

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

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

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Q2. In the ISO 'A' paper series an A0 sheet has an area of one square metre, and each next size (A1, A2, and so on) is made by halving the previous sheet. How many A4 sheets have the same total area as one A0 sheet?

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

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Q3. In typography 1 pica equals 12 points and 1 inch equals 72 points. A page margin measures 2.5 inches. How many points wide is this margin?

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

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Q4. A designer draws a rectangle whose sides are in the ratio 3 : 5. If the longer side is 20 cm, what is the length of the shorter side in centimetres?

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

[View Solution](#)

Q5. A cube of side 4 cm is painted on all faces and cut into 1 cm cubes. How many of the small cubes have no paint on any face?

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

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Q6. A logo that is 8 cm wide is enlarged so that it becomes 20 cm wide. Expressed as a percentage of the original width, what is the new width? Give the number only (without the percent sign).

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

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Q7. In the RGB colour model each of the red, green and blue channels takes a value from 0 to 255. Pure white is made by setting all three channels to their maximum. What is the sum of the three channel values for pure white?

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

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Q8. A digital image is 1920 pixels wide and 1080 pixels tall. How many megapixels does it contain, rounded to two decimal places? (Take 1 megapixel = 1,000,000 pixels.)

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

[View Solution](#)

Q9. A display screen has an aspect ratio of 16 : 9. If its width is 32 cm, what is its height in centimetres?

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

[View Solution](#)

Q10. A traditional animation is played at 24 frames per second. How many separate drawings are needed for a 5-second sequence in which no frame is repeated?

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

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Q11. An architect builds a scale model of a building at a scale of 1 : 50. The real building is 15 metres tall. What is the height of the model in centimetres?

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



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- Q12.** A rectangular floor measures 3 m by 2 m. It is fully covered with square tiles of side 0.5 m, with no gaps or cutting. How many tiles are used?

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

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- Q13.** Through how many degrees does the minute hand of a clock turn in 25 minutes? Give the number only.

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

[View Solution](#)

- Q14.** A shade of green is mixed using blue and yellow paint in the ratio 2 : 3. To make 250 ml of this green, how many millilitres of yellow paint are needed?

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

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Section 2: Multiple Select Questions (MSQ)

- Q15.** Read the following paragraph and answer the question related to it.

There are many subtleties to designing with audio in order to create useful, non-intrusive experiences that offer instruction, information, and feedback when users interact with everyday devices, such as mobile phones, cars, toys etc. If audio might play a part in your design, what are some considerations, with specific regard to cognitive loads on users and aesthetics of interaction that you must keep in mind? Pick all that apply.

(One or more options may be correct.)



- (A) Audio is linear, time-sensitive, and transient; therefore good design must limit the number of audio menu options.
- (B) Users will often listen to all choices before picking one; long lists overtax memory, so keep choices pertinent and parsimonious.
- (C) Using jargon in instruction enhances user experience, since it enables users to create shortcuts more easily and to utilize deeper features.
- (D) Keep prompts brief, simple, and familiar (avoid jargon); use audio sparingly so it doesn't overload attention.

[View Solution](#)

Q16. Which of the following statements about the Bauhaus school are correct? Select all that apply.

(One or more options may be correct.)

- (A) The Bauhaus was founded in Paris by Le Corbusier.
- (B) Walter Gropius founded the Bauhaus in Weimar, Germany, in 1919.
- (C) The Bauhaus promoted the unity of art, craft, and industrial technology.
- (D) The Bauhaus is best known for its heavily ornate, Baroque decorative style.

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Q17. Which of the following statements about Indian folk and traditional crafts is correct? Select all that apply.

(One or more options may be correct.)

- (A) Madhubani painting originates from Rajasthan.
- (B) Warli painting uses realistic three-dimensional shading.



- (C) Pattachitra is a traditional cloth-based scroll painting from Odisha and West Bengal.
- (D) Phulkari is a metal-casting craft from Kerala.

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Q18. Which of the following statements about colour mixing are correct?
Select all that apply.

(One or more options may be correct.)

- (A) Red, green and blue are the primary colours of subtractive (pigment) mixing.
- (B) In the RGB additive model, combining red and green light produces yellow.
- (C) Complementary colours sit next to each other on the colour wheel.
- (D) Cyan, magenta and yellow are the primary colours used in colour printing.

[View Solution](#)

Q19. Which of the following statements about typography are correct? Select all that apply.

(One or more options may be correct.)

- (A) Serifs are the small strokes at the ends of letterforms.
- (B) Kerning refers to the vertical spacing between lines of text.
- (C) Helvetica is a widely used sans-serif typeface.
- (D) Leading refers to the spacing between lines of text.

[View Solution](#)



Q20. Which of the following statements about well-known designers are correct? Select all that apply.

(One or more options may be correct.)

- (A) The Hindustan Ambassador car was designed by Charles Eames.
- (B) Raymond Loewy is famous for Madhubani painting.
- (C) Dieter Rams, associated with Braun, is known for his 'Ten Principles of Good Design'.
- (D) Charles and Ray Eames are known for their moulded plywood and fibreglass chairs.

[View Solution](#)

Q21. Which of the following statements about design education and institutions in India is correct? Select all that apply.

(One or more options may be correct.)

- (A) The National Institute of Design (NID) is located in Kolkata.
- (B) The 'India Report', which led to NID, was written by Charles and Ray Eames in 1997.
- (C) UCEED is conducted for admission to postgraduate design programmes only.
- (D) The National Institute of Design was established in Ahmedabad in 1961.

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Q22. Which of the following are sound principles of usable interface and interaction design? Select all that apply.

(One or more options may be correct.)



- (A) Consistency in an interface helps users predict how controls will behave.
- (B) Providing clear feedback after a user action improves usability.
- (C) A good visual hierarchy guides the eye to the most important element first.
- (D) Accessible design takes into account users with different abilities and needs.

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Q23. Which of the following statements about digital image file formats is correct? Select all that apply.

(One or more options may be correct.)

- (A) JPEG is a lossless format ideal for sharp-edged line art and text.
- (B) PNG supports transparency and uses lossless compression.
- (C) SVG is a raster format made up of individual pixels.
- (D) GIF images can display up to 16 million colours at once.

[View Solution](#)

Q24. Which of the following statements about art and design movements are correct? Select all that apply.

(One or more options may be correct.)

- (A) Cubism was pioneered by Pablo Picasso and Georges Braque.
- (B) Art Nouveau is characterised by flowing, organic, plant-like lines.
- (C) Minimalism is defined by heavy ornamentation and rich surface detail.
- (D) Surrealism focuses on precise, factual documentary realism.



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Q25. Which of the following statements about materials and manufacturing processes are correct? Select all that apply.

(One or more options may be correct.)

- (A) Injection moulding is mainly used to shape solid timber.
- (B) Clay is a common material for traditional pottery and terracotta.
- (C) Anodising is a surface treatment applied to aluminium.
- (D) Blow moulding is commonly used to make hollow plastic bottles.

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Q26. Which of the following statements about Indian architecture is correct? Select all that apply.

