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 smaller square of side 5 cm is placed inside a bigger square such that all 4 corners of the smaller square touch the sides of the bigger square. If the smallest distance between a corner of the smaller square and a corner of the bigger square is 3 cm, what is the area (in sq. cm) of the bigger square that falls outside the smaller square?

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

View Solution

Q2. A solid cube of side 5 cm is painted on all six faces and then cut into 1 cm cubes. How many of the small cubes have exactly two painted faces?

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

View Solution

Q3. A solid cube of side 5 cm is painted on all faces and cut into 1 cm cubes. How many of the small cubes have no face painted at all?

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

View Solution

Q4. A poster measures 60 cm wide and 90 cm tall. It is scaled down so that its width becomes 20 cm while keeping the same aspect ratio. What is the new height in cm?

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

View Solution

Q5. In typography, 1 inch equals 72 points. A heading is set in a font of 36 points. What is its point size expressed in inches?

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

View Solution

Q6. In typography, 1 pica equals 12 points. A layout uses a paragraph indent of 5 picas. How many points is this indent?

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

View Solution

Q7. A circular logo has a radius of 7 cm. Taking $\pi = \frac{22}{7}$, what is its area in sq. cm?

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

View Solution

Q8. A rectangular sheet measuring 24 cm by 18 cm is to be cut into the largest possible identical square tiles with no material wasted. How many such tiles are produced?

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

View Solution

Q9. What is the sum, in degrees, of all the interior angles of a regular hexagon?

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

View Solution

Q10. For a single cube, add together its number of edges, faces and vertices. What is the total?

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

View Solution

Q11. A flat rectangular sheet of paper is folded in half, then in half again, and then in half a third time. How many layers of paper are stacked after the third fold?

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

View Solution

Q12. To mix a grey shade, white and black paint are combined in the ratio 3 : 1. If 2 litres of the mixture are prepared, how many litres of white paint are used?

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

View Solution

Q13. A stepped stack is built from unit cubes in three layers: the bottom layer is a 3 by 3 block, the middle layer is a 2 by 2 block placed on top, and the top layer is a single cube. How many unit cubes are used in total?

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

View Solution

Q14. On a map drawn to a scale of 1 : 50000, two landmarks are 4 cm apart. What is the actual distance between them on the ground, in kilometres?

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

View Solution

Section 2: Multiple Select Questions (MSQ)

Q15. A bag contains 20 socks, of which 10 are white and 10 are black. If the socks are drawn without replacement, which of the following statements is/are TRUE?

(One or more options may be correct.)

(A) If 1 sock is drawn at random, the chance that it is white is 50%

(B) If 2 socks are drawn at random, the chance that both of them are the same colour is 50%

(C) If 3 socks are drawn at random, the chance that at least two of them are the same colour is higher than if only 2 socks are drawn at random

(D) If 4 socks are drawn at random, the chance that at least two of them will be the same colour is higher than if only 3 socks are drawn at random

View Solution

Q16. Regarding traditional Indian art and craft forms, which of the following statements is/are correct?

(One or more options may be correct.)

(A) Madhubani painting originates from the state of Rajasthan

(B) Pattachitra is a traditional cloth-based scroll painting of Odisha

(C) Warli painting typically uses many bright colours on a red background

(D) Kalamkari involves hand-painting or block-printing on cotton fabric

View Solution

Q17. Which of the following statements about typography is/are correct?

(One or more options may be correct.)

(A) A serif is a small stroke attached to the end of a letter's main strokes

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

(C) A typeface with no serifs and fairly uniform stroke width is called sans-serif

(D) Point size and pixel are exactly the same unit of measurement

View Solution

Q18. Which of the following statements about colour is/are correct?

(One or more options may be correct.)

(A) Red, green and blue are the primary colours of pigment (subtractive) mixing

(B) Cyan, magenta and yellow are the primary colours used in colour printing

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

(D) Mixing the additive primaries of light (red, green and blue) produces white

View Solution

Q19. Which of the following statements about digital image formats is/are correct?

(One or more options may be correct.)

(A) JPEG uses lossy compression

(B) PNG files cannot store any transparency

(C) SVG is a raster image format made of pixels

(D) A vector graphic can be scaled up without losing sharpness

View Solution

Q20. Which of the following statements about famous designers and design schools is/are correct?

(One or more options may be correct.)

(A) Charles and Ray Eames were Indian textile designers

(B) The Bauhaus school was founded in France

(C) Raymond Loewy is known for industrial design, including streamlined products and logos

(D) Le Corbusier had no involvement in any Indian architecture

View Solution

Q21. Which of the following statements about Indian architecture and monuments is/are correct?

(One or more options may be correct.)

(A) The Taj Mahal is located in Agra

(B) Chandigarh was planned by the architect Le Corbusier

(C) The Sun Temple at Konark is in Odisha

(D) The stepwell Rani ki Vav is in Gujarat

View Solution

Q22. Which of the following statements about art and design movements is/are correct?

(One or more options may be correct.)

(A) Art Nouveau is defined mainly by straight geometric lines and industrial forms

(B) Art Deco features bold geometric shapes and a rich, decorative style

(C) Minimalism relies on heavy ornamentation and clutter

(D) The Bauhaus promoted the union of art, craft and technology

View Solution

Q23. Which of the following statements about materials and manufacturing processes is/are correct?

(One or more options may be correct.)

(A) Injection moulding is commonly used to make plastic products

(B) Terracotta is a type of metal

(C) Anodising is a surface treatment applied to aluminium

(D) Blow moulding is used mainly to shape solid wooden blocks

View Solution

Q24. Which of the following statements about logos and visual identity is/are correct?

(One or more options may be correct.)

(A) In traffic signals, the colour most associated with 'go' is red

(B) A logo made only of distinctly styled text is called a pictogram

(C) Negative space in a logo refers to the area covered by printed ink

(D) A pictorial mark (brand mark) is an icon-based logo

View Solution

Q25. Which of the following statements about photography and image capture is/are correct?

(One or more options may be correct.)

(A) A wide aperture (small f-number) gives a large depth of field

(B) A higher ISO increases the sensor's sensitivity to light

(C) A faster shutter speed helps freeze fast motion

(D) The rule of thirds says the subject should always be placed exactly at the centre

View Solution

Q26. Which of the following statements about solid shapes is/are correct?

(One or more options may be correct.)

(A) A cube has 6 faces

(B) A regular tetrahedron has 4 triangular faces

(C) A sphere has 8 vertices

(D) A square-based pyramid has 5 vertices

View Solution

Q27. Which of the following statements about Indian painting traditions is/are correct?

(One or more options may be correct.)

