

UCEED Sample Paper

Duration: 180 Minutes

Maximum Marks: 300

Instructions

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

Section 1: Numerical Answer Type (NAT)

Q1. A wooden cube of side 4 cm is painted on all six faces and then cut into 1 cm cubes. How many of the small cubes have exactly two painted faces?

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

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Q2. A logo that is 6 cm wide and 4 cm tall is enlarged so that its new width becomes 15 cm. If the shape is scaled uniformly, what is its new height in centimetres?

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

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Q3. In typography, 1 inch equals 72 points. Using a font of size 24 points with no extra line spacing (no leading), how many full lines of text fit into a text column that is 4 inches tall?

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

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Q4. A rectangular packaging box measures 20 cm $\times$ 15 cm $\times$ 10 cm. What is its total surface area in square centimetres?

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

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Q5. Consider the geometric series 3, 6, 12, 24, ... where each term is double the previous one. What is the 7th term of this series?

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

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Q6. A wheel of diameter 70 cm rolls along a straight path. Taking $\pi = \frac{22}{7}$, how many complete rotations does it make while covering a distance of 220 metres?

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

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Q7. In a 24-bit RGB colour system, each of the red, green and blue channels uses 8 bits. How many distinct colours can this system represent? (Give the exact whole number.)

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

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Q8. A rectangular floor measuring 6 m by 4 m is to be fully covered with square tiles of side 20 cm. How many tiles are required?

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

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Q9. In a straight row of students, a girl is 7th from the left end and 12th from the right end. How many students are in the row?

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

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Q10. On an analogue clock, what is the angle in degrees between the hour hand and the minute hand at exactly 4:20?

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

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Q11. A design service is listed at Rs 2000. The studio gives a 15% discount, and then 18% GST is added on the discounted price. What is the final amount in rupees?

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

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Q12. A screen has a resolution of 1920×1080 pixels. When its aspect ratio is written in simplest whole-number form as $a : b$, what is the value of $a + b$?

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

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Q13. A cube of side 5 cm is painted on all faces and then cut into 1 cm cubes. How many of the small cubes have no painted face at all?

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

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Q14. A designer mixes red and white paint in the ratio 3 : 5 to make 4 litres of a shade. How many millilitres of red paint are used?

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

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Section 2: Multiple Select Questions (MSQ)

Q15. The Green Revolution has arguably been the most striking technological triumph of the 20th century in food production and land yields. Yet, there are serious concerns about its ill-effects on the environment. Which of the following concerns is/are TRUE?

(One or more options may be correct.)

- (A) The disruption of the Nitrogen cycle by the massive use of chemical fertilizers is unsustainable for the environment.
- (B) The Green Revolution has unequivocally been the most striking technological triumph of the 20th century in the realm of food production.



- (C) Large monocultures of crops brought about by the Green Revolution are susceptible to sudden destruction by pests and disease.
- (D) Increasing the supply of food through the Green Revolution would encourage unlimited population growth, leading to worldwide famine.

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Q16. The additive (RGB) colour model is used for light-emitting displays. Which of the following statements about it is/are TRUE?

(One or more options may be correct.)

- (A) Cyan, magenta and yellow are the additive primary colours.
- (B) Red and green light combine to produce yellow.
- (C) Mixing red, green and blue light in full strength produces black.
- (D) The additive primary colours are red, green and blue.

[View Solution](#)

Q17. Consider the following statements about the Taj Mahal. Which is/are TRUE?

(One or more options may be correct.)

- (A) The Taj Mahal is built mainly of red sandstone.
- (B) It was commissioned by the Mughal emperor Shah Jahan.
- (C) It stands on the bank of the Yamuna river in Agra.
- (D) It is a classic example of Dravidian gopuram architecture.

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Q18. Which of the following statements about the Bauhaus school and modernist design is/are TRUE?

(One or more options may be correct.)

- (A) The Bauhaus school was founded by Walter Gropius.
- (B) The Bauhaus originated in Germany.
- (C) The Bauhaus is best known for ornate Victorian decoration.
- (D) The idea that "form follows function" is associated with modernist design.

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Q19. Which of the following statements about typography is/are TRUE?

(One or more options may be correct.)

- (A) Kerning refers to the vertical space between lines of text.
- (B) Helvetica is a sans-serif typeface.
- (C) A serif is a small stroke at the end of a letter's main strokes.
- (D) Leading is the horizontal space adjusted between two adjacent letters.

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Q20. Which of the following statements about digital image file formats is/are TRUE?

(One or more options may be correct.)

- (A) JPEG uses lossy compression.
- (B) PNG supports transparency.
- (C) SVG is a raster (pixel-based) format.
- (D) A vector graphic loses quality when it is scaled up.



[View Solution](#)

Q21. Which of the following statements about Indian arts and crafts is/are TRUE?

(One or more options may be correct.)

- (A) Madhubani painting originates from the Mithila region of Bihar.
- (B) Warli art is associated with Maharashtra.
- (C) Pashmina shawls are traditionally made in Kerala.
- (D) Bidriware is a metal handicraft from Bidar, Karnataka.

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Q22. Which of the following statements about colour theory is/are TRUE?

(One or more options may be correct.)

- (A) Black and white are classified as warm hues.
- (B) Orange is a secondary colour obtained by mixing red and yellow.
- (C) Complementary colours sit opposite each other on the colour wheel.
- (D) Blue is usually described as a cool colour.

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Q23. Which of the following statements about art movements is/are TRUE?

(One or more options may be correct.)

- (A) Art Nouveau is known only for rigid, straight geometric grids.
- (B) Cubism was pioneered by Pablo Picasso and Georges Braque.
- (C) The Impressionist movement began in Italy.



- (D) Pop Art completely rejected all imagery drawn from popular culture.

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Q24. Which of the following statements about materials and manufacturing processes is/are TRUE?

(One or more options may be correct.)

- (A) Tempering makes glass weaker and more fragile.
- (B) Injection moulding is widely used to make plastic parts.
- (C) Terracotta is a form of fired clay.
- (D) Anodising is a chemical used to soften rubber.

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Q25. Which of the following statements about ergonomics and human factors is/are TRUE?

(One or more options may be correct.)

- (A) Ergonomics deals only with the colour of a product.
- (B) Anthropometry is the study of human body measurements.
- (C) Ergonomics studies how well a product fits and suits the human body.
- (D) The riser height of a stair step affects climbing comfort.

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Q26. Which of the following statements about the environment is/are TRUE?

(One or more options may be correct.)

- (A) Renewable energy sources are permanently used up after one use.



- (B) CFCs contribute to depletion of the ozone layer.
- (C) Recycling lowers the demand for fresh raw materials.
- (D) Carbon dioxide is a greenhouse gas.

[View Solution](#)

Q27. Which of the following statements about famous artists is/are TRUE?

(One or more options may be correct.)

- (A) Auguste Rodin painted the Mona Lisa.
- (B) Raja Ravi Varma was a celebrated Indian painter.
- (C) Leonardo da Vinci created the painting known as the Mona Lisa.
- (D) M.F. Husain was a well-known Indian modern painter.