(One or more options may be correct.)

- (A) The Taj Mahal is built primarily of red sandstone.
- (B) Fatehpur Sikri was built by Shah Jahan.
- (C) The stepwell (baoli or vav) is a traditional Indian water-harvesting structure.
- (D) Dravidian temple architecture is best known for its onion-shaped domes.

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Q27. Which of the following are genuinely sustainable design practices? Select all that apply.

(One or more options may be correct.)

- (A) Reducing, reusing and recycling materials to lower a product's environmental impact.



- (B) Building in planned obsolescence so products fail sooner.
- (C) Choosing single-use plastics as the default packaging.
- (D) Designing a product so it can be easily repaired, extending its useful life.

View Solution

Q28. Which of the following statements about Gestalt principles of visual perception are correct? Select all that apply.

(One or more options may be correct.)

- (A) The Gestalt view is that we always perceive parts in isolation and never as a whole.
- (B) The principle of proximity says elements placed close together are seen as a group.
- (C) The principle of similarity groups items that share colour or shape.
- (D) Figure-ground refers to distinguishing an object from its background.

View Solution

Q29. Which of the following statements about photography is correct? Select all that apply.

(One or more options may be correct.)

- (A) A wide aperture (small f-number) gives a very large depth of field.
- (B) A higher ISO setting always reduces image noise.
- (C) A fast shutter speed increases motion blur in a moving subject.
- (D) The rule of thirds is a common guideline for composing a balanced photograph.



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Section 3: Multiple Choice Questions (MCQ)

Q30. Three of the following four shapes belong to the same group. Which one is the odd one out?

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

[View Solution](#)

Q31. Find the next number in the series: 2, 6, 12, 20, 30, ?

- (A) 40
- (B) 42
- (C) 44
- (D) 36

[View Solution](#)

Q32. In a certain code, FACE is written as GBDF. Using the same rule, how is HEAD written?

- (A) JGCF
- (B) GDZC
- (C) IFBE
- (D) IFBF

[View Solution](#)



Q33. A person walks 5 m towards the north, then turns right and walks 5 m, then turns right again and walks 5 m. Which direction is the person now facing?

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

[View Solution](#)

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

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

[View Solution](#)

Q35. When seen in a plane mirror, a wall clock appears to show 3:00. What is the actual time on the clock?

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

[View Solution](#)



Q36. A cube of side 3 cm is painted on all six faces and then cut into 1 cm cubes. How many of the small cubes have paint on exactly one face?

- (A) 12
- (B) 8
- (C) 6
- (D) 4

[View Solution](#)

Q37. On a standard die, the numbers on opposite faces always add up to 7. If the top face shows 2, what number is on the bottom face?

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

[View Solution](#)

Q38. Which of the following is a serif typeface?

- (A) Times New Roman
- (B) Arial
- (C) Helvetica
- (D) Futura

[View Solution](#)

Q39. On the traditional (red-yellow-blue) colour wheel, which colour is complementary to red?

- (A) Blue



- (B) Green
- (C) Orange
- (D) Purple

[View Solution](#)

Q40. The 'India Report' of 1958, which recommended the setting up of a national design institute, was written by which designers?

- (A) Le Corbusier
- (B) Raymond Loewy
- (C) Charles and Ray Eames
- (D) Dieter Rams

[View Solution](#)

Q41. The Lotus Temple in New Delhi, known for its flower-shaped form, is a house of worship associated with which faith?

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

[View Solution](#)

Q42. Book is to Reading as Fork is to ?

- (A) Eating
- (B) Cooking
- (C) Kitchen
- (D) Food



[View Solution](#)

Q43. An architectural drawing uses a scale of 1 : 100. A wall that is 4 metres long in reality is drawn at what length?

- (A) 2 cm
- (B) 4 cm
- (C) 40 cm
- (D) 0.4 cm

[View Solution](#)

Q44. Which file format is best suited for a company logo that must be scaled to any size, from a business card to a billboard, without losing sharpness?

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

[View Solution](#)

Q45. Two paints are mixed in the ratio 3 : 2 to make 500 ml of a blend. How much of the first paint is used?

- (A) 200 ml
- (B) 250 ml
- (C) 350 ml
- (D) 300 ml

[View Solution](#)



Q46. Find the next letter in the series: A, C, F, J, O, ?

- (A) U
- (B) T
- (C) V
- (D) S

[View Solution](#)

Q47. The famous painting 'The Persistence of Memory', showing soft, melting clocks in a dreamlike landscape, was created by which artist?

- (A) Pablo Picasso
- (B) Salvador Dali
- (C) Claude Monet
- (D) Vincent van Gogh

[View Solution](#)

Q48. Bidriware, a metal handicraft decorated with fine silver inlay on a blackened alloy, is traditionally associated with which Indian state?

- (A) Rajasthan
- (B) Gujarat
- (C) Karnataka
- (D) Kerala

[View Solution](#)

Q49. In visual perception, which Gestalt principle explains why a row of separate dashes is seen as one continuous line?

- (A) Proximity



- (B) Similarity
- (C) Closure
- (D) Continuity

[View Solution](#)

Q50. Which of the following packaging materials is biodegradable?

- (A) Jute
- (B) Polythene
- (C) Thermocol
- (D) Nylon

[View Solution](#)

Q51. If each letter is replaced by its position number in the English alphabet (A = 1, B = 2, and so on), what is the code for the word CAT?

- (A) 3-1-19
- (B) 3-1-20
- (C) 2-1-20
- (D) 3-2-20

[View Solution](#)

Q52. A man walks 3 km due east and then 4 km due north. How far is he from his starting point?

- (A) 7 km
- (B) 1 km
- (C) 5 km
- (D) 12 km



[View Solution](#)

Q53. A circular pie chart is divided into 8 equal sectors. What is the angle at the centre of each sector?

- (A) 30°
- (B) 60°
- (C) 90°
- (D) 45°

[View Solution](#)

Q54. In photography, which camera setting most directly controls the depth of field (how much of the scene is in sharp focus)?

- (A) Aperture
- (B) Shutter speed
- (C) ISO
- (D) White balance

[View Solution](#)

Q55. Five friends stand in a line by height. Ravi is taller than Sita but shorter than Meena. Nita is the tallest of all. Kiran is shorter than Sita. Who is the shortest?

- (A) Sita
- (B) Kiran
- (C) Ravi
- (D) Meena

[View Solution](#)



Q56. In typography, one inch is equal to how many points?

- (A) 12
- (B) 96
- (C) 72
- (D) 100

[View Solution](#)

Q57. Which colour model is used in professional four-colour printing?

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

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

Q58. [Drawing - 50 Marks]

It is early morning aarti in an old temple courtyard. Oil lamps flicker in a row, marigold garlands hang from the pillars, and a small group of devotees stands with folded hands and closed eyes. The focal subject is the priest at the sanctum steps, reaching up with one arm to swing a large hanging brass bell while his other hand holds a lit lamp on a plate. Imagine this scene and draw it with the priest and the swinging bell as the clear centre of interest. Show the stone pillars and steps, the row of oil lamps, the hanging garlands, at least three devotees, and the temple interior fading into shadow behind.