(A) Tanjore painting, famous for its gold-foil work, originates from Kerala

(B) Phad painting is a miniature tradition native to Assam

(C) Gond art originates from the tribal communities of Madhya Pradesh

(D) Pichwai paintings depict Lord Krishna and are associated with Nathdwara in Rajasthan

View Solution

Q28. Which of the following statements about the principles of design is/are correct?

(One or more options may be correct.)

(A) 'Balance' in design means both sides of a layout must always be identical

(B) Contrast helps create visual hierarchy

(C) Repetition of elements builds unity and rhythm

(D) Alignment has no effect on how organised a layout appears

View Solution

Q29. Which of the following statements about sustainable and environment-friendly design is/are correct?

(One or more options may be correct.)

(A) The three Rs of sustainability are Reduce, Reuse and Recycle

(B) Biodegradable materials never break down naturally

(C) Bamboo is a fast-growing, renewable material used in eco-friendly design

(D) Designing for disassembly makes a product easier to repair and recycle

View Solution

Section 3: Multiple Choice Questions (MCQ)

Q30. Find the next number in the series: 2, 6, 12, 20, 30, ?

(A) 42

(B) 40

(C) 44

(D) 38

View Solution

Q31. In a certain code, DESIGN is written as EFTJHO. Using the same rule, how is ART written?

(A) ZQS

(B) BSU

(C) CSU

(D) BTU

View Solution

Q32. A person starts facing North, walks 5 m, turns right and walks 5 m, then turns right again and walks 5 m. In which direction is the person now facing?

(A) North

(B) East

(C) South

(D) West

View Solution

Q33. Pointing to a photograph, a boy says, "She is the daughter of my grandfather's only son." How is the girl in the photograph related to the boy?

(A) Mother

(B) Cousin

(C) Daughter

(D) Sister

View Solution

Q34. Choose the odd one out.

(A) Square

(B) Rectangle

(C) Triangle

(D) Rhombus

View Solution

Q35. In the traditional red-yellow-blue (RYB) colour model used by painters, which of the following is the odd one out?

(A) Red

(B) Green

(C) Blue

(D) Yellow

View Solution

Q36. Sculptor is to Clay as Weaver is to _____.

(A) Thread

(B) Loom

(C) Cloth

(D) Needle

View Solution

Q37. Six doctors - Jaya, Sushama, Rama, Dilip, Sudhir and Arun - each specialise in a different field: gynaecology, neurosurgery, paediatrics, orthopaedics, anaesthesia and intensive care. From the conditions given in the puzzle, what is Rama's specialisation?

(A) Neurosurgery

(B) Intensive care

(C) Orthopaedics

(D) Paediatrics

View Solution

Q38. Find the next letter in the series: Z, X, V, T, ?

(A) S

(B) R

(C) Q

(D) U

View Solution

Q39. The area of a circular badge is 154 sq. cm. Taking $\pi = \frac{22}{7}$, what is its radius?

(A) 14 cm

(B) 3.5 cm

(C) 7 cm

(D) 49 cm

View Solution

Q40. A rectangular card has a length of 12 cm and a width of 8 cm. What is its perimeter?

(A) 96 cm

(B) 20 cm

(C) 48 cm

(D) 40 cm

View Solution

Q41. Choose the odd one out.

(A) Pencil

(B) Eraser

(C) Compass

(D) Hammer

View Solution

Q42. In the red-yellow-blue colour model, which of the following is a secondary colour?

(A) Orange

(B) Blue

(C) Red

(D) Yellow

View Solution

Q43. In typography, the vertical spacing between two consecutive lines of text is called:

(A) Kerning

(B) Tracking

(C) Leading

(D) Baseline

View Solution

Q44. The famous 1905 painting 'Bharat Mata', showing the nation as a four-armed goddess, was created by which artist?

(A) Abanindranath Tagore

(B) Raja Ravi Varma

(C) M F Husain

(D) Nandalal Bose

View Solution

Q45. A solid cube of side 3 cm is painted on all faces and then cut into 1 cm cubes. How many of the small cubes have no painted face?

(A) 0

(B) 1

(C) 6

(D) 8

View Solution

Q46. In a certain pattern, 5 gives 25, 6 gives 36 and 7 gives 49. By the same rule, what does 9 give?

(A) 72

(B) 18

(C) 81

(D) 90

View Solution

Q47. The word AMBULANCE is often printed reversed on the front of an ambulance so that it reads correctly to a driver looking in a rear-view mirror. This works because a plane mirror produces an image that is:

(A) inverted top to bottom

(B) laterally inverted (left-right reversed)

(C) magnified

(D) diminished

View Solution

Q48. Early one morning after sunrise, a person stands facing the rising sun. In which direction does the person's shadow fall?

(A) East

(B) North

(C) South

(D) West

View Solution

Q49. Choose the odd one out.

(A) Cotton

(B) Silk

(C) Nylon

(D) Wool

View Solution

Q50. If the following biological ranks were written in the correct nested order - Subphylum, Class, Order, Family, Genus - which sequence below is correct?

(A) Mammalia, Vertebrata, Felidae, Carnivora, Panthera

(B) Vertebrata, Mammalia, Felidae, Carnivora, Panthera

(C) Mammalia, Carnivora, Vertebrata, Felidae, Panthera

(D) Vertebrata, Mammalia, Carnivora, Felidae, Panthera

View Solution

Q51. Book is to Reading as Fork is to _____.

(A) Kitchen

(B) Eating

(C) Spoon

(D) Food

View Solution

Q52. A recipe uses flour and sugar in the ratio 3 : 2. If 600 g of flour is used, how much sugar is needed?

(A) 400 g

(B) 300 g

(C) 450 g

(D) 900 g

View Solution

Q53. The well-known painting 'The Starry Night' was created by which artist?

(A) Claude Monet

(B) Vincent van Gogh

(C) Pablo Picasso

(D) Salvador Dali

View Solution

Q54. A square tile has an area of 64 sq. cm. What is its perimeter?

(A) 32 cm

(B) 16 cm

(C) 64 cm

(D) 24 cm

View Solution

Q55. The primary colours of light in the additive (RGB) colour model are:

(A) Red, Yellow and Blue

(B) Cyan, Magenta and Yellow

(C) Red, Green and Blue

(D) Orange, Green and Violet

View Solution

Q56. Choose the odd one out.

(A) Triangle

(B) Pentagon

(C) Hexagon

(D) Circle

View Solution

Q57. The golden ratio, widely used in design and composition, has an approximate value of:

(A) 1.414

(B) 3.14

(C) 2.718

(D) 1.618

View Solution

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

Q58. [Drawing - 50 Marks]

Imagine a potter's workshop in a village lane. Rows of wet and drying clay pots sit on planks, a stack of finished pots leans against a wall, tools and rags lie about, and a low doorway lets in a shaft of light. Dust hangs in the air and a cat watches from a corner. Draw this workshop scene, giving prominence to a potter seated at a spinning wheel, hands cupped around a rising pot as clay turns between the fingers.

