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. Two trains of unequal length have speeds of 60 and 50 km/hr. When they travel in opposite directions on straight parallel tracks, they take 9 seconds to completely cross each other. When they travel in the same direction, a person in the faster train sees the slower train for 18 seconds. For how much time (in seconds) would a person in the slower train see the faster train when the trains travel in the same direction?

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

View Solution

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

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

View Solution

Q3. In typography, 1 pica equals 12 points. A magazine text column is 30 picas wide. What is the column width in points?

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

View Solution

Q4. A photograph is to be printed 6 inches wide at a resolution of 300 pixels per inch (ppi). How many pixels wide must the image file be?

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

View Solution

Q5. A designer scales up a logo so that its height increases from 3 cm to 12 cm while keeping the same shape. By what factor does the logo's area increase?

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

View Solution

Q6. In the ISO A-series of paper sizes, A0 has an area of exactly 1 square metre, and each next size (A1, A2, ...) has half the area of the one before it. What is the area of an A4 sheet in square centimetres?

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

View Solution

Q7. A digital image uses 8 bits per channel for red, green and blue. This gives 256 possible levels per channel. How many distinct colours can this RGB system represent in total?

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

View Solution

Q8. To mix a shade of paint, white and blue are combined in the ratio 5:2 by volume. To prepare 3.5 litres of this shade, how many litres of blue paint are needed?

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

View Solution

Q9. On a standard analogue clock, what is the angle in degrees between the hour hand and the minute hand at exactly 3:30?

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

View Solution

Q10. An architect makes a scale model at 1:50. A real wall is 6 metres long. How many centimetres long is that wall in the model?

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

View Solution

Q11. A rectangular floor measuring 4 m by 3 m is to be fully covered with square tiles of side 20 cm, with no gaps or overlaps. How many tiles are required?

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

View Solution

Q12. In a user survey of 250 people, 36% said they prefer a minimalist interface. How many of the surveyed people is that?

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

View Solution

Q13. Look at the number series: 2, 6, 12, 20, 30, ... What number comes next in this series?

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

View Solution

Q14. In a page layout, body text is set at 12 points with leading (line spacing) of 150%. What is the line height in points?

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

View Solution

Section 2: Multiple Select Questions (MSQ)

Q15. Which of the following statements would you consider to be TRUE about the hour and minute hands of analogue clocks?

(One or more options may be correct.)

(A) The hour hand and the minute hand would make a 90 degree angle with each other 24 times in a day

(B) The hour hand and minute hand will overlap less than 24 times in a day

(C) The hour hand and minute hand will overlap exactly on the hour number marker only once every half a day

(D) The hour hand and minute hand will make an acute angle to each other for almost as long as it will make an obtuse angle to each other during the entire day

View Solution

Q16. In colour printing, the subtractive colour model is used. Which of the following are primary colours of the subtractive (CMY) model?

(One or more options may be correct.)

(A) Red

(B) Cyan

(C) Magenta

(D) Yellow

View Solution

Q17. Which of the following are traditional Indian painting or art forms?

(One or more options may be correct.)

(A) Madhubani

(B) Warli

(C) Origami

(D) Kalamkari

View Solution

Q18. Which of the following are raster (bitmap) image file formats?

(One or more options may be correct.)

(A) SVG

(B) PNG

(C) GIF

(D) BMP

View Solution

Q19. Which of the following statements about the additive (RGB) colour model of light are TRUE?

(One or more options may be correct.)

(A) The additive primaries are red, yellow and blue

(B) Combining red and green light gives yellow

(C) Combining red, green and blue light at full intensity gives white

(D) Magenta is produced by combining red and blue light

View Solution

Q20. Which of the following statements about camera exposure are TRUE?

(One or more options may be correct.)

(A) A larger f-number such as f/16 means a wider aperture opening

(B) A faster shutter speed lets in less light

(C) A higher ISO increases sensitivity to light but can add noise

(D) Aperture affects the depth of field of a photograph

View Solution

Q21. Which of the following are considered sustainable or eco-friendly material choices in product and packaging design?

(One or more options may be correct.)

(A) Bamboo

(B) Single-use expanded polystyrene (thermocol)

(C) Jute

(D) Recycled paper

View Solution

Q22. Which of the following pairings of a designer or architect with their well-known work is CORRECT?

(One or more options may be correct.)