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

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

[View Model Approach](#)

Q59. [Design Aptitude - 50 Marks]

Street food and vegetable vendors set up on pavements every day and must display their goods at a comfortable height, but they also have to pack everything onto a cycle or handcart quickly at closing time and when the police move them along. Design a portable display stand for a single street vendor that presents goods clearly at standing-buyer height when set up, and folds or collapses fast into a compact bundle one person can lift and move. Show your design in two states: (1) collapsed and bundled for transport, and (2) set up and displaying goods for sale.

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

Solution

Concept - Painted cube, edge rule: Small cubes with exactly two painted faces come from the edges of the big cube (but not the corners). For a cube cut into $n \times n \times n$ pieces, the count is $12(n - 2)$.

Step 1 - Find n : The side is 6 cm and each piece is 1 cm, so $n = 6$.

Step 2 - Apply the rule: $12(n - 2) = 12(6 - 2) = 12 \times 4 = 48$.

Tip: Remember the family: corners give 3 painted faces (always 8), edges give 2, face-centres give 1, the inside gives 0.

Answer: 48 [Go Back to Q1](#)

Q2.

Q. In the ISO 'A' paper series an A0 sheet has an area of one square metre, and each next size (A1, A2, and so on) is made by halving the previous sheet. How many A4 sheets have the same total area as one A0 sheet?

Solution

Concept - Halving series: Going from A0 to A4 is four halving steps (A0 to A1 to A2 to A3 to A4). Each step halves the area, so



the number of A4 sheets in one A0 is 2^4 .

Step 1 - Count the steps: A0 to A4 is 4 steps.

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

Tip: A handy fact for layout work: an A_n sheet holds $2^{(k-n)}$ copies of an A_k sheet by area.

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

Q3.

Q. In typography 1 pica equals 12 points and 1 inch equals 72 points. A page margin measures 2.5 inches. How many points wide is this margin?

Solution

Concept - Unit conversion: Convert inches directly to points using
1 inch = 72 points.

Step 1 - Multiply: $2.5 \times 72 = 180$ points.

Tip: The pica figure is a distractor here; you only need the inch-to-point rate. Points are the base unit designers set type in.

Answer: 180 [Go Back to Q3](#)

Q4.

Q. A designer draws a rectangle whose sides are in the ratio 3 : 5. If the longer side is 20 cm, what is the length of the shorter side in centimetres?



Solution

Concept - Ratio scaling: The sides share one scale factor. The longer side matches the '5' part, so one part equals $20/5$.

Step 1 - Value of one part: $20 \div 5 = 4$ cm per part.

Step 2 - Shorter side: The shorter side is 3 parts: $3 \times 4 = 12$ cm.

Tip: Always attach the larger ratio number to the larger measurement before solving.

Answer: 12 [Go Back to Q4](#)

Q5.

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

Solution

Concept - Hidden inner core: Unpainted cubes form the inner block after removing one layer from every side. The count is $(n - 2)^3$.

Step 1 - Find n : $n = 4$.

Step 2 - Compute: $(4 - 2)^3 = 2^3 = 8$.

Tip: The inner core is itself a cube of side $(n - 2)$; picture peeling off the painted skin.

Answer: 8 [Go Back to Q5](#)

Q6.



Q. A logo that is 8 cm wide is enlarged so that it becomes 20 cm wide. Expressed as a percentage of the original width, what is the new width? Give the number only (without the percent sign).

Solution

Concept - Percentage of original: New width as a percent equals $\frac{\text{new}}{\text{old}} \times 100$.

Step 1 - Ratio: $20 \div 8 = 2.5$.

Step 2 - To percent: $2.5 \times 100 = 250\%$.

Tip: A value above 100% means the artwork was scaled up; below 100% means it was reduced.

Answer: 250 [Go Back to Q6](#)

Q7.

Q. In the RGB colour model each of the red, green and blue channels takes a value from 0 to 255. Pure white is made by setting all three channels to their maximum. What is the sum of the three channel values for pure white?

Solution

Concept - Additive white: White in RGB means every channel is at its top value, 255.

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

Tip: (0, 0, 0) is pure black and (255, 255, 255) is pure white. Equal values on all three channels always give a grey (or black/white)



tone.

Answer: 765 [Go Back to Q7](#)

Q8.

Q. A digital image is 1920 pixels wide and 1080 pixels tall. How many megapixels does it contain, rounded to two decimal places? (Take 1 megapixel = 1,000,000 pixels.)

Solution

Concept - Pixel count: Total pixels equal width times height; divide by one million for megapixels.

Step 1 - Total pixels: $1920 \times 1080 = 2,073,600$.

Step 2 - Convert: $2,073,600 \div 1,000,000 = 2.0736 \approx 2.07$ megapixels.

Tip: 1920 by 1080 is the common 'Full HD' resolution, roughly 2 megapixels.

Answer: 2.07 [Go Back to Q8](#)

Q9.

Q. A display screen has an aspect ratio of 16 : 9. If its width is 32 cm, what is its height in centimetres?

Solution

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

Step 1 - Value of one part: $32 \div 16 = 2$ cm per part.



Step 2 - Height: $9 \times 2 = 18$ cm.

Tip: Keep width and height on the correct ratio number; the wider figure (16) belongs to the wider side.

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

Q10.

Q. A traditional animation is played at 24 frames per second. How many separate drawings are needed for a 5-second sequence in which no frame is repeated?

Solution

Concept - Frames from frame rate: Total frames equal frame rate times duration in seconds.

Step 1 - Multiply: $24 \times 5 = 120$ frames.

Tip: In practice animators use 'twos' (one drawing held for two frames) to cut this in half, but a unique drawing per frame needs all 120.

Answer: 120 [Go Back to Q10](#)

Q11.

Q. An architect builds a scale model of a building at a scale of 1 : 50. The real building is 15 metres tall. What is the height of the model in centimetres?

Solution



Concept - Scale reduction: The model measurement is the real measurement divided by 50, kept in the same units.

Step 1 - Convert to cm: $15 \text{ m} = 1500 \text{ cm}$.

Step 2 - Divide: $1500 \div 50 = 30 \text{ cm}$.

Tip: Always convert to a single unit before dividing, or you can divide first and convert afterwards.

Answer: 30 [Go Back to Q11](#)

Q12.

Q. A rectangular floor measures 3 m by 2 m. It is fully covered with square tiles of side 0.5 m, with no gaps or cutting. How many tiles are used?

Solution

Concept - Area division: Number of tiles equals floor area divided by one tile's area.

Step 1 - Areas: Floor = $3 \times 2 = 6 \text{ m}^2$; tile = $0.5 \times 0.5 = 0.25 \text{ m}^2$.

Step 2 - Divide: $6 \div 0.25 = 24$ tiles.

Tip: You can also count along each side: $3/0.5 = 6$ tiles by $2/0.5 = 4$ tiles, giving $6 \times 4 = 24$.