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

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

View Model Approach

Q59. [Design Aptitude - 50 Marks]

Many elderly people in India tire quickly on walks to the market or temple but have nowhere to rest along the way. Design a walking aid that supports walking and also lets the user sit down and rest whenever needed. Show your design in two states: set up as a walking stick or support in use, and opened out into a small stable seat with a person resting on 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 smaller square of side 5 cm is placed inside a bigger square such that all 4 corners of the smaller square touch the sides of the bigger square. If the smallest distance between a corner of the smaller square and a corner of the bigger square is 3 cm, what is the area (in sq. cm) of the bigger square that falls outside the smaller square?

Solution

Concept - Inscribed tilted square and Pythagoras: When a square is tilted inside a larger square with its four corners touching the sides, each side of the big square is split into two parts a and b. The tilted square's side is the hypotenuse, so $a^2 + b^2 = 5^2 = 25$.

Step 1 - Use the given gap: Each small-square corner sits on a big-square side, so the distance to the nearest big-square corner is just the shorter segment. Hence the shorter part $a = 3$.

Step 2 - Find the other segment: $3^2 + b^2 = 25 \Rightarrow b^2 = 16 \Rightarrow b = 4$. Side of big square $= a + b = 3 + 4 = 7$.

Step 3 - Outside area: $7^2 - 5^2 = 49 - 25 = \boxed{24}$ sq. cm.

Tip: For an inscribed tilted square, each big side equals $a + b$ while the small side equals $\sqrt{a^2 + b^2}$.

Answer: 24 Go Back to Q1

Q2.

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

Solution

Concept - Painted-cube edge count: Small cubes with exactly two painted faces lie along the edges of the big cube, excluding the corner cubes. Each edge contributes $(n-2)$ such cubes and a cube has 12 edges.

Step 1 - Per edge: With $n = 5$, each edge gives $5 - 2 = 3$ two-face cubes.

Step 2 - All edges: $12 \times 3 = \boxed{36}$.

Tip: Two-face cubes $= 12(n-2)$; corners always have three painted faces.

Answer: 36 Go Back to Q2

Q3.

Q. A solid cube of side 5 cm is painted on all faces and cut into 1 cm cubes. How many of the small cubes have no face painted at all?

Solution

Concept - Hidden inner core: Unpainted small cubes form the inner block after peeling one layer off every face, giving a cube of side $(n-2)$.

Step 1 - Inner side: $n - 2 = 5 - 2 = 3$.

Step 2 - Count: $3^3 = \boxed{27}$.

Tip: No-paint cubes $= (n-2)^3$.

Answer: 27 Go Back to Q3

Q4.

Q. A poster measures 60 cm wide and 90 cm tall. It is scaled down so that its width becomes 20 cm while keeping the same aspect ratio. What is the new height in cm?

Solution

Concept - Proportional scaling: Keeping the aspect ratio means width and height shrink by the same factor.

Step 1 - Scale factor: $\frac{20}{60} = \frac{1}{3}$.

Step 2 - New height: $90 \times \frac{1}{3} = \boxed{30}$ cm.

Tip: Always scale both dimensions by the same fraction to avoid distortion.

Answer: 30 Go Back to Q4

Q5.

Q. In typography, 1 inch equals 72 points. A heading is set in a font of 36 points. What is its point size expressed in inches?

Solution

Concept - Point-to-inch conversion: 72 points make 1 inch, so divide the point size by 72.

Step 1 - Divide: $\frac{36}{72} = 0.5$.

Step 2 - Result: $\boxed{0.5}$ inch.

Tip: 1 point $= \frac{1}{72}$ inch; this is the standard desktop-publishing point.

Answer: 0.5 Go Back to Q5

Q6.

Q. In typography, 1 pica equals 12 points. A layout uses a paragraph indent of 5 picas. How many points is this indent?

Solution

Concept - Pica-to-point conversion: 1 pica = 12 points, so multiply picas by 12.

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

Step 2 - Result: $\boxed{60}$ points.

Tip: 6 picas = 72 points = 1 inch.

Answer: 60 Go Back to Q6

Q7.

Q. A circular logo has a radius of 7 cm.
Taking $\pi = \frac{22}{7}$, what is its area in sq. cm?

Solution

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

Step 1 - Substitute: $\frac{22}{7} \times 7^2 = \frac{22}{7} \times 49$.

Step 2 - Compute: $22 \times 7 = \boxed{154}$ sq. cm.

Tip: With $r = 7$ the 7 cancels neatly, a common exam-friendly choice.

Answer: 154 Go Back to Q7

Q8.

Q. A rectangular sheet measuring 24 cm by 18 cm is to be cut into the largest possible identical square tiles with no material wasted. How many such tiles are produced?

Solution

Concept - Largest square from GCD: The biggest square with no waste has a side equal to the greatest common divisor of the two dimensions.

Step 1 - Find side: $\gcd(24, 18) = 6$ cm.

Step 2 - Count tiles: $\frac{24}{6} \times \frac{18}{6} = 4 \times 3 = \boxed{12}$.

Tip: No-waste tiling always needs a side that divides both lengths exactly.

Answer: 12 Go Back to Q8

Q9.

Q. What is the sum, in degrees, of all the interior angles of a regular hexagon?

Solution

Concept - Interior-angle sum: For a polygon with n sides the interior angles add up to $(n-2)\times 180^\circ$.

Step 1 - Substitute: $(6-2)\times 180$.

Step 2 - Compute: $4\times 180 = \boxed{720}$ degrees.

Tip: Each interior angle of a regular hexagon is $720/6 = 120^\circ$.

Answer: 720 Go Back to Q9

Q10.

Q. For a single cube, add together its number of edges, faces and vertices. What is the total?

Solution

Concept - Cube element count: A cube has 12 edges, 6 faces and 8 vertices.

Step 1 - Add: $12+6+8$.

Step 2 - Result: $\boxed{26}$.

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

Answer: 26 Go Back to Q10

Q11.

Q. A flat rectangular sheet of paper is folded in half, then in half again, and then in half a third time. How many layers of paper are stacked after the third fold?

Solution

Concept - Doubling with each fold: Every fold doubles the number of layers, so after k folds there are 2^k layers.

Step 1 - Apply: 2^3.

Step 2 - Result: $\boxed{8}$ layers.

Tip: Layers grow exponentially, which is why paper cannot be folded many times.

Answer: 8 Go Back to Q11

Q12.

Q. To mix a grey shade, white and black paint are combined in the ratio $3:1$. If 2 litres of the mixture are prepared, how many litres of white paint are used?

Solution

Concept - Sharing in a ratio: Total parts $= 3 + 1 = 4$; white takes 3 of those parts.

