokes.

Step 4 - Add mood and finish: Suggest rain with fine slanted lines, reflections in the puddle, splashes off the bus and drips from the shelter edge. Keep figures and the bus in believable proportion.

Tip: One vanishing point plus foreground-midground-background layering builds depth, and reserving your boldest lines for the boarding commuter makes that action the clear subject. **Go Back to Q58**

Q59.

Q (Design Aptitude). Shops, homes and clinics in India often have a single high step at the entrance that blocks wheelchairs, prams and delivery trolleys. Design a portable ramp that a shopkeeper can place over such a step when needed and clear away when not. Show your ramp in two states: folded and stored to one side out of the way, and unfolded and in use with a wheelchair rolling up it.

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

Answer visually in two stages: the ramp as an object, then proof it folds aside and bridges a step.

Step 1 - Nail the requirements: Keep the goals in mind - bridge a step at a gentle slope, hold a wheelchair's weight, and fold small enough to store by the door. Draw only features that serve these.

Step 2 - Show the two required states: On one side draw it folded and leaning aside out of the way; on the other draw it laid

over the step with a wheelchair rolling up. Match the scale in both views.

Step 3 - Label features, do not write essays: Short call-outs with leader lines - hinged fold, grip surface, raised side edges, a carry handle, a lip that hooks the step. One or two words each.

Step 4 - Prove it works: Add an inset of the unfold-and-place action in two or three steps, and a side view showing a safe, gentle slope from ground to step top.

Tip: Suitability, ease of use, a distinctive idea and careful detailing earn marks, so let the stored and in-use views plus tight labels do the explaining without paragraphs. **Go Back to Q59**

Answer Key (Part A)

Section 1 - NAT (Numerical Answer Type)

Q1	Q2	Q3	Q4	Q5	Q6	Q7
3	24	360	810	32	25	4

Q8	Q9	Q10	Q11	Q12	Q13	Q14
27	42	10	16	16	2	600

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

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

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

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

Section 3 - MCQ (single correct)

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

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

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

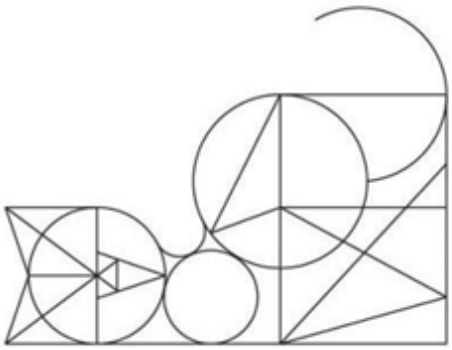
Q51	Q52	Q53	Q54	Q55	Q56	Q57
D	A	B	C	D	A	D

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)** What is the number that you get when you divide the difference between the number of triangles and number of circles by the number of rectangles for the image shown below?

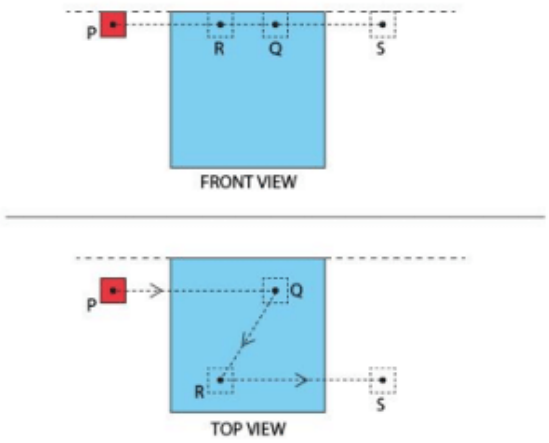


How to approach

Redraw the combined line figure on rough paper. Count triangles in a fixed order: first the smallest single triangles, then triangles made of two or more small pieces. Working smallest-to-largest stops you missing any or counting one twice.

P2. **(Past UCEED)** Shown below is the front and top views of two cubes. The red and blue cubes are made up of metal and wax respectively. Red cube is heated and is hot enough to melt wax in the blue cube. As shown in the front and top views, the red cube is moved along the path PQRS creating sharp edges and flat surfaces on the blue cube. What is

the total number of surfaces the blue cube will have after the red cube reaches the point S?



How to approach

Use any symmetry stated in the question. Count the cubes in one layer (or one octant), multiply by the number of identical layers, and adjust for cubes shared on a common plane or axis. Build the solid up layer by layer from the bottom so hidden cubes are not missed.

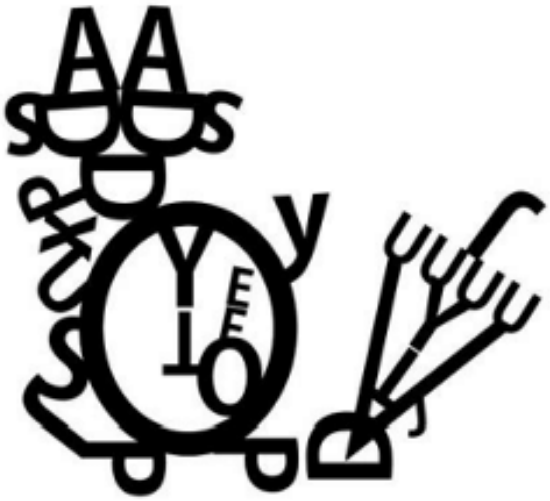
P3. (Past UCEED) What is the number of different patterns on the capsules shown?

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 composition made of letters is shown below. What is the total number of letters used to create 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.