Answer: 24 [Go Back to Q12](#)

Q13.



Q. Through how many degrees does the minute hand of a clock turn in 25 minutes? Give the number only.

Solution

Concept - Rotation rate: The minute hand sweeps a full 360° in 60 minutes, so it turns 6° per minute.

Step 1 - Per-minute rate: $360 \div 60 = 6^\circ$ per minute.

Step 2 - For 25 minutes: $6 \times 25 = 150^\circ$.

Tip: The hour hand is much slower at 0.5° per minute, a useful fact for clock-angle puzzles.

Answer: 150 [Go Back to Q13](#)

Q14.

Q. A shade of green is mixed using blue and yellow paint in the ratio 2 : 3. To make 250 ml of this green, how many millilitres of yellow paint are needed?

Solution

Concept - Sharing in a ratio: Total parts = $2 + 3 = 5$; yellow is 3 of those parts.

Step 1 - One part: $250 \div 5 = 50$ ml per part.

Step 2 - Yellow amount: $3 \times 50 = 150$ ml.

Tip: Check by finding blue: $2 \times 50 = 100$ ml, and $100 + 150 = 250$ ml, which matches.



Answer: 150 [Go Back to Q14](#)**Q15.**

Q. Read the following paragraph and answer the question related to it.

There are many subtleties to designing with audio in order to create useful, non-intrusive experiences that offer instruction, information, and feedback when users interact with everyday devices, such as mobile phones, cars, toys etc. If audio might play a part in your design, what are some considerations, with specific regard to cognitive loads on users and aesthetics of interaction that you must keep in mind? Pick all that apply.

- (A) Audio is linear, time-sensitive, and transient; therefore good design must limit the number of audio menu options.
- (B) Users will often listen to all choices before picking one; long lists overtax memory, so keep choices pertinent and parsimonious.
- (C) Using jargon in instruction enhances user experience, since it enables users to create shortcuts more easily and to utilize deeper features.
- (D) Keep prompts brief, simple, and familiar (avoid jargon); use audio sparingly so it doesn't overload attention.

Solution

Concept - Audio interaction and cognitive load: Sound is heard over time and then gone, so users must remember it. Good audio design keeps demands on memory and attention low.



Option A: True. Because audio is linear and transient, limiting the number of menu options is sound practice.

Option B: True. Users often wait to hear all options; short, relevant lists ease memory load.

Option C: False. Jargon adds confusion and raises cognitive load rather than helping.

Option D: True. Brief, familiar, sparing prompts respect the user's attention.

Tip: For sound-based interfaces, less is more: short, plain, and few.

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

Q16.

Q. Which of the following statements about the Bauhaus school are correct? Select all that apply.

- (A) The Bauhaus was founded in Paris by Le Corbusier.
- (B) Walter Gropius founded the Bauhaus in Weimar, Germany, in 1919.
- (C) The Bauhaus promoted the unity of art, craft, and industrial technology.
- (D) The Bauhaus is best known for its heavily ornate, Baroque decorative style.

Solution

Concept - Bauhaus (1919-1933): A German school that fused fine art, craft and mass production, shaping modern design.



Option A: False. It was founded in Weimar, Germany, by Walter Gropius, not in Paris by Le Corbusier.

Option B: True. Gropius founded it in Weimar in 1919.

Option C: True. Uniting art, craft and industry was its central idea.

Option D: False. Its look is minimal and functional, the opposite of Baroque ornament.

Tip: Link Bauhaus with 'form follows function' and clean geometry.

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

Q17.

Q. Which of the following statements about Indian folk and traditional crafts is correct? Select all that apply.

- (A) Madhubani painting originates from Rajasthan.
- (B) Warli painting uses realistic three-dimensional shading.
- (C) Pattachitra is a traditional cloth-based scroll painting from Odisha and West Bengal.
- (D) Phulkari is a metal-casting craft from Kerala.

Solution

Concept - Regional Indian crafts: Each craft is tied to a specific region and technique.

Option A: False. Madhubani comes from the Mithila region of Bihar, not Rajasthan.

Option B: False. Warli uses simple white geometric shapes on an



earth background, with no realistic shading.

Option C: True. Pattachitra is a scroll painting tradition of Odisha and West Bengal.

Option D: False. Phulkari is a floral embroidery of Punjab, not metal casting from Kerala.

Tip: Pair each craft with its home state; the odd-region trick is a common distractor.

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

Q18.

Q. Which of the following statements about colour mixing are correct? Select all that apply.

- (A) Red, green and blue are the primary colours of subtractive (pigment) mixing.
- (B) In the RGB additive model, combining red and green light produces yellow.
- (C) Complementary colours sit next to each other on the colour wheel.
- (D) Cyan, magenta and yellow are the primary colours used in colour printing.

Solution

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

Option A: False. RGB are the additive primaries of light, not the



subtractive primaries.

Option B: True. Red light plus green light gives yellow.

Option C: False. Complementary colours sit opposite each other, not adjacent.

Option D: True. Printing uses cyan, magenta and yellow (with black added as K).

Tip: Screens add light (RGB); print subtracts light with ink (CMYK).

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

Q19.

Q. Which of the following statements about typography are correct? Select all that apply.

- (A) Serifs are the small strokes at the ends of letterforms.
- (B) Kerning refers to the vertical spacing between lines of text.
- (C) Helvetica is a widely used sans-serif typeface.
- (D) Leading refers to the spacing between lines of text.

Solution

Concept - Type vocabulary: Designers separate letter shape, letter spacing and line spacing.

Option A: True. Serifs are the little finishing strokes at stroke ends.

Option B: False. Kerning is the space between two specific letters, not the space between lines.



Option C: True. Helvetica is a classic sans-serif.

Option D: True. Leading is the vertical space between lines of text.

Tip: Kerning = between letters; leading = between lines; tracking = across a whole word or block.

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

Q20.

Q. Which of the following statements about well-known designers are correct? Select all that apply.

- (A) The Hindustan Ambassador car was designed by Charles Eames.
- (B) Raymond Loewy is famous for Madhubani painting.
- (C) Dieter Rams, associated with Braun, is known for his 'Ten Principles of Good Design'.
- (D) Charles and Ray Eames are known for their moulded plywood and fibreglass chairs.

Solution

Concept - Designers and their work: Match each name to the correct field and product.

Option A: False. The Ambassador was made by Hindustan Motors, based on the Morris Oxford, not designed by Charles Eames.

Option B: False. Raymond Loewy was an industrial designer (logos, streamlined products), not a folk painter.

Option C: True. Dieter Rams of Braun gave us the 'Ten Principles of



Good Design’.

Option D: True. The Eames couple pioneered moulded plywood and fibreglass furniture.

Tip: ‘Good design is as little design as possible’ is Rams’s famous closing principle.

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

Q21.

Q. Which of the following statements about design education and institutions in India is correct? Select all that apply.

- (A) The National Institute of Design (NID) is located in Kolkata.
- (B) The ‘India Report’, which led to NID, was written by Charles and Ray Eames in 1997.
- (C) UCEED is conducted for admission to postgraduate design programmes only.
- (D) The National Institute of Design was established in Ahmedabad in 1961.