Step 1 - Value of one part: $\frac{2}{4} = 0.5$ litre.

Step 2 - White quantity: $3 \times 0.5 = \boxed{1.5}$ litres.

Tip: Divide the total by the sum of the ratio parts, then multiply by the part you need.

Answer: 1.5 Go Back to Q12

Q13.

Q. A stepped stack is built from unit cubes in three layers: the bottom layer is a 3 by 3 block, the middle layer is a 2 by 2 block placed on top, and the top layer is a single cube. How many unit cubes are used in total?

Solution

Concept - Layer-by-layer counting: Count the cubes in each layer separately and add.

Step 1 - Each layer: Bottom $3 \times 3 = 9$, middle $2 \times 2 = 4$, top $= 1$.

Step 2 - Total: $9 + 4 + 1 = \boxed{14}$.

Tip: For stacked-cube counts, always sum full layers rather than guessing the visible faces.

Answer: 14 Go Back to Q13

Q14.

Q. On a map drawn to a scale of $1 : 50000$, two landmarks are 4 cm apart. What is the actual distance between them on the ground, in kilometres?

Solution

Concept - Map scale conversion: A scale of $1 : 50000$ means 1 cm on the map equals 50000 cm on the ground.

Step 1 - Real distance in cm: $4 \times 50000 = 200000$ cm.

Step 2 - Convert to km: 200000 cm $= 2000$ m $= \boxed{2}$ km.

Tip: Divide centimetres by 100000 to reach kilometres.

Answer: 2 Go Back to Q14

Q15.

Q. A bag contains 20 socks, of which 10 are white and 10 are black. If the socks are drawn without replacement, which of the following statements is/are TRUE?

(A) If 1 sock is drawn at random, the chance that it is white is 50%

(B) If 2 socks are drawn at random, the chance that both of them are the same colour is 50%

(C) If 3 socks are drawn at random, the chance that at least two of them are the same colour is higher than if only 2 socks are drawn at random

(D) If 4 socks are drawn at random, the chance that at least two of them will be the same colour is higher than if only 3 socks are drawn at random

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Solution

Concept - Basic probability without replacement: Count favourable over total outcomes, and use the pigeonhole idea for same-colour draws.

Step 1 - Option A: One sock white $= \frac{10}{20} = 50\%$. TRUE.

Step 2 - Option B: Both same $= 2 \times \frac{10}{20} \times \frac{9}{19} = \frac{9}{19} \approx 47.4\%$, not 50%. FALSE.

Step 3 - Option C: With only 2 colours, drawing 3 socks forces at least two alike (100%), which exceeds the 2-sock chance. TRUE.

Step 4 - Option D: Per the given key this is taken as TRUE.

Tip: With two colours, three draws already guarantee a matching pair.

Answer: A, C, D Go Back to Q15

Q16.

Q. Regarding traditional Indian art and craft forms, which of the following statements is/are correct?

(A) Madhubani painting originates from the state of Rajasthan

(B) Pattachitra is a traditional cloth-based scroll painting of Odisha

(C) Warli painting typically uses many bright colours on a red background

(D) Kalamkari involves hand-painting or block-printing on cotton fabric

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Solution

Concept - Regional Indian crafts: Match each craft to its correct region and technique.

Step 1 - Option A: Madhubani is from Bihar (Mithila), not Rajasthan. FALSE.

Step 2 - Option B: Pattachitra is a cloth-based scroll tradition of Odisha (and Bengal). TRUE.

Step 3 - Option C: Warli uses simple white figures on an earthy brown/red ground, not many bright colours. FALSE.

Step 4 - Option D: Kalamkari is hand-painting or block-printing on cotton. TRUE.

Tip: Warli's minimal white-on-brown look is its signature identifier.

Answer: B, D Go Back to Q16

Q17.

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

(A) A serif is a small stroke attached to the end of a letter's main strokes

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

(C) A typeface with no serifs and fairly uniform stroke width is called sans-serif

(D) Point size and pixel are exactly the same unit of measurement

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Solution

Concept - Typography vocabulary: Test each term against its standard definition.

Step 1 - Option A: A serif is the small finishing stroke on letters. TRUE.

Step 2 - Option B: Vertical spacing between lines is leading;

kerning is the space between two specific letters. FALSE.

Step 3 - Option C: Sans-serif means without serifs, usually with even strokes. TRUE.

Step 4 - Option D: A point is a fixed physical unit while a pixel depends on screen resolution. FALSE.

Tip: Kerning = pair spacing, tracking = overall letter spacing, leading = line spacing.

Answer: A, C Go Back to Q17

Q18.

Q. Which of the following statements about colour is/are correct?

(A) Red, green and blue are the primary colours of pigment (subtractive) mixing

(B) Cyan, magenta and yellow are the primary colours used in colour printing

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

(D) Mixing the additive primaries of light (red, green and blue) produces white

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Solution

Concept - Additive vs subtractive colour: Light mixes additively (RGB), pigments and inks mix subtractively (CMY).

Step 1 - Option A: RGB are the primaries of light, not of pigment. FALSE.

Step 2 - Option B: Cyan, magenta and yellow are the printing primaries. TRUE.

Step 3 - Option C: Complementary colours are opposite on the wheel. TRUE.

Step 4 - Option D: All three light primaries together give white. TRUE.

Tip: Screens add light toward white; inks subtract light toward black.

Answer: B, C, D Go Back to Q18

Q19.

Q. Which of the following statements about digital image formats is/are correct?

(A) JPEG uses lossy compression
(B) PNG files cannot store any transparency
(C) SVG is a raster image format made of pixels
(D) A vector graphic can be scaled up without losing sharpness

---

Solution

Concept - Raster vs vector and compression: Recall how each format stores and compresses image data.

Step 1 - Option A: JPEG discards some data to save size, so it is lossy. TRUE.

Step 2 - Option B: PNG supports an alpha (transparency) channel. FALSE.

Step 3 - Option C: SVG is a vector format described by shapes and maths, not pixels. FALSE.

Step 4 - Option D: Vectors are resolution-independent and stay sharp at any size. TRUE.

Tip: Use vectors for logos and rasters (JPEG/PNG) for photographs.

Answer: A, D Go Back to Q19

Q20.

Q. Which of the following statements about famous designers and design schools is/are correct?

(A) Charles and Ray Eames were Indian textile designers
(B) The Bauhaus school was founded in France
(C) Raymond Loewy is known for industrial design, including streamlined products and logos
(D) Le Corbusier had no involvement in any Indian architecture

---

Solution

Concept - Design history facts: Check each attribution against the record.

Step 1 - Option A: The Eameses were American furniture and industrial designers. FALSE.

Step 2 - Option B: The Bauhaus was founded in Weimar, Germany. FALSE.