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Q28. Which of the following statements about three-dimensional solids is/are TRUE?

(One or more options may be correct.)

- (A) A sphere has exactly one flat circular face.
- (B) A cube has 6 faces, 12 edges and 8 vertices.
- (C) A regular tetrahedron has four triangular faces.
- (D) A cylinder has two circular flat faces.

[View Solution](#)

Q29. Which of the following statements about visual and digital design is/are TRUE?

(One or more options may be correct.)



- (A) The RGB colour model is used for digital screens.
- (B) The CMYK colour model is used for print.
- (C) A logo should ideally remain legible even at small sizes.
- (D) Grids help organise content in layout design.

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Section 3: Multiple Choice Questions (MCQ)

Q30. What is the next term in the series 2, 5, 10, 17, 26, ...?

- (A) 37
- (B) 36
- (C) 35
- (D) 27

[View Solution](#)

Q31. What is the next term in the series 1, 4, 9, 16, 25, ...?

- (A) 49
- (B) 30
- (C) 36
- (D) 35

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Q32. If each letter is given its position value in the alphabet ($A = 1, B = 2, \dots, Z = 26$), what is the sum of the letter values of the word "ART"?

- (A) 38
- (B) 39



(C) 40

(D) 37

[View Solution](#)

Q33. A person walks 5 km towards North, then turns right and walks 3 km, then turns right again and walks 5 km. How far and in which direction is the person now from the starting point?

(A) 5 km North

(B) 8 km East

(C) 3 km West

(D) 3 km East

[View Solution](#)

Q34. Pointing to a boy, Ravi said, "He is the son of my father's only other son." How is the boy related to Ravi?

(A) Son

(B) Nephew

(C) Brother

(D) Cousin

[View Solution](#)

Q35. A cube of side 3 cm is painted on all six faces and then cut into 1 cm cubes. How many small cubes have exactly one painted face?

(A) 6

(B) 8

(C) 12



(D) 1

[View Solution](#)

Q36. Taking $\pi = \frac{22}{7}$, what is the area of a circle of radius 7 cm (in square centimetres)?

(A) 44

(B) 22

(C) 77

(D) 154

[View Solution](#)

Q37. Which unit is used to measure the size of a font in typography?

(A) Pixels per inch

(B) Kerning

(C) Point

(D) DPI

[View Solution](#)

Q38. On the traditional (RYB) artists' colour wheel, which colour is the complementary of red?

(A) Green

(B) Blue

(C) Orange

(D) Yellow

[View Solution](#)



Q39. Which architect is best known for planning the city of Chandigarh?

- (A) Charles Correa
- (B) Le Corbusier
- (C) B.V. Doshi
- (D) Laurie Baker

[View Solution](#)

Q40. Which file format is best suited for a logo that must be scaled to any size without any loss of quality?

- (A) JPEG
- (B) PNG
- (C) SVG
- (D) BMP

[View Solution](#)

Q41. "Glove is to Hand" as "_____ is to Foot". Which word best completes the analogy?

- (A) Leg
- (B) Toe
- (C) Hand
- (D) Shoe

[View Solution](#)

Q42. A rectangle has its sides in the ratio 3 : 2 and a perimeter of 40 cm. What is the length of its longer side (in cm)?

- (A) 8



- (B) 16
- (C) 6
- (D) 12

[View Solution](#)

Q43. What is the next term in the letter series $A, C, E, G, \dots$?

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

[View Solution](#)

Q44. The famous painting "Mona Lisa" was created by which artist?

- (A) Michelangelo
- (B) Leonardo da Vinci
- (C) Raphael
- (D) Pablo Picasso

[View Solution](#)

Q45. The traditional craft of "Blue Pottery" in India is most famously associated with which city?

- (A) Lucknow
- (B) Mysore
- (C) Jaipur
- (D) Kolkata



[View Solution](#)

Q46. What is the volume of a cube whose side is 5 cm (in cubic centimetres)?

- (A) 25
- (B) 100
- (C) 125
- (D) 150

[View Solution](#)

Q47. Which colour model is standardly used for full-colour printing?

- (A) RGB
- (B) HSV
- (C) RYB
- (D) CMYK

[View Solution](#)

Q48. If today is Monday, what day of the week will it be after 61 days?

- (A) Saturday
- (B) Sunday
- (C) Friday
- (D) Monday

[View Solution](#)

Q49. Which of the following is the odd one out?

- (A) Triangle
- (B) Cube



- (C) Square
- (D) Pentagon

[View Solution](#)

Q50. In the principles of design, which principle creates a focal point by using clear differences in size, colour or shape?

- (A) Repetition
- (B) Contrast
- (C) Alignment
- (D) Proximity

[View Solution](#)

Q51. What is the next term in the series 100, 96, 88, 76, 60, ...?

- (A) 44
- (B) 48
- (C) 40
- (D) 36

[View Solution](#)

Q52. The Lotus Temple in New Delhi is a house of worship of which faith?

- (A) Hindu
- (B) Buddhist
- (C) Jain
- (D) Bahai

[View Solution](#)



Q53. A typeface that has no small decorative strokes at the ends of its letters is called a:

- (A) Sans-serif typeface
- (B) Serif typeface
- (C) Script typeface
- (D) Slab-serif typeface

[View Solution](#)

Q54. On a map drawn to a scale of 1 : 1000, a road is shown as 5 cm long. What is the actual length of the road?

- (A) 5 m
- (B) 500 m
- (C) 5000 m
- (D) 50 m

[View Solution](#)

Q55. If you stand facing the setting sun, in which direction does your right hand point?

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

[View Solution](#)

Q56. The influential Bauhaus school of art and design was founded in which country?



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

[View Solution](#)

Q57. How many vertices does a hexagonal prism have?

- (A) 6
- (B) 8
- (C) 12
- (D) 18

[View Solution](#)

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

Q58. [Drawing - 50 Marks]

It is a wet monsoon evening at a crowded city bus stop. Rain streaks down, puddles reflect the streetlights, and a mixed crowd huddles under a leaking tin shelter with open umbrellas overlapping. The focal subject is a woman in a raincoat stepping up into the open door of a bus, one hand gripping the door rail and the other holding a closing umbrella and a shopping bag, as people behind her press forward. Imagine this scene and draw it with the woman boarding the bus as the clear centre of interest. Show the bus front and door, the crowded shelter, several overlapping umbrellas, puddles with reflections, and the rainy street beyond.

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]

Commuters in the rain juggle an open umbrella in one hand and a bag and phone in the other, so they cannot pay fare, hold a handrail, or answer a call without getting wet. Design a hands-free rain solution for a walking or standing commuter that shelters the head and bag from rain yet leaves both hands free to use, and that packs down to carry easily when the rain stops. Show your design in two states: (1) packed down and carried when it is dry, and (2) deployed and sheltering a standing commuter with both hands free.

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

[View Model Approach](#)



Detailed Solutions

Q1.