Solution

Concept - NID and the India Report: NID grew out of the Eames’ India Report and became a landmark of Indian design education.

Option A: False. NID’s main campus is in Ahmedabad, not Kolkata.

Option B: False. The India Report was written by Charles and Ray Eames in 1958, not 1997.

Option C: False. UCEED is for undergraduate design admission;



the postgraduate test is CEED.

Option D: True. NID was established in Ahmedabad in 1961.

Tip: UCEED = undergraduate; CEED = postgraduate. Keep the two apart.

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

Q22.

Q. Which of the following are sound principles of usable interface and interaction design? Select all that apply.

- (A) Consistency in an interface helps users predict how controls will behave.
- (B) Providing clear feedback after a user action improves usability.
- (C) A good visual hierarchy guides the eye to the most important element first.
- (D) Accessible design takes into account users with different abilities and needs.

Solution

Concept - Usability heuristics: Consistency, feedback, hierarchy and accessibility are all core good-design principles.

Option A: True. Consistent controls let users transfer what they learn.

Option B: True. Feedback tells users their action was registered.

Option C: True. Visual hierarchy directs attention in the right order.



Option D: True. Inclusive, accessible design serves a wider range of users.

Tip: When every option states a genuine best practice, do not hunt for a trap; all four can be correct.

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

Q23.

Q. Which of the following statements about digital image file formats is correct? Select all that apply.

- (A) JPEG is a lossless format ideal for sharp-edged line art and text.
- (B) PNG supports transparency and uses lossless compression.
- (C) SVG is a raster format made up of individual pixels.
- (D) GIF images can display up to 16 million colours at once.

Solution

Concept - Raster vs vector, lossy vs lossless: Each format suits a different job.

Option A: False. JPEG is lossy and best for photographs; it blurs sharp edges and text.

Option B: True. PNG is lossless and supports transparency.

Option C: False. SVG is a vector format defined by maths, not pixels.

Option D: False. GIF is limited to a 256-colour palette, not 16 million.



Tip: Photos to JPEG, transparency to PNG, logos to SVG, tiny animations to GIF.

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

Q24.

Q. Which of the following statements about art and design movements are correct? Select all that apply.

- (A) Cubism was pioneered by Pablo Picasso and Georges Braque.
- (B) Art Nouveau is characterised by flowing, organic, plant-like lines.
- (C) Minimalism is defined by heavy ornamentation and rich surface detail.
- (D) Surrealism focuses on precise, factual documentary realism.

Solution

Concept - Movement signatures: Each movement has a recognisable visual character.

Option A: True. Picasso and Braque founded Cubism.

Option B: True. Art Nouveau uses flowing, organic, plant-inspired lines.

Option C: False. Minimalism strips away ornament rather than adding it.

Option D: False. Surrealism explores dreams and the unconscious, not documentary realism.

Tip: Cubism = fractured geometry; Art Nouveau = curves;



Minimalism = bare; Surrealism = dreamlike.

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

Q25.

Q. Which of the following statements about materials and manufacturing processes are correct? Select all that apply.

- (A) Injection moulding is mainly used to shape solid timber.
- (B) Clay is a common material for traditional pottery and terracotta.
- (C) Anodising is a surface treatment applied to aluminium.
- (D) Blow moulding is commonly used to make hollow plastic bottles.

Solution

Concept - Process to material fit: Each process works with particular materials.

Option A: False. Injection moulding shapes molten plastic (or metal), not solid timber.

Option B: True. Clay is the classic material for pottery and terracotta.

Option C: True. Anodising thickens the protective oxide layer on aluminium.

Option D: True. Blow moulding forms hollow items like plastic bottles.

Tip: Injection moulding = solid plastic parts; blow moulding =



hollow plastic parts.

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

Q26.

Q. Which of the following statements about Indian architecture is correct? Select all that apply.

- (A) The Taj Mahal is built primarily of red sandstone.
- (B) Fatehpur Sikri was built by Shah Jahan.
- (C) The stepwell (baoli or vav) is a traditional Indian water-harvesting structure.
- (D) Dravidian temple architecture is best known for its onion-shaped domes.

Solution

Concept - Indian built heritage: Match each structure to its correct material, patron and style.

Option A: False. The Taj Mahal is built mainly of white marble, not red sandstone.

Option B: False. Fatehpur Sikri was built by Akbar, not Shah Jahan.

Option C: True. Stepwells are traditional water-harvesting structures.

Option D: False. Dravidian temples are known for tall pyramidal gopurams, not onion domes (which are Mughal).

Tip: Onion domes = Mughal; tiered gopurams = Dravidian temples.



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

Q27.

Q. Which of the following are genuinely sustainable design practices? Select all that apply.

- (A) Reducing, reusing and recycling materials to lower a product's environmental impact.
- (B) Building in planned obsolescence so products fail sooner.
- (C) Choosing single-use plastics as the default packaging.
- (D) Designing a product so it can be easily repaired, extending its useful life.

Solution

Concept - Sustainable design: Good practice cuts waste and extends product life.

Option A: True. The three R's lower environmental impact.

Option B: False. Planned obsolescence creates more waste, the opposite of sustainable.

Option C: False. Single-use plastics add to pollution.

Option D: True. Repairability keeps products in use longer.

Tip: Sustainability favours longer life and less waste; anything that shortens life is a red flag.

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

Q28.



Q. Which of the following statements about Gestalt principles of visual perception are correct? Select all that apply.

- (A) The Gestalt view is that we always perceive parts in isolation and never as a whole.
- (B) The principle of proximity says elements placed close together are seen as a group.
- (C) The principle of similarity groups items that share colour or shape.
- (D) Figure-ground refers to distinguishing an object from its background.

Solution

Concept - Gestalt grouping: 'The whole is greater than the sum of its parts'; the mind groups visual elements.

Option A: False. Gestalt says we perceive organised wholes, not isolated parts.

Option B: True. Proximity groups nearby elements.

Option C: True. Similarity groups items of like colour or shape.

Option D: True. Figure-ground separates an object from its background.

Tip: Common Gestalt principles: proximity, similarity, closure, continuity and figure-ground.

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

Q29.



Q. Which of the following statements about photography is correct?
Select all that apply.

- (A) A wide aperture (small f-number) gives a very large depth of field.
- (B) A higher ISO setting always reduces image noise.
- (C) A fast shutter speed increases motion blur in a moving subject.
- (D) The rule of thirds is a common guideline for composing a balanced photograph.

Solution

Concept - Exposure and composition: Aperture, ISO and shutter speed each affect the image in a set way.

Option A: False. A wide aperture gives a shallow depth of field, blurring the background.

Option B: False. A higher ISO increases noise, not reduces it.

Option C: False. A fast shutter freezes motion and reduces blur.

Option D: True. The rule of thirds helps compose balanced photographs.

Tip: Wide aperture = blurred background; fast shutter = frozen action; low ISO = cleaner image.

Answer: D [Go Back to Q29](#)

Q30.