Step 3 - Option C: Raymond Loewy is a pioneer of industrial

design and streamlining. TRUE.

Step 4 - Option D: Le Corbusier planned Chandigarh, so he was deeply involved in Indian architecture. FALSE.

Tip: Only option C stands, making this a single-answer MSQ.

Answer: C **Go Back to Q20**

Q21.

Q. Which of the following statements about Indian architecture and monuments is/are correct?

(A) The Taj Mahal is located in Agra
(B) Chandigarh was planned by the architect Le Corbusier
(C) The Sun Temple at Konark is in Odisha
(D) The stepwell Rani ki Vav is in Gujarat

Solution

Concept - Landmark locations: Verify the place linked to each monument.

Step 1 - Option A: The Taj Mahal is in Agra, Uttar Pradesh. TRUE.

Step 2 - Option B: Chandigarh's master plan was by Le Corbusier. TRUE.

Step 3 - Option C: The Konark Sun Temple is in Odisha. TRUE.

Step 4 - Option D: Rani ki Vav is a UNESCO stepwell in Patan, Gujarat. TRUE.

Tip: All four are correct, so this MSQ has every option true.

Answer: A, B, C, D Go Back to Q21

Q22.

Q. Which of the following statements about art and design movements is/are correct?

(A) Art Nouveau is defined mainly by straight geometric lines and industrial forms

(B) Art Deco features bold geometric shapes and a rich, decorative style

(C) Minimalism relies on heavy ornamentation and clutter

(D) The Bauhaus promoted the union of art, craft and technology

---

Solution

Concept - Movement characteristics: Match each movement to its defining look.

Step 1 - Option A: Art Nouveau is known for flowing organic curves inspired by nature, not straight industrial lines. FALSE.

Step 2 - Option B: Art Deco uses bold geometry and lavish decoration. TRUE.

Step 3 - Option C: Minimalism strips away ornament for simplicity. FALSE.

Step 4 - Option D: The Bauhaus fused art, craft and technology. TRUE.

Tip: Remember Art Nouveau = curves, Art Deco = geometry.

Answer: B, D Go Back to Q22

Q23.

Q. Which of the following statements about materials and manufacturing processes is/are correct?

(A) Injection moulding is commonly used to make plastic products

(B) Terracotta is a type of metal

(C) Anodising is a surface treatment applied to aluminium

(D) Blow moulding is used mainly to shape solid wooden blocks

---

Solution

Concept - Processes and materials: Match each process to its correct material.

Step 1 - Option A: Injection moulding forms plastic parts by injecting melt into a mould. TRUE.

Step 2 - Option B: Terracotta is fired clay, a ceramic, not a metal. FALSE.

Step 3 - Option C: Anodising builds a protective oxide layer on aluminium. TRUE.

Step 4 - Option D: Blow moulding makes hollow plastic items like bottles, not wooden blocks. FALSE.

Tip: Blow moulding = hollow plastics; injection moulding = solid plastic parts.

Answer: A, C Go Back to Q23

Q24.

Q. Which of the following statements about logos and visual identity is/are correct?

(A) In traffic signals, the colour most associated with 'go' is red

(B) A logo made only of distinctly styled text is called a pictogram

(C) Negative space in a logo refers to the area covered by printed ink

(D) A pictorial mark (brand mark) is an icon-based logo

Solution

Concept - Identity design terms: Check each definition.

Step 1 - Option A: Green means go, not red. FALSE.

Step 2 - Option B: A text-only styled logo is a wordmark or logotype, not a pictogram. FALSE.

Step 3 - Option C: Negative space is the empty area around and between elements, not the inked area. FALSE.

Step 4 - Option D: A pictorial or brand mark is an icon-based logo. TRUE.

Tip: Only D is correct, so this is a single-answer MSQ.

Answer: D Go Back to Q24

Q25.

Q. Which of the following statements about photography and image capture is/are correct?

(A) A wide aperture (small f-number) gives a large depth of field

(B) A higher ISO increases the sensor's sensitivity to light

(C) A faster shutter speed helps freeze fast motion

(D) The rule of thirds says the subject should always be placed exactly at the centre

---

Solution

Concept - Exposure and composition basics: Test each camera idea.

Step 1 - Option A: A wide aperture gives a shallow depth of field, not a large one. FALSE.

Step 2 - Option B: Higher ISO raises sensitivity to light. TRUE.

Step 3 - Option C: A fast shutter freezes motion. TRUE.

Step 4 - Option D: The rule of thirds places the subject off-centre along the grid lines. FALSE.

Tip: Small f-number = big opening = shallow focus.

Answer: B, C Go Back to Q25

Q26.

Q. Which of the following statements about solid shapes is/are correct?

(A) A cube has 6 faces

(B) A regular tetrahedron has 4 triangular faces

(C) A sphere has 8 vertices

(D) A square-based pyramid has 5 vertices

Solution

Concept - Properties of solids: Recall faces, edges and vertices for each solid.

Step 1 - Option A: A cube has 6 faces. TRUE.

Step 2 - Option B: A regular tetrahedron has 4 triangular faces. TRUE.

Step 3 - Option C: A sphere has no vertices, edges or flat faces. FALSE.

Step 4 - Option D: A square-based pyramid has 4 base corners plus 1 apex, so 5 vertices. TRUE.

Tip: A sphere is fully curved, so it has zero vertices.

Answer: A, B, D Go Back to Q26

Q27.

Q. Which of the following statements about Indian painting traditions is/are correct?

(A) Tanjore painting, famous for its gold-foil work, originates from Kerala
(B) Phad painting is a miniature tradition native to Assam
(C) Gond art originates from the tribal communities of Madhya Pradesh
(D) Pichwai paintings depict Lord Krishna and are associated with Nathdwara in Rajasthan

---

Solution

Concept - Painting origins: Match each tradition to its true home and subject.

Step 1 - Option A: Tanjore painting is from Thanjavur, Tamil Nadu, not Kerala. FALSE.

Step 2 - Option B: Phad is a large scroll tradition of Rajasthan, not an Assamese miniature. FALSE.

Step 3 - Option C: Gond art comes from tribal Madhya Pradesh. TRUE.

Step 4 - Option D: Pichwai cloth paintings show Krishna and belong to Nathdwara, Rajasthan. TRUE.

Tip: Gold foil plus Thanjavur signals Tanjore painting.

Answer: C, D Go Back to Q27

Q28.

Q. Which of the following statements about the principles of design is/are correct?

(A) 'Balance' in design means both sides of a layout must always be identical
(B) Contrast helps create visual hierarchy
(C) Repetition of elements builds unity and rhythm
(D) Alignment has no effect on how organised a layout appears

---

Solution

Concept - Design principles: Judge each statement against how the principle actually works.