(A) Le Corbusier - master plan of the city of Chandigarh

(B) Charles and Ray Eames - the moulded plywood and fibreglass chairs

(C) Raymond Loewy - industrial design and streamlining

(D) Antoni Gaudi - the Sagrada Familia in Barcelona

View Solution

Q23. Which of the following statements about typography are TRUE?

(One or more options may be correct.)

(A) Kerning is the adjustment of space between two specific characters

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

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

(D) In print units, 1 pica equals 10 points

View Solution

Q24. Which of the following materials are naturally biodegradable?

(One or more options may be correct.)

(A) Glass

(B) Cotton

(C) Aluminium

(D) Wood

View Solution

Q25. Which of the following statements about the CMYK colour model is TRUE?

(One or more options may be correct.)

(A) The K in CMYK stands for a shade of blue

(B) CMYK is an additive colour model used for computer screens

(C) The K in CMYK stands for 'key', which is the black plate

(D) CMYK can reproduce a wider range of colours than any computer screen

View Solution

Q26. Which of the following are UNESCO World Heritage Sites located in India?

(One or more options may be correct.)

(A) Qutub Minar, Delhi

(B) Statue of Liberty, New York

(C) Group of Monuments at Hampi, Karnataka

(D) The Great Wall of China

View Solution

Q27. Which of the following statements about the elements and principles of design are TRUE?

(One or more options may be correct.)

(A) Line, shape, colour and texture are elements of design

(B) Balance can be symmetrical or asymmetrical

(C) Contrast helps create visual hierarchy

(D) Rhythm in a composition can be created through repetition

View Solution

Q28. Which of the following statements about camera lenses are TRUE?

(One or more options may be correct.)

(A) A wide-angle lens has a shorter focal length than a telephoto lens

(B) A 50 mm lens on a full-frame camera is often called a 'normal' lens

(C) A telephoto lens tends to compress apparent perspective

(D) Focal length is measured in pixels

View Solution

Q29. Which of the following are renewable sources of energy?

(One or more options may be correct.)

(A) Solar

(B) Coal

(C) Wind

(D) Natural gas

View Solution

Section 3: Multiple Choice Questions (MCQ)

Q30. Warli, one of India's best known tribal painting traditions with white geometric figures on an earthen background, originates from which state?

(A) Maharashtra

(B) West Bengal

(C) Odisha

(D) Kerala

View Solution

Q31. The Madhubani (Mithila) painting tradition, known for dense natural dyes and bold outlines of gods, fish and peacocks, comes from which Indian state?

(A) Gujarat

(B) Bihar

(C) Assam

(D) Punjab

View Solution

Q32. Pattachitra, a traditional cloth-based scroll painting with fine detail and mythological themes, is most closely associated with which state?

(A) Rajasthan

(B) Tamil Nadu

(C) Odisha

(D) Himachal Pradesh

View Solution

Q33. Blue Pottery, a glazed ceramic craft famous for its cobalt-blue floral patterns, is most strongly associated with which Indian city?

(A) Lucknow

(B) Mysuru

(C) Kolkata

(D) Jaipur

View Solution

Q34. For eco-friendly packaging, a designer wants the most biodegradable natural material. Which of these best fits that goal?

(A) Jute fibre

(B) Expanded polystyrene (thermocol)

(C) PVC sheet

(D) Acrylic plastic

View Solution

Q35. The Dhokra tribal metal craft, which produces figurines like the Bastar horse, is made using which casting technique?

(A) Sand casting

(B) Lost-wax (cire perdue) casting

(C) Pressure die casting

(D) Electroforming

View Solution

Q36. Cathy has less money than David. Cathy and David together have as much money as Alice and Bob together. Alice and David together have less money than Bob and Cathy together. What is the correct richest-poorest pairing?

(A) Bob-Cathy

(B) Bob-Alice

(C) David-Cathy

(D) Cathy-Alice

View Solution

Q37. The Bauhaus, the influential design school founded in Germany in 1919 that unified art, craft and technology, was founded by which architect?

(A) Ludwig Mies van der Rohe

(B) Le Corbusier

(C) Walter Gropius

(D) Wassily Kandinsky

View Solution

Q38. The planned city of Chandigarh, with its grid of numbered sectors, was master-planned by which architect?

(A) Louis Kahn

(B) Edwin Lutyens

(C) Charles Correa

(D) Le Corbusier

View Solution

Q39. The National Institute of Design (NID), India's premier design school and the body that conducts UCEED's sister exams, has its founding main campus in which city?