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

Solution

Concept - Painted cube, two-face pieces lie on edges: In a cube cut into unit cubes, the small cubes with exactly two painted faces are the ones sitting along the edges but not at the corners.

Step 1 - Count per edge: Each edge of a side- n cube has $(n - 2)$ such pieces. Here $n = 4$, so $(4 - 2) = 2$ per edge.

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

Tip: Corners give three painted faces, face centres give one, and the inner block gives zero - keep the four groups separate.

Answer: 24 [Go Back to Q1](#)

Q2.

Q. A logo that is 6 cm wide and 4 cm tall is enlarged so that its new width becomes 15 cm. If the shape is scaled uniformly, what is its new height in centimetres?

Solution

Concept - Uniform scaling keeps the aspect ratio fixed: When



an image is enlarged without distortion, width and height are multiplied by the same scale factor.

Step 1 - Find the scale factor: $\text{Scale} = \frac{15}{6} = 2.5$.

Step 2 - Apply to the height: $\text{New height} = 4 \times 2.5 = 10 \text{ cm}$.

Tip: Always scale both dimensions by the same factor, or the logo will look stretched.

Answer: 10 [Go Back to Q2](#)

Q3.

Q. In typography, 1 inch equals 72 points. Using a font of size 24 points with no extra line spacing (no leading), how many full lines of text fit into a text column that is 4 inches tall?

Solution

Concept - Point-to-inch conversion: Column height and line height must be in the same unit before dividing.

Step 1 - Convert the column height: $4 \text{ inches} = 4 \times 72 = 288$ points.

Step 2 - Divide by line height: Each line is 24 points tall, so $\frac{288}{24} = 12$ lines.

Tip: If leading were added, add it to the 24 pt before dividing.

Answer: 12 [Go Back to Q3](#)

Q4.



Q. A rectangular packaging box measures $20 \text{ cm} \times 15 \text{ cm} \times 10 \text{ cm}$. What is its total surface area in square centimetres?

Solution

Concept - Surface area of a cuboid: Total surface area = $2(lb + bh + lh)$.

Step 1 - Compute the three face products: $lb = 20 \times 15 = 300$,
 $bh = 15 \times 10 = 150$, $lh = 20 \times 10 = 200$.

Step 2 - Sum and double: $300 + 150 + 200 = 650$; total = $2 \times 650 = 1300 \text{ cm}^2$.

Tip: Add the three distinct faces first, then double - it avoids double counting.

Answer: 1300 [Go Back to Q4](#)

Q5.

Q. Consider the geometric series $3, 6, 12, 24, \dots$ where each term is double the previous one. What is the 7th term of this series?

Solution

Concept - Geometric progression: The n th term is $a \cdot r^{n-1}$, with first term $a = 3$ and ratio $r = 2$.

Step 1 - Substitute values: $T_7 = 3 \times 2^{7-1} = 3 \times 2^6$.

Step 2 - Evaluate: $2^6 = 64$, so $T_7 = 3 \times 64 = 192$.

Tip: Double the last known term repeatedly if you forget the formula: $24, 48, 96, 192$.



Answer: 192 [Go Back to Q5](#)

Q6.

Q. A wheel of diameter 70 cm rolls along a straight path. Taking $\pi = \frac{22}{7}$, how many complete rotations does it make while covering a distance of 220 metres?

Solution

Concept - Distance per rotation equals the circumference: One full rotation moves the wheel forward by its circumference πd .

Step 1 - Circumference: $\pi d = \frac{22}{7} \times 70 = 220 \text{ cm} = 2.2 \text{ m}$.

Step 2 - Number of rotations: $\frac{220}{2.2} = 100$ rotations.

Tip: Convert everything to one unit before dividing distance by circumference.

Answer: 100 [Go Back to Q6](#)

Q7.

Q. In a 24-bit RGB colour system, each of the red, green and blue channels uses 8 bits. How many distinct colours can this system represent? (Give the exact whole number.)

Solution

Concept - Total colours in RGB: Each 8-bit channel has $2^8 = 256$ levels, and the three channels are independent.

Step 1 - Multiply the channels: Total = $256 \times 256 \times 256 = 2^{24}$.



Step 2 - Evaluate: $2^{24} = 16,777,216$.

Tip: 24-bit colour is often called "true colour" for this reason.

Answer: 16777216 [Go Back to Q7](#)

Q8.

Q. A rectangular floor measuring 6 m by 4 m is to be fully covered with square tiles of side 20 cm. How many tiles are required?

Solution

Concept - Tiling by counting rows and columns: Convert to the same unit, then count tiles along each side.

Step 1 - Tiles along each edge: $6 \text{ m} = 600 \text{ cm} \Rightarrow 600/20 = 30$; $4 \text{ m} = 400 \text{ cm} \Rightarrow 400/20 = 20$.

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

Tip: Dividing areas also works: $\frac{600 \times 400}{20 \times 20} = 600$.

Answer: 600 [Go Back to Q8](#)

Q9.

Q. In a straight row of students, a girl is 7th from the left end and 12th from the right end. How many students are in the row?

Solution

Concept - Position counting, avoid double counting: Adding both ranks counts the girl twice, so subtract one.



Step 1 - Add the two positions: $7 + 12 = 19$.

Step 2 - Remove the overlap: $\text{Total} = 19 - 1 = 18$.

Tip: The rule is (left rank) + (right rank) - 1 for the same person.

Answer: 18 [Go Back to Q9](#)

Q10.

Q. On an analogue clock, what is the angle in degrees between the hour hand and the minute hand at exactly 4:20?

Solution

Concept - Hand angles measured from 12: The minute hand moves 6° per minute; the hour hand moves 0.5° per minute.

Step 1 - Minute hand angle: At 20 minutes: $20 \times 6 = 120^\circ$.

Step 2 - Hour hand angle: At 4:20: $4 \times 30 + 20 \times 0.5 = 120 + 10 = 130^\circ$.

Step 3 - Difference: $130 - 120 = 10^\circ$.

Tip: Do not forget the hour hand drifts as the minutes pass.

Answer: 10 [Go Back to Q10](#)

Q11.

Q. A design service is listed at Rs 2000. The studio gives a 15% discount, and then 18% GST is added on the discounted price. What is the final amount in rupees?



Solution

Concept - Apply discount first, then tax: Discount reduces the base; GST is charged on the reduced amount.

Step 1 - Price after discount: $2000 \times (1 - 0.15) = 2000 \times 0.85 = 1700$.

Step 2 - Add GST: $1700 \times (1 + 0.18) = 1700 \times 1.18 = 2006$.

Tip: Order matters - a discount on tax-inclusive price gives a different result.

Answer: 2006 [Go Back to Q11](#)

Q12.

Q. A screen has a resolution of 1920×1080 pixels. When its aspect ratio is written in simplest whole-number form as $a : b$, what is the value of $a + b$?

Solution

Concept - Simplify the ratio by the GCD: Divide both numbers by their greatest common divisor.

Step 1 - Reduce: $\gcd(1920, 1080) = 120$; $1920/120 = 16$, $1080/120 = 9$, so $16 : 9$.