Q. Three of the following four shapes belong to the same group.
Which one is the odd one out?



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

Solution

Concept - Odd one out by property: Look for the shared feature that one item lacks.

Step 1 - Test the group: Circle, square and triangle are all flat, two-dimensional shapes.

Step 2 - Find the misfit: A cube is a three-dimensional solid, so it does not belong.

Tip: Always name the common property first; the option that fails it is the answer.

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

Q31.

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

- (A) 40
 - (B) 42
 - (C) 44
 - (D) 36
-

Solution

Concept - Growing differences: Check the gaps between terms.



Step 1 - Differences: 4, 6, 8, 10, each rising by 2, so the next gap is 12.

Step 2 - Next term: $30 + 12 = 42$.

Tip: These terms are also $n(n + 1)$: $1 \cdot 2, 2 \cdot 3, \dots, 6 \cdot 7 = 42$.

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

Q32.

Q. In a certain code, FACE is written as GBDF. Using the same rule, how is HEAD written?

- (A) JGCF
- (B) GDZC
- (C) IFBE
- (D) IFBF

Solution

Concept - Letter-shift code: Compare each coded letter with its original.

Step 1 - Find the rule: F to G, A to B, C to D, E to F: every letter moves forward by one.

Step 2 - Apply to HEAD: H to I, E to F, A to B, D to E, giving IFBE.

Tip: Write the alphabet positions to shift letters quickly and avoid slips.

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

Q33.



Q. A person walks 5 m towards the north, then turns right and walks 5 m, then turns right again and walks 5 m. Which direction is the person now facing?

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

Solution

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

Step 1 - Track facing: Start facing north; first right turn faces east.

Step 2 - Second turn: A second right turn from east faces south.

Tip: Only turns change the facing direction; the distances walked do not.

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

Q34.

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

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



Solution

Concept - Step through the chain: Resolve each relation term one at a time.

Step 1 - Grandfather's only son: That is Rita's father.

Step 2 - His daughter: The daughter of Rita's father is Rita's sister.

Tip: 'Only son of my grandfather' is a standard clue that points to the speaker's own father.

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

Q35.

Q. When seen in a plane mirror, a wall clock appears to show 3:00. What is the actual time on the clock?

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

Solution

Concept - Mirror time rule: The actual time equals 12:00 minus the time shown in the mirror.

Step 1 - Subtract: $12:00 - 3:00 = 9:00$.

Step 2 - Confirm: The reflection of a 9:00 clock does read as 3:00.

Tip: For minutes past the hour, use 11:60 minus the shown time instead of 12:00.



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

Q36.

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

- (A) 12
- (B) 8
- (C) 6
- (D) 4

Solution

Concept - One-face cubes: These come from the centre of each face, counted by $6(n - 2)^2$.

Step 1 - Find n : $n = 3$.

Step 2 - Compute: $6(3 - 2)^2 = 6 \times 1 = 6$.

Tip: For a 3 by 3 by 3 cube, each face has exactly one single-painted centre cube, so 6 in total.

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

Q37.

Q. On a standard die, the numbers on opposite faces always add up to 7. If the top face shows 2, what number is on the bottom face?

- (A) 6
- (B) 4



(C) 7

(D) 5

Solution

Concept - Opposite faces sum to 7: Bottom equals 7 minus the top.

Step 1 - Subtract: $7 - 2 = 5$.

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

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

Q38.

Q. Which of the following is a serif typeface?

(A) Times New Roman

(B) Arial

(C) Helvetica

(D) Futura

Solution

Concept - Serif vs sans-serif: Serif faces have small finishing strokes at the ends of letters; sans-serif faces do not.

Step 1 - Check the options: Arial, Helvetica and Futura are all sans-serif.

Step 2 - Identify the serif: Times New Roman carries serifs.

Tip: 'Sans' means 'without', so sans-serif means without serifs.



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

Q39.

Q. On the traditional (red-yellow-blue) colour wheel, which colour is complementary to red?

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

Solution

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

Step 1 - Locate red's opposite: Directly across from red is green.

Tip: Classic complementary pairs are red-green, blue-orange and yellow-purple.

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

Q40.

Q. The 'India Report' of 1958, which recommended the setting up of a national design institute, was written by which designers?

- (A) Le Corbusier
- (B) Raymond Loewy
- (C) Charles and Ray Eames
- (D) Dieter Rams



Solution

Concept - Origins of NID: The India Report guided the creation of the National Institute of Design.

Step 1 - Recall the authors: Charles and Ray Eames wrote the report in 1958.

Step 2 - Rule out others: Le Corbusier worked on Chandigarh; Loewy and Rams are industrial designers unconnected to the report.

Tip: Link 'India Report' directly with the Eames couple and NID Ahmedabad.

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

Q41.

Q. The Lotus Temple in New Delhi, known for its flower-shaped form, is a house of worship associated with which faith?

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

Solution

Concept - Iconic modern architecture: The Lotus Temple is a Bahai House of Worship, open to people of all faiths.

Step 1 - Identify the faith: It belongs to the Bahai faith.



Tip: It was designed by architect Fariborz Sahba and completed in 1986, shaped like a lotus with 27 petals.

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

Q42.

Q. Book is to Reading as Fork is to ?

- (A) Eating
- (B) Cooking
- (C) Kitchen
- (D) Food

Solution

Concept - Function analogy: A book is a tool used for reading, so match the tool to its main use.

Step 1 - Define the link: The object names the action it is used to do.

Step 2 - Apply it: A fork is used for eating.

Tip: Pick the verb that matches the action, not the place (kitchen) or the material (food).

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

Q43.

Q. An architectural drawing uses a scale of 1 : 100. A wall that is 4 metres long in reality is drawn at what length?

- (A) 2 cm



- (B) 4 cm
 - (C) 40 cm
 - (D) 0.4 cm
-

Solution

Concept - Scale conversion: The drawing length is the real length divided by 100, in matching units.

Step 1 - Convert: $4 \text{ m} = 400 \text{ cm}$.

Step 2 - Divide: $400 \div 100 = 4 \text{ cm}$.

Tip: At 1:100, every 1 metre in reality becomes 1 cm on paper.

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

Q44.

Q. Which file format is best suited for a company logo that must be scaled to any size, from a business card to a billboard, without losing sharpness?

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

Solution

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



Step 1 - Sort the options: JPEG, PNG and BMP are raster (pixel) formats that blur when enlarged.

Step 2 - Choose the vector: SVG is a vector format, ideal for scalable logos.

Tip: Logos and icons are best kept as vectors so they never pixelate.

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

Q45.

Q. Two paints are mixed in the ratio 3 : 2 to make 500 ml of a blend. How much of the first paint is used?

- (A) 200 ml
- (B) 250 ml
- (C) 350 ml
- (D) 300 ml

Solution

Concept - Sharing in a ratio: Total parts = $3 + 2 = 5$; the first paint is 3 parts.

Step 1 - One part: $500 \div 5 = 100$ ml.

Step 2 - First paint: $3 \times 100 = 300$ ml.