(A) Ahmedabad

(B) Bengaluru

(C) Pune

(D) New Delhi

View Solution

Q40. The Lotus Temple in New Delhi, shaped like a half-open lotus flower with 27 marble petals, was designed by which architect?

(A) B. V. Doshi

(B) Fariborz Sahba

(C) Hafeez Contractor

(D) Raj Rewal

View Solution

Q41. Which of these materials is a thermoplastic, meaning it can be melted and reshaped many times?

(A) Bakelite

(B) Epoxy resin

(C) Polyethylene

(D) Vulcanised rubber

View Solution

Q42. Anodizing, a process that grows a hard protective oxide layer that can also be dyed in colours, is most commonly carried out on which metal?

(A) Copper

(B) Cast iron

(C) Brass

(D) Aluminium

View Solution

Q43. Vulcanization makes rubber stronger and more elastic by heating it with which added element?

(A) Sulphur

(B) Carbon dioxide

(C) Nitrogen

(D) Chlorine

View Solution

Q44. During a long-distance sea voyage, without the Captain realising, the steering of the ship started malfunctioning in the following manner. When the Captain tried to turn the ship 60 degrees to the left, the ship turned 30 degrees to the right. When he tried to turn 90 degrees to the left, the ship turned 90 degrees to the right. When he tried to turn 45 degrees to the right, the ship turned 30 degrees to the left. When he tried to turn 90 degrees to the right, the ship turned 45 degrees to the left. Before the malfunction the ship was going in the North-East direction. After the malfunction started, without realising the problem, the Captain tried to turn 90 degrees to the left, then 90 degrees to the right, then 45 degrees to the right and finally 60 degrees to the left. Find the current direction of the ship.

(A) NORTH EAST

(B) EAST

(C) WEST

(D) NORTH WEST

View Solution

Q45. On a standard 12-part colour wheel, the complementary colour that sits directly opposite red is:

(A) Orange

(B) Green

(C) Violet

(D) Yellow

View Solution

Q46. Which colour model is used for full-colour printing on paper and works by subtracting light with overlaid inks?

(A) RGB

(B) HSL

(C) CMYK

(D) Grayscale

View Solution

Q47. In typography, adjusting the space between two specific individual letters (for example between ’A’ and ’V’) is called:

(A) Leading

(B) Tracking

(C) Baseline shift

(D) Kerning

View Solution

Q48. The RGB colour model used on digital screens is described as which type of colour mixing?

(A) Additive - the primaries combine to make white

(B) Subtractive - the primaries combine to make white

(C) Neither additive nor subtractive

(D) Additive and subtractive give the same result

View Solution

Q49. In traditional typography, one inch is equal to how many points?

(A) 10

(B) 36

(C) 72

(D) 100

View Solution

Q50. The study of human body measurements (heights, reaches, grip sizes) used to design products and spaces that fit people well is called:

(A) Cartography

(B) Topography

(C) Typography

(D) Anthropometry

View Solution

Q51. The golden ratio, often used by designers and artists to create pleasing proportions, has an approximate value of:

(A) 1.618

(B) 2.414

(C) 3.142

(D) 1.414

View Solution

Q52. Industrial designer Dieter Rams, famous for his principle 'less but better' and ten principles of good design, created his most influential products for which company?

(A) Apple

(B) Sony

(C) Braun

(D) Bang & Olufsen

View Solution

Q53. In typography, the term 'serif' refers to which feature of a letterform?

(A) The main vertical stem of a letter

(B) The enclosed white space inside a letter

(C) The slant given to italic type

(D) The small finishing strokes at the ends of a letter's main strokes

View Solution

Q54. Odd one out: among Warli, Madhubani, Gond and Batik, three are folk painting styles and one is a fabric resist-dyeing technique. Which is the odd one out?

(A) Batik

(B) Warli

(C) Madhubani

(D) Gond

View Solution

Q55. In a code, DESIGN is written as EFTJHO (each letter shifted one step forward in the alphabet). Using the same rule, how is CRAFT written?

(A) DSBGT

(B) CQBGU

(C) DSBGU

(D) DSAGU

View Solution

Q56. A designer walks 3 m towards North, turns right and walks 4 m, then turns right again and walks 3 m. How far is she now from her starting point?