Step 2 - Add the terms: $a + b = 16 + 9 = 25$.

Tip: $16 : 9$ is the standard widescreen ratio for displays and video.

Answer: 25 [Go Back to Q12](#)

Q13.



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

Solution

Concept - Unpainted cubes form the inner block: The unpainted pieces are the hidden core, one layer inside every face.

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

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

Tip: The count of zero-face cubes is always $(n - 2)^3$ for $n \geq 2$.

Answer: 27 [Go Back to Q13](#)

Q14.

Q. A designer mixes red and white paint in the ratio 3 : 5 to make 4 litres of a shade. How many millilitres of red paint are used?

Solution

Concept - Ratio share of a total: Red is 3 parts out of $3 + 5 = 8$ total parts.

Step 1 - Convert the total: 4 litres = 4000 ml.

Step 2 - Take red's share: Red = $\frac{3}{8} \times 4000 = 1500$ ml.

Tip: Check: white = $\frac{5}{8} \times 4000 = 2500$ ml, and $1500 + 2500 = 4000$ ml.

Answer: 1500 [Go Back to Q14](#)



Q15.

Q. The Green Revolution has arguably been the most striking technological triumph of the 20th century in food production and land yields. Yet, there are serious concerns about its ill-effects on the environment. Which of the following concerns is/are TRUE?

- (A) The disruption of the Nitrogen cycle by the massive use of chemical fertilizers is unsustainable for the environment.
- (B) The Green Revolution has unequivocally been the most striking technological triumph of the 20th century in the realm of food production.
- (C) Large monocultures of crops brought about by the Green Revolution are susceptible to sudden destruction by pests and disease.
- (D) Increasing the supply of food through the Green Revolution would encourage unlimited population growth, leading to worldwide famine.

Solution

Concept - Environmental cost of intensive farming: The question asks only for genuine environmental ill-effects, not restatements of the benefit or speculative claims.

Step 1 - Option A: Heavy chemical-fertiliser use overloads and disrupts the nitrogen cycle, an accepted environmental harm. True.

Step 2 - Option B: This merely restates the achievement of the Green Revolution; it is not an ill-effect. False.

Step 3 - Option C: Single-crop monocultures are indeed vulnerable



to mass loss from a single pest or disease. True.

Step 4 - Option D: This is a speculative Malthusian claim, not an established environmental concern. False.

Tip: Separate real environmental harms from restated benefits or opinion when a stem asks for true concerns.

Answer: A, C [Go Back to Q15](#)

Q16.

Q. The additive (RGB) colour model is used for light-emitting displays. Which of the following statements about it is/are TRUE?

- (A) Cyan, magenta and yellow are the additive primary colours.
- (B) Red and green light combine to produce yellow.
- (C) Mixing red, green and blue light in full strength produces black.
- (D) The additive primary colours are red, green and blue.

Solution

Concept - Additive colour mixing: In additive mixing, light is added; more light means brighter, tending toward white.

Step 1 - Option A: Cyan, magenta, yellow are the subtractive (print) primaries, not additive. False.

Step 2 - Option B: Red light plus green light gives yellow. True.

Step 3 - Option C: Full red, green and blue light together give white, not black. False.

Step 4 - Option D: RGB are the additive primaries. True.



Tip: Additive mixing brightens toward white; subtractive mixing darkens toward black.

Answer: B, D [Go Back to Q16](#)

Q17.

Q. Consider the following statements about the Taj Mahal. Which is/are TRUE?

- (A) The Taj Mahal is built mainly of red sandstone.
- (B) It was commissioned by the Mughal emperor Shah Jahan.
- (C) It stands on the bank of the Yamuna river in Agra.
- (D) It is a classic example of Dravidian gopuram architecture.

Solution

Concept - Mughal architecture facts: The Taj Mahal is a white-marble Mughal mausoleum in Agra.

Step 1 - Option A: It is built chiefly of white marble, not red sandstone. False.

Step 2 - Option B: Shah Jahan commissioned it for Mumtaz Mahal. True.

Step 3 - Option C: It sits beside the Yamuna in Agra. True.

Step 4 - Option D: Gopuram towers belong to South Indian Dravidian temples, not the Taj. False.

Tip: Red sandstone marks buildings like the Agra Fort; the Taj is marble.

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



Q18.

Q. Which of the following statements about the Bauhaus school and modernist design is/are TRUE?

- (A) The Bauhaus school was founded by Walter Gropius.
- (B) The Bauhaus originated in Germany.
- (C) The Bauhaus is best known for ornate Victorian decoration.
- (D) The idea that "form follows function" is associated with modernist design.

Solution

Concept - Bauhaus and modernism: Bauhaus promoted simple, functional design and rejected excess ornament.

Step 1 - Option A: Walter Gropius founded the Bauhaus in 1919. True.

Step 2 - Option B: It began in Weimar, Germany. True.

Step 3 - Option C: Bauhaus opposed ornate Victorian styling in favour of clean form. False.

Step 4 - Option D: "Form follows function" is a core modernist principle. True.

Tip: Link Bauhaus with minimalism and function, never with heavy ornamentation.

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

Q19.



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

- (A) Kerning refers to the vertical space between lines of text.
- (B) Helvetica is a sans-serif typeface.
- (C) A serif is a small stroke at the end of a letter's main strokes.
- (D) Leading is the horizontal space adjusted between two adjacent letters.

Solution

Concept - Basic type vocabulary: Kerning, leading and serifs each have precise meanings.

Step 1 - Option A: Kerning is the horizontal spacing between two specific letters, not line spacing. False.

Step 2 - Option B: Helvetica has no serifs, so it is sans-serif. True.

Step 3 - Option C: A serif is the small finishing stroke at a letter's stroke ends. True.

Step 4 - Option D: Leading is the vertical space between lines, not between letters. False.

Tip: Kerning = between letters (horizontal); leading = between lines (vertical).

Answer: B, C [Go Back to Q19](#)

Q20.

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



- (A) JPEG uses lossy compression.
- (B) PNG supports transparency.
- (C) SVG is a raster (pixel-based) format.
- (D) A vector graphic loses quality when it is scaled up.

Solution

Concept - Raster vs vector and compression: Raster stores pixels; vector stores shapes defined by maths.

Step 1 - Option A: JPEG discards data to shrink file size, so it is lossy. True.

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

Step 3 - Option C: SVG is a vector format, not raster. False.

Step 4 - Option D: Vectors scale to any size without quality loss. False.

Tip: Use vector (SVG) for logos that must scale, JPEG for photographs.

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

Q21.

Q. Which of the following statements about Indian arts and crafts is/are TRUE?

- (A) Madhubani painting originates from the Mithila region of Bihar.
- (B) Warli art is associated with Maharashtra.



- (C) Pashmina shawls are traditionally made in Kerala.
 (D) Bidriware is a metal handicraft from Bidar, Karnataka.

Solution

Concept - Regional craft mapping: Each craft is tied to a specific region of India.