Tip: Check: the second paint is $2 \times 100 = 200$ ml, and $300 + 200 = 500$ ml.

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

Q46.



Q. Find the next letter in the series: A, C, F, J, O, ?

- (A) U
- (B) T
- (C) V
- (D) S

Solution

Concept - Growing letter gaps: Look at how many places each letter jumps.

Step 1 - Gaps: A to C is +2, C to F is +3, F to J is +4, J to O is +5, so the next jump is +6.

Step 2 - Next letter: O plus 6 places is U.

Tip: Convert letters to numbers (A=1) when the jumps grow, to avoid miscounting.

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

Q47.

Q. The famous painting 'The Persistence of Memory', showing soft, melting clocks in a dreamlike landscape, was created by which artist?

- (A) Pablo Picasso
 - (B) Salvador Dali
 - (C) Claude Monet
 - (D) Vincent van Gogh
-



Solution

Concept - Surrealist masterpiece: The melting clocks are a hallmark of Surrealism.

Step 1 - Recall the artist: Salvador Dali painted it in 1931.

Step 2 - Rule out others: Picasso led Cubism, Monet led Impressionism, van Gogh was Post-Impressionist.

Tip: Melting clocks plus dreamlike scene equals Dali and Surrealism.

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

Q48.

Q. Bidriware, a metal handicraft decorated with fine silver inlay on a blackened alloy, is traditionally associated with which Indian state?

- (A) Rajasthan
- (B) Gujarat
- (C) Karnataka
- (D) Kerala

Solution

Concept - Craft and its region: Bidriware takes its name from the town of Bidar.

Step 1 - Locate Bidar: Bidar is in Karnataka.

Tip: The name of a craft often points to its home town, as with Bidri from Bidar.



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

Q49.

Q. In visual perception, which Gestalt principle explains why a row of separate dashes is seen as one continuous line?

- (A) Proximity
- (B) Similarity
- (C) Closure
- (D) Continuity

Solution

Concept - Gestalt continuity: The eye prefers to follow a smooth, continuous path.

Step 1 - Match the effect: Seeing dashes as a single flowing line is the principle of continuity (good continuation).

Step 2 - Rule out closure: Closure is about completing a gap to form a whole shape, which is different.

Tip: Continuity = following a path; closure = filling in a missing outline.

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

Q50.

Q. Which of the following packaging materials is biodegradable?

- (A) Jute
- (B) Polythene



- (C) Thermocol
(D) Nylon

Solution

Concept - Biodegradability: Natural, plant-based materials break down; most synthetic plastics do not.

Step 1 - Classify: Polythene, thermocol and nylon are synthetic plastics that persist in the environment.

Step 2 - Choose the natural one: Jute is a natural plant fibre and biodegrades.

Tip: Look for natural fibres (jute, cotton, paper) when a biodegradable option is asked.

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

Q51.

Q. If each letter is replaced by its position number in the English alphabet (A = 1, B = 2, and so on), what is the code for the word CAT?

- (A) 3-1-19
(B) 3-1-20
(C) 2-1-20
(D) 3-2-20

Solution

Concept - Position coding: Replace each letter by its alphabet



number.

Step 1 - Find positions: C is 3, A is 1, T is 20.

Step 2 - Write the code: 3-1-20.

Tip: Anchor on landmark letters: E=5, J=10, O=15, T=20, Z=26 to count quickly.

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

Q52.

Q. A man walks 3 km due east and then 4 km due north. How far is he from his starting point?

- (A) 7 km
- (B) 1 km
- (C) 5 km
- (D) 12 km

Solution

Concept - Right-angled displacement: East and north are at right angles, so use the Pythagorean theorem.

Step 1 - Apply the theorem: $\sqrt{3^2 + 4^2} = \sqrt{9 + 16} = \sqrt{25}$.

Step 2 - Simplify: $\sqrt{25} = 5$ km.

Tip: 3-4-5 is the most common right-triangle set; spotting it saves time.

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

Q53.



Q. A circular pie chart is divided into 8 equal sectors. What is the angle at the centre of each sector?

- (A) 30°
- (B) 60°
- (C) 90°
- (D) 45°

Solution

Concept - Equal sectors of a circle: The full angle at the centre is 360° ; divide it equally.

Step 1 - Divide: $360 \div 8 = 45^\circ$.

Tip: Each equal slice of a circle covers 360° divided by the number of slices.

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

Q54.

Q. In photography, which camera setting most directly controls the depth of field (how much of the scene is in sharp focus)?

- (A) Aperture
- (B) Shutter speed
- (C) ISO
- (D) White balance

Solution

Concept - Depth of field: Aperture (the size of the lens opening)



controls how much of the scene is sharp.

Step 1 - Match the roles: Shutter speed controls motion blur, ISO controls sensitivity and noise, white balance controls colour.

Step 2 - Choose aperture: A wide aperture gives a shallow depth of field; a narrow one gives a deep one.

Tip: Think 'aperture for focus depth, shutter for motion, ISO for brightness/noise'.

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

Q55.

Q. Five friends stand in a line by height. Ravi is taller than Sita but shorter than Meena. Nita is the tallest of all. Kiran is shorter than Sita. Who is the shortest?

- (A) Sita
- (B) Kiran
- (C) Ravi
- (D) Meena

Solution

Concept - Ordering by clues: Build a single height order from tallest to shortest.

Step 1 - Combine clues: Meena is above Ravi, Ravi above Sita, Sita above Kiran, and Nita is tallest overall.

Step 2 - Full order: Nita > Meena > Ravi > Sita > Kiran.

Tip: The shortest is Kiran, at the bottom of the chain.



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

Q56.

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

- (A) 12
- (B) 96
- (C) 72
- (D) 100

Solution

Concept - Typographic units: The point is the base unit for type size.

Step 1 - Recall the rule: 1 inch equals 72 points.

Step 2 - Rule out others: 12 points make a pica, and 96 is pixels per inch on many screens, not points.

Tip: Remember the chain: 1 inch = 6 picas = 72 points.

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

Q57.

Q. Which colour model is used in professional four-colour printing?

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



Solution

Concept - Print colour model: Printing mixes inks subtractively using Cyan, Magenta, Yellow and Key (black).

Step 1 - Match to use: RGB and HEX are for screens; HSB is a way of picking colour, not printing.

Step 2 - Choose CMYK: CMYK is the standard for print.

Tip: Screens use RGB (light); print uses CMYK (ink).

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

Q58.

Q (Drawing). It is early morning aarti in an old temple courtyard. Oil lamps flicker in a row, marigold garlands hang from the pillars, and a small group of devotees stands with folded hands and closed eyes. The focal subject is the priest at the sanctum steps, reaching up with one arm to swing a large hanging brass bell while his other hand holds a lit lamp on a plate. Imagine this scene and draw it with the priest and the swinging bell as the clear centre of interest. Show the stone pillars and steps, the row of oil lamps, the hanging garlands, at least three devotees, and the temple interior fading into shadow behind.