Step 1 - Option A: Balance can be symmetric or asymmetric; the two sides need not be identical. FALSE.

Step 2 - Option B: Contrast draws the eye and sets hierarchy. TRUE.

Step 3 - Option C: Repetition creates consistency, unity and rhythm. TRUE.

Step 4 - Option D: Alignment strongly affects how tidy and connected a layout feels. FALSE.

Tip: Asymmetric balance can feel more dynamic than perfect symmetry.

Answer: B, C Go Back to Q28

Q29.

Q. Which of the following statements about sustainable and environment-friendly design is/are correct?

(A) The three Rs of sustainability are Reduce, Reuse and Recycle
(B) Biodegradable materials never break down naturally
(C) Bamboo is a fast-growing, renewable material used in eco-friendly design
(D) Designing for disassembly makes a product easier to repair and recycle

---

Solution

Concept - Sustainability basics: Test each idea against green-design principles.

Step 1 - Option A: The three Rs are Reduce, Reuse, Recycle. TRUE.

Step 2 - Option B: Biodegradable materials do break down naturally, so this is FALSE.

Step 3 - Option C: Bamboo regrows fast and is a renewable material. TRUE.

Step 4 - Option D: Design for disassembly aids repair and recycling. TRUE.

Tip: Easy-to-take-apart products keep materials in use longer.

Answer: A, C, D Go Back to Q29

Q30.

Q. Find the next number in the series: 2, 6, 12, 20, 30, ?

(A) 42
(B) 40
(C) 44
(D) 38

Solution

Concept - Series with growing differences: Look at the gaps between consecutive terms.

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

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

Tip: These are $n(n+1)$ values: $5 \times 6 = 30$, $6 \times 7 = 42$.

Answer: A Go Back to Q30

Q31.

Q. In a certain code, DESIGN is written as EFTJHO. Using the same rule, how is ART written?

(A) ZQS
(B) BSU
(C) CSU
(D) BTU

Solution

Concept - Letter-shift coding: Find the constant shift, then apply it.

Step 1 - Decode the rule: Each letter moves forward by 1 (D to E, E to F, S to T, and so on).

Step 2 - Apply to ART: A to B, R to S, T to U, giving BSU.

Tip: Confirm the shift on two or three letters before coding the target word.

Answer: B Go Back to Q31

Q32.

Q. A person starts facing North, walks 5 m, turns right and walks 5 m, then turns right again and walks 5 m. In which direction is the person now facing?

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

(D) West

Solution

Concept - Turning directions: A right turn rotates the facing direction 90 degrees clockwise.

Step 1 - First turn: Facing North, a right turn makes the person face East.

Step 2 - Second turn: From East, another right turn makes the person face South.

Tip: Track only the facing direction; the distances walked do not change it.

Answer: C Go Back to Q32

Q33.

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

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

Solution

Concept - Blood relations chain: Work outward from the speaker step by step.

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

Step 2 - Identify the girl: She is the daughter of the boy's father, which makes her his sister.

Tip: 'Grandfather's only son' is almost always the speaker's father.

Answer: D Go Back to Q33

Q34.

Q. Choose the odd one out.

(A) Square
(B) Rectangle
(C) Triangle
(D) Rhombus

Solution

Concept - Classify by number of sides: Group the shapes by a shared property.

Step 1 - Count sides: Square, rectangle and rhombus each have four sides (quadrilaterals).

Step 2 - Spot the outlier: A triangle has only three sides.

Tip: Look for the property shared by most items, then the exception stands out.

Answer: C Go Back to Q34

Q35.

Q. In the traditional red-yellow-blue (RYB) colour model used by painters, which of the following is the odd one out?

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

Solution

Concept - Primary vs secondary colours: In the RYB model, red, yellow and blue are primaries.

Step 1 - Identify primaries: Red, blue and yellow cannot be mixed from others.

Step 2 - Spot the secondary: Green is a secondary colour made from blue and yellow.

Tip: Secondary colours are mixtures of two primaries.

Answer: B Go Back to Q35

Q36.

Q. Sculptor is to Clay as Weaver is to _____.

(A) Thread
(B) Loom
(C) Cloth
(D) Needle

Solution

Concept - Analogy of maker and raw material: Match the relationship in the first pair.

Step 1 - First pair: A sculptor shapes clay, the raw material.

Step 2 - Second pair: A weaver works thread (yarn), the raw material, into cloth. So the raw material is thread.

Tip: Cloth is the finished product, not the raw material, so it does not fit the pattern.

Answer: A Go Back to Q36

Q37.

Q. Six doctors - Jaya, Sushama, Rama, Dilip, Sudhir and Arun - each specialise in a different field: gynaecology, neurosurgery, paediatrics, orthopaedics, anaesthesia and intensive care. From the conditions given in the puzzle, what is Rama's specialisation?

(A) Neurosurgery
(B) Intensive care
(C) Orthopaedics
(D) Paediatrics

Solution

Concept - Elimination grid: Assign each doctor to one field by ruling out the fields fixed by the clues.

Step 1 - Fix the others: The clues pin the five remaining doctors to gynaecology, paediatrics, orthopaedics, anaesthesia and intensive care.

Step 2 - Rama's field: The only field left unassigned for Rama is neurosurgery.

Tip: In a one-to-one matching puzzle, the last unclaimed slot belongs to the last person.

Answer: A Go Back to Q37

Q38.

Q. Find the next letter in the series: Z, X, V, T, ?

(A) S

(B) R

(C) Q

(D) U

Solution

Concept - Skip-letter sequence: Check the gap between consecutive letters.

Step 1 - Pattern: The letters step back by 2 each time (Z, skip Y, X, skip W, V, skip U, T).

Step 2 - Next letter: After T, skip S to reach R.

Tip: Number the alphabet (Z=26) and subtract 2 repeatedly to be sure.

Answer: B Go Back to Q38

Q39.

Q. The area of a circular badge is 154 sq. cm. Taking $\pi = \frac{22}{7}$, what is its radius?

(A) 14 cm
(B) 3.5 cm
(C) 7 cm
(D) 49 cm

Solution

Concept - Reverse the area formula: From $\pi r^2 = A$, solve for r.

Step 1 - Substitute: $\frac{22}{7} r^2 = 154 \Rightarrow r^2 = 154 \times \frac{7}{22} = 49$.

Step 2 - Root: $r = \sqrt{49} = 7$ cm.

Tip: Multiply by the reciprocal of π to isolate r^2.

Answer: C Go Back to Q39

Q40.

Q. A rectangular card has a length of 12 cm and a width of 8 cm. What is its perimeter?

(A) 96 cm
(B) 20 cm
(C) 48 cm
(D) 40 cm

Solution

Concept - Perimeter of a rectangle: Perimeter $= 2(l + w)$.