Step 1 - Option A: Madhubani (Mithila) painting is from Bihar. True.

Step 2 - Option B: Warli tribal art is from Maharashtra. True.

Step 3 - Option C: Pashmina comes from Kashmir, not Kerala. False.

Step 4 - Option D: Bidriware is the blackened silver-inlay metalcraft of Bidar, Karnataka. True.

Tip: Pashmina to Kashmir is a common trap - remember the cold-climate wool source.

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

Q22.

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

- (A) Black and white are classified as warm hues.
 (B) Orange is a secondary colour obtained by mixing red and yellow.
 (C) Complementary colours sit opposite each other on the colour wheel.



(D) Blue is usually described as a cool colour.

Solution

Concept - Colour wheel basics: Secondary colours come from mixing primaries; warm and cool describe temperature families.

Step 1 - Option A: Black and white are neutrals, not warm hues. False.

Step 2 - Option B: Red plus yellow gives orange, a secondary colour. True.

Step 3 - Option C: Complementary pairs lie opposite on the wheel. True.

Step 4 - Option D: Blue belongs to the cool family. True.

Tip: Warm = reds/oranges/yellows; cool = blues/greens; black and white are neutral.

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

Q23.

Q. Which of the following statements about art movements is/are TRUE?

- (A) Art Nouveau is known only for rigid, straight geometric grids.
- (B) Cubism was pioneered by Pablo Picasso and Georges Braque.
- (C) The Impressionist movement began in Italy.
- (D) Pop Art completely rejected all imagery drawn from popular culture.



Solution

Concept - Movement identification: Each movement has a defining trait and origin.

Step 1 - Option A: Art Nouveau is famous for flowing, organic curves, not rigid grids. False.

Step 2 - Option B: Cubism was pioneered by Picasso and Braque. True.

Step 3 - Option C: Impressionism began in France, not Italy. False.

Step 4 - Option D: Pop Art embraced popular-culture imagery; it did not reject it. False.

Tip: Only one statement is true here - read each carefully before selecting.

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

Q24.

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

- (A) Tempering makes glass weaker and more fragile.
- (B) Injection moulding is widely used to make plastic parts.
- (C) Terracotta is a form of fired clay.
- (D) Anodising is a chemical used to soften rubber.

Solution

Concept - Processes and materials: Each term names a specific



process or material with a known effect.

Step 1 - Option A: Tempering strengthens glass, making it tougher, not weaker. False.

Step 2 - Option B: Injection moulding forces molten plastic into moulds and is very common. True.

Step 3 - Option C: Terracotta is fired earthenware clay. True.

Step 4 - Option D: Anodising is an electrochemical surface finish for aluminium, not a rubber softener. False.

Tip: Tempered glass is the tough, safety kind - remember car and phone glass.

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

Q25.

Q. Which of the following statements about ergonomics and human factors is/are TRUE?

- (A) Ergonomics deals only with the colour of a product.
- (B) Anthropometry is the study of human body measurements.
- (C) Ergonomics studies how well a product fits and suits the human body.
- (D) The riser height of a stair step affects climbing comfort.

Solution

Concept - Human-centred design: Ergonomics fits products to people, using body-measurement data.



Step 1 - Option A: Ergonomics covers fit, posture, reach and comfort, not just colour. False.

Step 2 - Option B: Anthropometry is the measurement of the human body. True.

Step 3 - Option C: Ergonomics studies how a product suits the body. True.

Step 4 - Option D: Riser height strongly affects how comfortable a stair is to climb. True.

Tip: Anthropometry supplies the numbers that ergonomic design uses.

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

Q26.

Q. Which of the following statements about the environment is/are TRUE?

- (A) Renewable energy sources are permanently used up after one use.
- (B) CFCs contribute to depletion of the ozone layer.
- (C) Recycling lowers the demand for fresh raw materials.
- (D) Carbon dioxide is a greenhouse gas.

Solution

Concept - Environmental awareness: Renewables replenish; certain gases harm the atmosphere.

Step 1 - Option A: Renewables (solar, wind) naturally replenish



and are not used up in one go. False.

Step 2 - Option B: CFCs break down ozone, thinning the ozone layer. True.

Step 3 - Option C: Recycling reuses materials, cutting demand for raw resources. True.

Step 4 - Option D: Carbon dioxide traps heat and is a greenhouse gas. True.

Tip: Separate ozone depletion (CFCs) from global warming (CO₂) - different problems.

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

Q27.

Q. Which of the following statements about famous artists is/are TRUE?

- (A) Auguste Rodin painted the Mona Lisa.
- (B) Raja Ravi Varma was a celebrated Indian painter.
- (C) Leonardo da Vinci created the painting known as the Mona Lisa.
- (D) M.F. Husain was a well-known Indian modern painter.

Solution

Concept - Artist attribution: Match each work and reputation to the right artist.

Step 1 - Option A: Rodin was a sculptor (The Thinker); he did not paint the Mona Lisa. False.



Step 2 - Option B: Raja Ravi Varma was a renowned Indian painter. True.

Step 3 - Option C: Leonardo da Vinci painted the Mona Lisa. True.

Step 4 - Option D: M.F. Husain was a leading Indian modern painter. True.

Tip: Rodin is a sculptor - a quick way to reject option A.

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

Q28.

Q. Which of the following statements about three-dimensional solids is/are TRUE?

- (A) A sphere has exactly one flat circular face.
- (B) A cube has 6 faces, 12 edges and 8 vertices.
- (C) A regular tetrahedron has four triangular faces.
- (D) A cylinder has two circular flat faces.

Solution

Concept - Faces, edges and vertices of solids: Count the flat and curved surfaces carefully for each shape.

Step 1 - Option A: A sphere is fully curved with no flat face. False.

Step 2 - Option B: A cube has 6 faces, 12 edges and 8 vertices. True.

Step 3 - Option C: A regular tetrahedron has four triangular faces. True.



Step 4 - Option D: A cylinder has two circular flat faces plus one curved surface. True.

Tip: A sphere has zero flat faces - a handy fact for many spatial questions.

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

Q29.

Q. Which of the following statements about visual and digital design is/are TRUE?

- (A) The RGB colour model is used for digital screens.
- (B) The CMYK colour model is used for print.
- (C) A logo should ideally remain legible even at small sizes.
- (D) Grids help organise content in layout design.

Solution

Concept - Everyday design principles: Colour models, logo design and layout each follow well-known conventions.

Step 1 - Option A: Screens emit light, so they use RGB. True.

Step 2 - Option B: Printing uses CMYK inks. True.

Step 3 - Option C: A good logo stays clear even when small (favicons, app icons). True.

Step 4 - Option D: Grids give structure and alignment to layouts. True.

Tip: When every option states a standard best practice, all four can be correct - verify each.



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

Q30.

Q. What is the next term in the series 2, 5, 10, 17, 26, ...?

- (A) 37
- (B) 36
- (C) 35
- (D) 27

Solution

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

Step 1 - Differences: 3, 5, 7, 9 - odd numbers increasing by 2.