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

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

Model Approach and Evaluation



Read this as a devotional scene where architecture frames a single gesture. Plan the pillars and the priest's reach first.

Step 1 - Set perspective and the courtyard: Pick a standing eye level and let the row of pillars and steps recede to a vanishing point into the sanctum. The receding pillars will do most of the depth work, so space them shrinking toward the back.

Step 2 - Compose in layers: Build three depths - the priest and bell up front, the standing devotees in the middle, the shadowed interior behind. Let the hanging garlands and lamps frame the top and sides so the courtyard feels enclosed.

Step 3 - Make the focal subject win: Place the priest and the swinging bell near a strong third and give the bell the brightest surround and the sharpest lines. Let the pillars, the steps and the devotees' folded hands all point inward toward that gesture.

Step 4 - Fix proportion, then refine line quality: Check the priest's upward reach and that the bell, lamps and pillars sit at believable relative sizes. Then vary weight - firm dark strokes on the priest, bell and near pillar, and light strokes for the dim interior and distant detail.

Tip: Let dark and light do the mood. Keep the sanctum background in soft shade and the bell and lamp flames as the lightest, sharpest notes, so the eye is pulled to the ritual. [Go Back to Q58](#)

Q59.

Q (Design Aptitude). Street food and vegetable vendors set up on pavements every day and must display their goods at a comfortable height, but they also have to pack everything onto a cycle or



handcart quickly at closing time and when the police move them along. Design a portable display stand for a single street vendor that presents goods clearly at standing-buyer height when set up, and folds or collapses fast into a compact bundle one person can lift and move. Show your design in two states: (1) collapsed and bundled for transport, and (2) set up and displaying goods for sale.

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 rapid set-up and tear-down problem - stable when selling, tiny and light when moving. Sketch the frame and how it folds.

Step 1 - Nail the requirements: Fix the constraints - display surface at buyer height, quick one-person set-up and collapse, stable on uneven pavement, and a compact light bundle. Let each drawn feature answer one of these.

Step 2 - Show the two required states: Draw state one as the collapsed frame strapped into a slim bundle with a shoulder sling. Draw state two open, legs splayed, tiers of goods displayed at chest height. Keep the same members visible in both so it reads as one folding object.

Step 3 - Label features, do not write essays: Use short leader labels - "scissor legs", "foldout tray", "snap lock", "levelling foot", "carry sling". Two or three words each, pointing at the part.



Step 4 - Prove it works: Add a small fold sequence collapsing the legs and trays into the bundle, and a detail of a levelling foot handling an uneven kerb. This proves both the fast pack-down and stable standing display.

Tip: A scissor or folding-leg mechanism is the natural answer here. Show one clear locking joint that holds the stand rigid when open, since that single joint decides whether goods stay up or crash down. [Go Back to Q59](#)



Answer Key (Part A)

Section 1 - NAT (Numerical Answer Type)

Q1	Q2	Q3	Q4	Q5	Q6	Q7
48	16	180	12	8	250	765

Q8	Q9	Q10	Q11	Q12	Q13	Q14
2.07	18	120	30	24	150	150

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

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

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

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

Section 3 - MCQ (single correct)

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

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

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



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

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

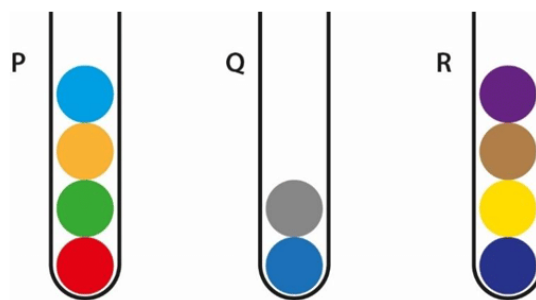


Appendix: Visual Reasoning

Practice from Past UCEED Papers

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

P1. (Past UCEED) Shown below are three tubes P, Q and R with coloured marbles. Each tube can hold a maximum of 5 marbles. Only one marble can be transferred in a move. What is the minimum number of moves required to transfer the red marble from tube 'P' to the bottom of tube 'R'?

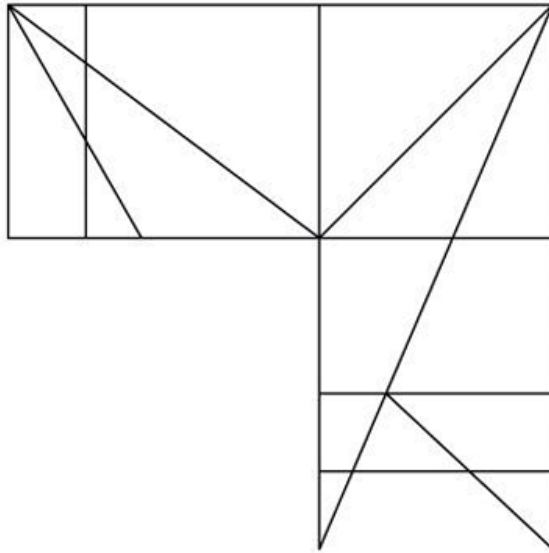


How to approach

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) How many right-angled triangles are there in the image?

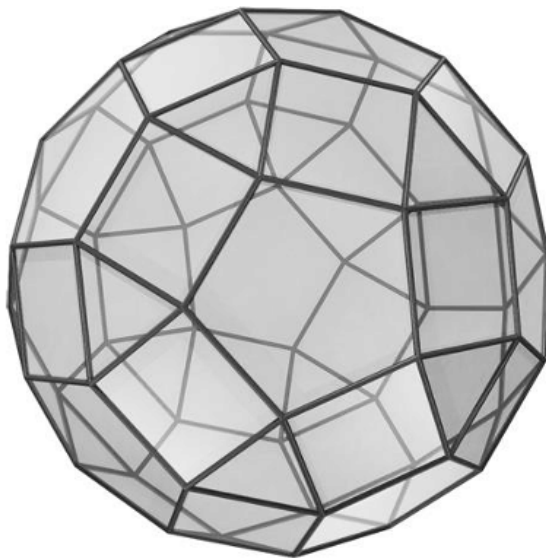




How to approach

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

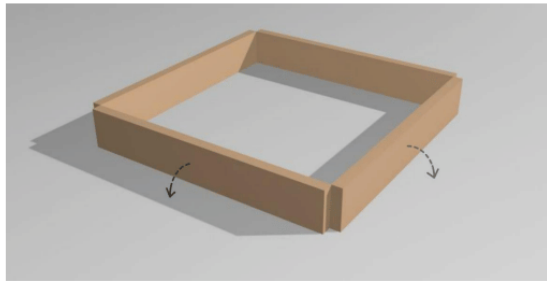
P3. (Past UCEED) The given 3D object is made by combining three shapes - pentagons, squares and triangles. What is the total number of squares?



How to approach

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

- P4. (Past UCEED)** Four identical pieces of wood of length 50 cm x 8 cm x 2 cm are arranged as shown in the figure. Another larger square is generated by rotating all the wooden panels along the outer edges and extending the outermost edges till they touch each other. What is the area of this larger square thus constructed?

**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.