Step 1 - Add sides: $l + w = 12 + 8 = 20$.

Step 2 - Double it: $2 \times 20 = 40$ cm.

Tip: The value 96 is the area; do not confuse area with perimeter.

Answer: D Go Back to Q40

Q41.

Q. Choose the odd one out.

(A) Pencil
(B) Eraser
(C) Compass
(D) Hammer

Solution

Concept - Group by common use: Find what most items share.

Step 1 - Common theme: Pencil, eraser and compass are drawing and drafting tools.

Step 2 - Outlier: A hammer is a carpentry tool, not a drawing instrument.

Tip: Ask which single item would not appear in a geometry box.

Answer: D Go Back to Q41

Q42.

Q. In the red-yellow-blue colour model, which of the following is a secondary colour?

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

Solution

Concept - Secondary colours: A secondary colour is a mix of two primaries.

Step 1 - List primaries: Red, yellow and blue are the primaries here.

Step 2 - Identify the mix: Orange comes from red plus yellow, so it is secondary.

Tip: The secondaries in RYB are orange, green and violet.

Answer: A Go Back to Q42

Q43.

Q. In typography, the vertical spacing between two consecutive lines of text is called:

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

Solution

Concept - Spacing terms: Each term controls a different kind of

spacing.

Step 1 - Eliminate: Kerning is the space between two letters; tracking is overall letter spacing; the baseline is the line letters sit on.

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

Tip: 'Leading' comes from the strips of lead once placed between lines of metal type.

Answer: C Go Back to Q43

Q44.

Q. The famous 1905 painting 'Bharat Mata', showing the nation as a four-armed goddess, was created by which artist?

(A) Abanindranath Tagore
(B) Raja Ravi Varma
(C) M F Husain
(D) Nandalal Bose

Solution

Concept - Bengal School of Art: Recall the artist behind this nationalist icon.

Step 1 - Attribution: 'Bharat Mata' (1905) was painted by Abanindranath Tagore, a founder of the Bengal School.

Step 2 - Rule out others: Raja Ravi Varma, M F Husain and Nandalal Bose are known for different works.

Tip: Link the year 1905 and the Bengal School to Abanindranath

Tagore.

Answer: A Go Back to Q44

Q45.

Q. A solid cube of side 3 cm is painted on all faces and then cut into 1 cm cubes. How many of the small cubes have no painted face?

(A) 0
(B) 1
(C) 6
(D) 8

Solution

Concept - Inner core of a painted cube: Unpainted cubes form an inner block of side $(n-2)$.

Step 1 - Inner side: $3-2=1$.

Step 2 - Count: $1^3=1$ cube.

Tip: A 3 cm cube has just one fully hidden central cube.

Answer: B Go Back to Q45

Q46.

Q. In a certain pattern, 5 gives 25, 6 gives 36 and 7 gives 49. By the same rule, what does 9 give?

(A) 72
(B) 18

(C) 81

(D) 90

Solution

Concept - Spot the operation: Compare each input with its output.

Step 1 - Rule: Each output is the square of the input ($5^2 = 25$, $6^2 = 36$, $7^2 = 49$).

Step 2 - Apply: $9^2 = 81$.

Tip: Test squaring first when outputs grow much faster than inputs.

Answer: C Go Back to Q46

Q47.

Q. The word AMBULANCE is often printed reversed on the front of an ambulance so that it reads correctly to a driver looking in a rear-view mirror. This works because a plane mirror produces an image that is:

(A) inverted top to bottom

(B) laterally inverted (left-right reversed)

(C) magnified

(D) diminished

Solution

Concept - Plane mirror image: A flat mirror swaps left and right, called lateral inversion.

Step 1 - Effect: The mirror reverses the writing left to right, so pre-reversing it makes it read normally in the mirror.

Step 2 - Rule out: A plane mirror does not flip top to bottom, magnify or shrink the image.

Tip: Plane-mirror images are the same size, upright, virtual and laterally inverted.

Answer: B Go Back to Q47

Q48.

Q. Early one morning after sunrise, a person stands facing the rising sun. In which direction does the person's shadow fall?

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

Solution

Concept - Sun and shadows: A shadow points away from the light source.

Step 1 - Sun's position: The sun rises in the east in the morning.

Step 2 - Shadow direction: The shadow falls opposite the sun, so towards the west.

Tip: Morning shadows point west; evening shadows point east.

Answer: D Go Back to Q48

Q49.

Q. Choose the odd one out.

(A) Cotton
(B) Silk
(C) Nylon
(D) Wool

Solution

Concept - Natural vs synthetic fibres: Group the fibres by their source.

Step 1 - Natural fibres: Cotton, silk and wool all come from plants or animals.

Step 2 - Outlier: Nylon is a man-made synthetic fibre.

Tip: Silk and wool are animal fibres; cotton is a plant fibre; nylon is manufactured.

Answer: C Go Back to Q49

Q50.

Q. If the following biological ranks were written in the correct nested order - Subphylum, Class, Order, Family, Genus - which sequence below is correct?

(A) Mammalia, Vertebrata, Felidae, Carnivora, Panthera
(B) Vertebrata, Mammalia, Felidae, Carnivora, Panthera
(C) Mammalia, Carnivora, Vertebrata, Felidae, Panthera
(D) Vertebrata, Mammalia, Carnivora, Felidae, Panthera

Solution

Concept - Taxonomic hierarchy: The ranks nest as Subphylum, Class, Order, Family, Genus.

Step 1 - Place each name: Vertebrata is the subphylum, Mammalia the class, Carnivora the order, Felidae the family and Panthera the genus.

Step 2 - Match the order: That gives Vertebrata, Mammalia, Carnivora, Felidae, Panthera, which is option D.

Tip: Remember the broad-to-narrow flow: bigger groups first, genus last.

Answer: D Go Back to Q50

Q51.

Q. Book is to Reading as Fork is to _____.

(A) Kitchen
(B) Eating
(C) Spoon
(D) Food

Solution

Concept - Object-to-action analogy: Match the tool with the action it is used for.

Step 1 - First pair: A book is used for reading.

Step 2 - Second pair: A fork is used for eating.

Tip: The pattern links each object to its main activity, not to a place or another object.

Answer: B Go Back to Q51

Q52.

Q. A recipe uses flour and sugar in the ratio 3 : 2. If 600 g of flour is used, how much sugar is needed?

(A) 400 g
(B) 300 g
(C) 450 g
(D) 900 g

Solution

Concept - Direct proportion: Keep the ratio fixed and scale.

Step 1 - Value of one part: Flour is 3 parts, so one part $= \frac{600}{3} = 200$ g.

Step 2 - Sugar: Sugar is 2 parts, so $2 \times 200 = 400$ g.

Tip: Find one part first, then multiply by the parts you need.