Step 2 - Next term: Next gap is 11, so $26 + 11 = 37$.

Tip: These are $n^2 + 1$: $1 + 1, 4 + 1, 9 + 1, \dots, 36 + 1 = 37$.

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

Q31.

Q. What is the next term in the series 1, 4, 9, 16, 25, ...?

- (A) 49
- (B) 30
- (C) 36
- (D) 35

Solution



Concept - Perfect squares: Each term is the square of its position.

Step 1 - Identify pattern: $1^2, 2^2, 3^2, 4^2, 5^2$.

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

Tip: Consecutive squares differ by successive odd numbers (+11 here).

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

Q32.

Q. If each letter is given its position value in the alphabet ($A = 1, B = 2, \dots, Z = 26$), what is the sum of the letter values of the word "ART"?

- (A) 38
- (B) 39
- (C) 40
- (D) 37

Solution

Concept - Letter-to-number coding: Replace each letter by its alphabet position and add.

Step 1 - Values: $A = 1, R = 18, T = 20$.

Step 2 - Sum: $1 + 18 + 20 = 39$.

Tip: Memorise a few anchors: $E = 5, J = 10, O = 15, T = 20, Y = 25$.

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



Q33.

Q. A person walks 5 km towards North, then turns right and walks 3 km, then turns right again and walks 5 km. How far and in which direction is the person now from the starting point?

- (A) 5 km North
- (B) 8 km East
- (C) 3 km West
- (D) 3 km East

Solution

Concept - Track net displacement: Add up movements along each axis separately.

Step 1 - Segments: North 5; right (East) 3; right again (South) 5.

Step 2 - Net position: North and South cancel ($5 - 5 = 0$); 3 km East remains.

Tip: A right turn from North is East, and a right turn from East is South.

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

Q34.

Q. Pointing to a boy, Ravi said, "He is the son of my father's only other son." How is the boy related to Ravi?

- (A) Son
- (B) Nephew
- (C) Brother



(D) Cousin

Solution

Concept - Step through the relationship: Resolve the description one link at a time.

Step 1 - Father's only other son: That is Ravi's brother (the son of Ravi's father who is not Ravi).

Step 2 - His son: The brother's son is Ravi's nephew.

Tip: "Only other son" is the key phrase - it points to a sibling, not to Ravi himself.

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

Q35.

Q. A cube of side 3 cm is painted on all six faces and then cut into 1 cm cubes. How many small cubes have exactly one painted face?

- (A) 6
- (B) 8
- (C) 12
- (D) 1

Solution

Concept - One-face cubes are face centres: They lie in the middle of each face, away from edges and corners.

Step 1 - Per face: $(n - 2)^2 = (3 - 2)^2 = 1$ cube per face.



Step 2 - All faces: $6 \times 1 = 6$.

Tip: For a 3-cube: 8 corners (3 faces), 12 edges (2 faces), 6 centres (1 face), 1 core (0).

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

Q36.

Q. Taking $\pi = \frac{22}{7}$, what is the area of a circle of radius 7 cm (in square centimetres)?

- (A) 44
- (B) 22
- (C) 77
- (D) 154

Solution

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

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

Step 2 - Simplify: $22 \times 7 = 154 \text{ cm}^2$.

Tip: 44 would be the circumference ($2\pi r$) - do not confuse the two.

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

Q37.

Q. Which unit is used to measure the size of a font in typography?

- (A) Pixels per inch
- (B) Kerning



(C) Point

(D) DPI

Solution

Concept - Type measurement units: Font size has its own standard unit.

Step 1 - Eliminate: PPI and DPI measure resolution; kerning is letter spacing.

Step 2 - Correct unit: Font size is measured in points (72 points = 1 inch).

Tip: Points measure type size; DPI/PPI measure how densely pixels or dots are packed.

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

Q38.

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

(A) Green

(B) Blue

(C) Orange

(D) Yellow

Solution

Concept - Complementary colours are opposite on the wheel: Red sits directly across from green.



Step 1 - Locate red: On the RYB wheel, the colour opposite red is green.

Step 2 - Confirm: Red and green placed together create the strongest contrast.

Tip: Common complementary pairs: red-green, blue-orange, yellow-purple.

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

Q39.

Q. Which architect is best known for planning the city of Chandigarh?

- (A) Charles Correa
- (B) Le Corbusier
- (C) B.V. Doshi
- (D) Laurie Baker

Solution

Concept - Modern Indian urban design: Chandigarh was a landmark planned city of independent India.

Step 1 - Recall the planner: The French-Swiss architect Le Corbusier led its master plan.

Step 2 - Eliminate others: Correa, Doshi and Baker are notable Indian architects but not Chandigarh's planner.

Tip: Le Corbusier also designed Chandigarh's Capitol Complex buildings.



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

Q40.

Q. Which file format is best suited for a logo that must be scaled to any size without any loss of quality?

- (A) JPEG
- (B) PNG
- (C) SVG
- (D) BMP

Solution

Concept - Vector graphics scale freely: Vectors store shapes as maths, so they stay sharp at any size.

Step 1 - Eliminate raster formats: JPEG, PNG and BMP are pixel-based and blur when enlarged.

Step 2 - Correct choice: SVG is a vector format, ideal for scalable logos.

Tip: Use SVG for logos and icons; use JPEG/PNG for photographs.

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

Q41.

Q. "Glove is to Hand" as "_____ is to Foot". Which word best completes the analogy?

- (A) Leg
- (B) Toe



- (C) Hand
(D) Shoe

Solution

Concept - Function-based analogy: A glove is the covering worn on a hand.

Step 1 - Find the relationship: Glove covers the hand.

Step 2 - Apply to foot: The covering worn on the foot is a shoe.

Tip: Match the exact relationship (covering worn on), not just body parts.

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

Q42.

Q. A rectangle has its sides in the ratio 3 : 2 and a perimeter of 40 cm. What is the length of its longer side (in cm)?

- (A) 8
(B) 16
(C) 6
(D) 12

Solution

Concept - Ratio with perimeter: Let the sides be $3x$ and $2x$.

Step 1 - Set up perimeter: $2(3x + 2x) = 10x = 40 \Rightarrow x = 4$.

Step 2 - Longer side: $3x = 3 \times 4 = 12$ cm.



Tip: The shorter side is $2x = 8$ cm; check $2(12 + 8) = 40$.

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

Q43.

Q. What is the next term in the letter series $A, C, E, G, \dots$?

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

Solution

Concept - Skip-one alphabet pattern: Each letter jumps two positions ahead.

Step 1 - Pattern: $A(1), C(3), E(5), G(7)$ - odd positions.

Step 2 - Next: Position 9 is I .

Tip: These are the alphabet's odd-numbered letters.

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

Q44.

Q. The famous painting "Mona Lisa" was created by which artist?

- (A) Michelangelo
- (B) Leonardo da Vinci
- (C) Raphael
- (D) Pablo Picasso



Solution

Concept - Renaissance attribution: The Mona Lisa is a High Renaissance portrait.

Step 1 - Recall the artist: Leonardo da Vinci painted it in the early 1500s.

Step 2 - Eliminate others: Michelangelo and Raphael were contemporaries; Picasso is 20th-century.

Tip: The Mona Lisa hangs in the Louvre, Paris.

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

Q45.

Q. The traditional craft of "Blue Pottery" in India is most famously associated with which city?

- (A) Lucknow
- (B) Mysore
- (C) Jaipur
- (D) Kolkata

Solution

Concept - Craft-to-place mapping: Blue Pottery is a well-known decorative craft of Rajasthan.

Step 1 - Recall origin: Jaipur is the centre famed for its blue-glazed pottery.

Step 2 - Eliminate others: Lucknow is known for chikankari, Mysore for silk and sandalwood.



Tip: Blue Pottery uses a Persian-derived blue dye and quartz body.

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

Q46.

Q. What is the volume of a cube whose side is 5 cm (in cubic centimetres)?

- (A) 25
- (B) 100
- (C) 125
- (D) 150

Solution

Concept - Volume of a cube: $\text{Volume} = \text{side}^3$.

Step 1 - Substitute: $5^3 = 5 \times 5 \times 5$.

Step 2 - Evaluate: $= 125 \text{ cm}^3$.

Tip: 25 is the area of one face; cube it, do not square it, for volume.

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

Q47.

Q. Which colour model is standardly used for full-colour printing?

- (A) RGB
- (B) HSV
- (C) RYB
- (D) CMYK



Solution

Concept - Print vs screen colour: Printing mixes inks subtractively.

Step 1 - Eliminate: RGB is for screens; HSV is a selection space; RYB is the artists' wheel.

Step 2 - Correct model: CMYK (Cyan, Magenta, Yellow, Key/Black) is the print standard.

Tip: The K in CMYK stands for the black "key" plate.

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

Q48.

Q. If today is Monday, what day of the week will it be after 61 days?

- (A) Saturday
- (B) Sunday
- (C) Friday
- (D) Monday

Solution

Concept - Days repeat every 7: Find the remainder of the day count divided by 7.

Step 1 - Remainder: $61 = 7 \times 8 + 5$, so remainder 5.

Step 2 - Count forward: Monday + 5 days = Saturday.

Tip: Only the remainder matters, so always take (days mod 7) first.



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

Q49.

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

- (A) Triangle
- (B) Cube
- (C) Square
- (D) Pentagon

Solution

Concept - Dimensionality grouping: Compare 2D shapes with 3D solids.

Step 1 - Classify: Triangle, square and pentagon are flat (2D) shapes.

Step 2 - Identify odd one: A cube is a 3D solid, so it does not fit.

Tip: Ask what single property three of the four share, then spot the outlier.

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

Q50.

Q. In the principles of design, which principle creates a focal point by using clear differences in size, colour or shape?

- (A) Repetition
- (B) Contrast
- (C) Alignment



(D) Proximity

Solution

Concept - Design principles: A focal point needs one element to stand apart.

Step 1 - Match the definition: Contrast uses difference (big vs small, light vs dark) to draw the eye.

Step 2 - Eliminate others: Repetition unifies, alignment orders, proximity groups related items.

Tip: Strong contrast is the fastest way to signal what matters most on a page.

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

Q51.

Q. What is the next term in the series 100, 96, 88, 76, 60, ...?

- (A) 44
- (B) 48
- (C) 40
- (D) 36

Solution

Concept - Differences form a pattern: Examine how much is subtracted each step.

Step 1 - Differences: $-4, -8, -12, -16$ - multiples of 4.



Step 2 - Next term: Subtract 20: $60 - 20 = 40$.

Tip: When gaps grow by a fixed amount, the series is quadratic.

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

Q52.

Q. The Lotus Temple in New Delhi is a house of worship of which faith?

- (A) Hindu
- (B) Buddhist
- (C) Jain
- (D) Bahai

Solution

Concept - Modern religious architecture: The Lotus Temple is a famous flower-shaped building.

Step 1 - Recall the faith: It is a Bahai House of Worship, open to people of all religions.

Step 2 - Note the form: Its 27 marble petals form a lotus shape.

Tip: Bahai Houses of Worship are always nine-sided with nine entrances.

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

Q53.

Q. A typeface that has no small decorative strokes at the ends of its letters is called a:



- (A) Sans-serif typeface
- (B) Serif typeface
- (C) Script typeface
- (D) Slab-serif typeface

Solution

Concept - Serif vs sans-serif: "Sans" means without.

Step 1 - Meaning: Sans-serif letters have clean stroke ends with no serifs.

Step 2 - Eliminate others: Serif and slab-serif have end strokes; script imitates handwriting.

Tip: Helvetica and Arial are common sans-serif faces.

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

Q54.

Q. On a map drawn to a scale of 1 : 1000, a road is shown as 5 cm long. What is the actual length of the road?

- (A) 5 m
- (B) 500 m
- (C) 5000 m
- (D) 50 m

Solution

Concept - Map scale conversion: Actual length = map length $\times$ scale factor.



Step 1 - Multiply: $5 \text{ cm} \times 1000 = 5000 \text{ cm}$.

Step 2 - Convert to metres: $5000 \text{ cm} = 50 \text{ m}$.

Tip: Always convert to metres at the end; $100 \text{ cm} = 1 \text{ m}$.

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

Q55.

Q. If you stand facing the setting sun, in which direction does your right hand point?

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

Solution

Concept - Cardinal directions: The sun sets in the West.

Step 1 - Face the setting sun: You are facing West.

Step 2 - Locate right hand: Facing West, North is to your right.

Tip: Facing West: right = North, left = South, back = East.

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

Q56.

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

- (A) France



- (B) Germany
- (C) Italy
- (D) United States

Solution

Concept - Origins of the Bauhaus: Bauhaus shaped 20th-century modern design.

Step 1 - Recall origin: Walter Gropius founded it in Weimar, Germany, in 1919.

Step 2 - Eliminate others: Though it influenced the USA after members emigrated, it began in Germany.

Tip: Bauhaus later moved to Dessau and then Berlin, all within Germany.

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

Q57.

Q. How many vertices does a hexagonal prism have?

- (A) 6
- (B) 8
- (C) 12
- (D) 18

Solution

Concept - Vertices of a prism: A prism has two identical polygon ends.



Step 1 - Count per base: Each hexagonal base has 6 corners.

Step 2 - Two bases: $2 \times 6 = 12$ vertices.

Tip: A hexagonal prism also has 8 faces and 18 edges.

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

Q58.

Q (Drawing). It is a wet monsoon evening at a crowded city bus stop. Rain streaks down, puddles reflect the streetlights, and a mixed crowd huddles under a leaking tin shelter with open umbrellas overlapping. The focal subject is a woman in a raincoat stepping up into the open door of a bus, one hand gripping the door rail and the other holding a closing umbrella and a shopping bag, as people behind her press forward. Imagine this scene and draw it with the woman boarding the bus as the clear centre of interest. Show the bus front and door, the crowded shelter, several overlapping umbrellas, puddles with reflections, and the rainy street beyond.