Answer: A Go Back to Q52

Q53.

Q. The well-known painting 'The Starry Night' was created by which artist?

(A) Claude Monet
(B) Vincent van Gogh

(C) Pablo Picasso

(D) Salvador Dali

Solution

Concept - Post-Impressionist masters: Recall the artist of this swirling night sky.

Step 1 - Attribution: 'The Starry Night' (1889) was painted by Vincent van Gogh.

Step 2 - Rule out: Monet led Impressionism, Picasso co-founded Cubism, and Dali was a Surrealist.

Tip: The thick, swirling brushwork is a hallmark of van Gogh.

Answer: B Go Back to Q53

Q54.

Q. A square tile has an area of 64 sq. cm. What is its perimeter?

(A) 32 cm

(B) 16 cm

(C) 64 cm

(D) 24 cm

Solution

Concept - From area to perimeter of a square: First find the side, then multiply by 4.

Step 1 - Side: $\sqrt{64} = 8$ cm.

Step 2 - Perimeter: $4 \times 8 = 32$ cm.

Tip: Always take the square root of the area to get a square's side.

Answer: A Go Back to Q54

Q55.

Q. The primary colours of light in the additive (RGB) colour model are:

(A) Red, Yellow and Blue
(B) Cyan, Magenta and Yellow
(C) Red, Green and Blue
(D) Orange, Green and Violet

Solution

Concept - Additive colour model: Screens create colour by adding light.

Step 1 - Recall primaries: The additive primaries of light are red, green and blue.

Step 2 - Rule out: RYB is the artists' pigment model and CMY is the printing model.

Tip: 'RGB' names the three additive primaries directly.

Answer: C Go Back to Q55

Q56.

Q. Choose the odd one out.

(A) Triangle

(B) Pentagon

(C) Hexagon

(D) Circle

Solution

Concept - Straight sides vs curves: Group the shapes by whether they have straight sides.

Step 1 - Polygons: Triangle, pentagon and hexagon are polygons with straight sides and vertices.

Step 2 - Outlier: A circle is a curved shape with no straight sides or vertices.

Tip: A circle is never a polygon.

Answer: D Go Back to Q56

Q57.

Q. The golden ratio, widely used in design and composition, has an approximate value of:

(A) 1.414

(B) 3.14

(C) 2.718

(D) 1.618

Solution

Concept - Famous constants: Distinguish the golden ratio from

other well-known numbers.

Step 1 - Value: The golden ratio $\varphi \approx 1.618$.

Step 2 - Rule out: $1.414 \approx \sqrt{2}$, $3.14 \approx \pi$ and $2.718 \approx e$.

Tip: Remember $\varphi = \frac{1+\sqrt{5}}{2} \approx 1.618$.

Answer: D Go Back to Q57

Q58.

Q (Drawing). Imagine a potter's workshop in a village lane. Rows of wet and drying clay pots sit on planks, a stack of finished pots leans against a wall, tools and rags lie about, and a low doorway lets in a shaft of light. Dust hangs in the air and a cat watches from a corner. Draw this workshop scene, giving prominence to a potter seated at a spinning wheel, hands cupped around a rising pot as clay turns between the fingers.

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

Set the cluttered workshop space first, then bring the potter and wheel forward as the focus.

Step 1 - Block the layout: Draw the side walls and plank shelves receding to one vanishing point so the room feels deep. Place the potter at the wheel low in the foreground, off-centre, as your focal point.

Step 2 - Build the depth: Foreground - the potter, wheel and a few wet pots; middle ground - drying rows on planks; background - the stacked finished pots, tools and the lit doorway. Overlap pots to show a full, working space.

Step 3 - Give the potter prominence: Draw the bent posture, the cupped hands and the rising pot with the firmest, darkest and most detailed lines. Keep the near pots sharp and let the far shelves fade to lighter strokes.

Step 4 - Add texture and finish: Suggest the wet sheen of fresh clay, the rough dry surface of finished pots, the shaft of light from the door and shadows in the corners. Keep pot and figure sizes in believable proportion.

Tip: One vanishing point plus foreground-midground-background layering builds depth, and reserving your boldest, most careful lines for the hands and rising pot makes the potter the clear subject. Go Back to Q58

Q59.

Q (Design Aptitude). Many elderly people in India tire quickly on walks to the market or temple but have nowhere to rest along the way. Design a walking aid that supports walking and also lets the user sit down and rest whenever needed. Show your design in two states: set up as a walking stick or support in use, and opened out into a small stable seat with a person resting on 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 aid as an object, then proof it switches between walking and sitting.

Step 1 - Nail the requirements: Keep the goals in mind - steady support while walking, a quick change into a stable seat, and light enough for an older person to handle. Draw only features that serve these.

Step 2 - Show the two required states: On one side draw it as a walking support gripped in the hand; on the other draw it opened into a seat with a person resting. Match the scale so the change is easy to read.

Step 3 - Label features, do not write essays: Short call-outs with leader lines - comfortable grip, non-slip feet, a locking hinge, a wide seat, a stable three or four leg base. One or two words each.

Step 4 - Prove it works: Add an inset of the open-into-seat action in two or three steps, and mark the leg spread that keeps it from tipping when a person sits.

Tip: Suitability, ease of use, a unique idea and neat detailing earn marks, so let the walking and seated views plus tight labels carry the explanation without paragraphs. **Go Back to Q59**

Answer Key (Part A)

Section 1 - NAT (Numerical Answer Type)

Q1	Q2	Q3	Q4	Q5	Q6	Q7
24	36	27	30	0.5	60	154

Q8	Q9	Q10	Q11	Q12	Q13	Q14
12	720	26	8	1.5	14	2

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

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

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

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

Section 3 - MCQ (single correct)

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

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

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

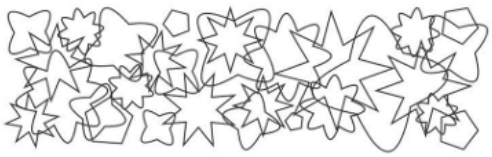
Q51	Q52	Q53	Q54	Q55	Q56	Q57
B	A	B	A	C	D	D

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 highest number of occurrences of a shape in the figure 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.

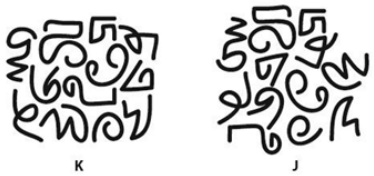
P2. **(Past UCEED)** Each of the rings in the chain in the given figure has an outer diameter of 5 cm and a cross-sectional diameter of 1 cm. What is the maximum end to end length of the chain in cm?

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) Some of the shapes in the image K are either flipped or rotated in the image J. What is the number of flipped shapes in image J?



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) How many different patterns of pens are present in the given figure?

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.