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

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

Model Approach and Evaluation

Read this as a mood scene where rain, crowd and one purposeful figure combine. Plan the bus and the boarding action first.

Step 1 - Set perspective and the street: Choose a standing eye level and let the bus recede sharply to a vanishing point so its



bulk feels close. Keep a wet ground line where puddles can sit and reflect. Angle the bus so the open door faces the queue.

Step 2 - Compose in layers: Use three depths - the woman and bus door up front, the pressing crowd and umbrellas in the middle, the rainy street behind. Overlap the umbrella canopies to build the crowded, sheltering feel.

Step 3 - Make the focal subject win: Place the boarding woman on a strong third, framed by the dark rectangle of the doorway so she stands out. Give her the sharpest lines and let the door rail and crowd direction point toward her.

Step 4 - Fix proportion, then refine line quality: Check her stepping-up posture and that the bus, umbrellas and figures sit at believable sizes. Then vary line weight - firm dark strokes on the woman and bus door, and light broken strokes for rain, distant street and reflections.

Tip: Suggest rain with a few slanted light strokes and wobbly puddle reflections, not solid shading. A little restraint reads as weather; too much just muddies the drawing. [Go Back to Q58](#)

Q59.

Q (Design Aptitude). Commuters in the rain juggle an open umbrella in one hand and a bag and phone in the other, so they cannot pay fare, hold a handrail, or answer a call without getting wet. Design a hands-free rain solution for a walking or standing commuter that shelters the head and bag from rain yet leaves both hands free to use, and that packs down to carry easily when the rain stops. Show your design in two states: (1) packed down and



carried when it is dry, and (2) deployed and sheltering a standing commuter with both hands free.

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

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

Model Approach and Evaluation

Approach this as a wearability problem - shelter without hands, then shrink to carry. Sketch how it mounts on the body and folds.

Step 1 - Nail the requirements: Fix the constraints - keeps head and shoulders dry, needs no hand to hold up, stays stable when walking, and collapses small for the bag. Every drawn feature should serve one of these.

Step 2 - Show the two required states: Draw state one as the folded unit clipped to a strap or rolled into a pouch. Draw state two worn - the canopy raised over the head on a shoulder or backpack mount, both hands visibly free holding a phone and rail. Keep it clearly one object.

Step 3 - Label features, do not write essays: Use short leader labels - "shoulder harness", "telescopic mast", "canopy", "quick-fold ribs", "chin strap". Two or three words each, pointing at the part.

Step 4 - Prove it works: Add a small back view showing the harness and how the mast balances the canopy, and a fold sequence collapsing it into the pouch. This proves both the hands-free shelter and the easy pack-down.

Tip: Stability is the real risk here - a body-mounted canopy must



not tip or block sight. Show the mount point low and central and keep the canopy compact, and the idea reads as practical rather than comic. [Go Back to Q59](#)



Answer Key (Part A)

Section 1 - NAT (Numerical Answer Type)

Q1	Q2	Q3	Q4	Q5	Q6	Q7
24	10	12	1300	192	100	16777216

Q8	Q9	Q10	Q11	Q12	Q13	Q14
600	18	10	2006	25	27	1500

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

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

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

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

Section 3 - MCQ (single correct)

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

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

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



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

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

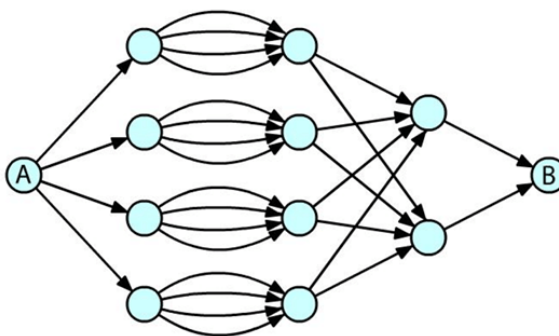


Appendix: Visual Reasoning

Practice from Past UCEED Papers

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

- P1. (Past UCEED)** The figure shows different paths for going from A to B. The directions of the paths are indicated by arrows. No node can be visited twice. What is the total number of different paths to go from A to B?



How to approach

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

- P2. (Past UCEED)** The animation depicts morphing of faces and abstract forms. A face consists of two eyes, two ears, a nose and a mouth. How many unique faces appear in this morphing animation?

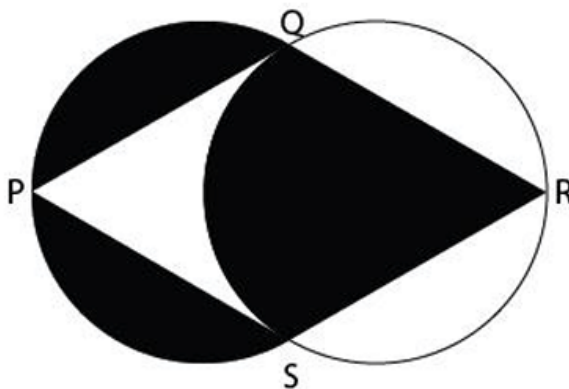




How to approach

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.

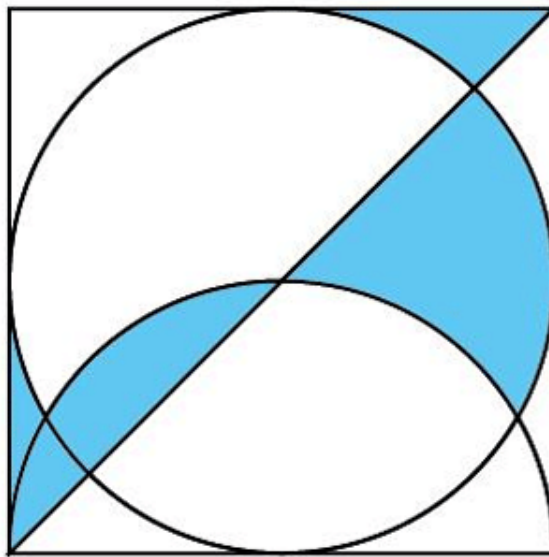
P3. (Past UCEED) If $SQ = QR = RS = SP = PQ$ and $PR = 21$ units, what is the area of the BLACK portion? (Assume $\pi = \frac{22}{7}$)



How to approach

Note the overall dimensions and find the total area first. Check the figure for symmetry: if the shaded and unshaded regions map onto each other under a rotation or reflection, the shaded area is a simple fraction of the whole. Otherwise split the shaded shape into triangles and rectangles, read each base and height off the figure, compute each area, and add them.

- P4. (Past UCEED)** A circle and a semicircle are inscribed in a square as shown below. What fraction of the area of the square is the blue shaded area?

**How to approach**

Note the overall dimensions and find the total area first. Check the figure for symmetry: if the shaded and unshaded regions map onto each other under a rotation or reflection, the shaded area is a simple fraction of the whole. Otherwise split the shaded shape into triangles and rectangles, read each base and height off the figure, compute each area, and add them.