(A) 10 m

(B) 7 m

(C) 5 m

(D) 4 m

View Solution

Q57. What number should come next in the series: 1, 4, 9, 16, 25, ?

(A) 30

(B) 36

(C) 49

(D) 35

View Solution

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

Q58. [Drawing - 50 Marks]

Imagine a temple festival procession moving down a narrow street at dusk. A decorated chariot is pulled by a crowd, garlands and flags stretch across the lane, oil lamps glow, and people watch from balconies and doorways. Musicians walk alongside and a cloud of colour and smoke hangs in the air. Draw this lively procession, giving prominence to a drummer mid-beat leading the crowd, drum slung across his body and arms raised.

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 vendors and people who wait in long queues at festivals, temples and clinics in India often have nowhere to sit and stand for hours. Design a lightweight portable seat that a person can carry easily and set up anywhere on uneven ground. Show your seat in two states: folded flat and slung for carrying, and fully opened and taking a person's weight.

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. Two trains of unequal length have speeds of 60 and 50 km/hr. When they travel in opposite directions on straight parallel tracks, they take 9 seconds to completely cross each other. When they travel in the same direction, a person in the faster train sees the slower train for 18 seconds. For how much time (in seconds) would a person in the slower train see the faster train when the trains travel in the same direction?

Solution

Concept - Relative speed of two moving trains: When two trains move, the time to pass depends on the relative speed and the length being passed. Opposite directions add speeds; same direction subtracts them. A person is a point, so the time to see a train equals that train's length divided by the relative speed.

Step 1 - Sum of lengths from the opposite-direction pass:
Relative speed $= 60 + 50 = 110$ km/hr $= \frac{110\times1000}{3600} = 30.56$ m/s.
In 9 s the trains cover both lengths, so $L_1 + L_2 = 30.56 \times 9 = 275$ m.

Step 2 - Same-direction relative speed: $60 - 50 = 10$ km/hr $= \frac{10\times1000}{3600} = 2.78$ m/s.

Step 3 - Length of the slower train: The person in the faster train watches the slower train pass, so $18 = \frac{L_2}{2.78}$, giving $L_2 = 50$ m. Then $L_1 = 275 - 50 = 225$ m.

Step 4 - Time seen by the slower-train person: $t = \frac{L_1}{2.78} = \frac{225}{2.78} = 81$ s.

Tip: A passenger is a point, so use the OTHER train's length, not the sum. Convert km/hr to m/s with $\times\frac{5}{18}$.

Answer: 81 Go Back to Q1

Q2.

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

Solution

Concept - Painted-cube counting: After cutting an $n \times n \times n$ painted cube, the small cubes with exactly two painted faces lie along the edges but not at the corners. Each edge holds $n-2$ such cubes and a cube has 12 edges.

Step 1 - Cubes per edge: Here $n = 5$, so each edge has $5 - 2 = 3$ two-face cubes.

Step 2 - Total: $12 \times 3 = 36$.

Tip: Two faces = edges ($12(n-2)$); three faces = corners (always 8); one face = face centres ($6(n-2)^2$).

Answer: 36 Go Back to Q2

Q3.

Q. In typography, 1 pica equals 12 points. A magazine text column is 30 picas wide. What is the column width in points?

Solution

Concept - Pica and point units: The pica and point are standard typographic length units, with 1 pica $= 12$ points.

Step 1 - Convert: 30 picas $\times\ 12 = 360$ points.

Tip: Remember the chain: 1 inch $=\ 6$ picas $=\ 72$ points, so 1 pica $= 12$ points.

Answer: 360 Go Back to Q3

Q4.

Q. A photograph is to be printed 6 inches wide
at a resolution of 300 pixels per inch (ppi).
How many pixels wide must the image file be?

Solution

Concept - Resolution and pixel dimensions: Pixel width equals the print width in inches multiplied by the resolution in pixels per inch.

Step 1 - Multiply: $6 \times 300 = 1800$ pixels.

Tip: More ppi at the same print size means more pixels and a sharper print, but a larger file.

Answer: 1800 Go Back to Q4

Q5.

Q. A designer scales up a logo so that its height
increases from 3 cm to 12 cm while keeping the same

shape. By what factor does the logo's area increase?

Solution

Concept - Area scaling under similar figures: When a shape is scaled by a linear factor k, its area scales by k^2.

Step 1 - Linear factor: $k = \frac{12}{3} = 4$.

Step 2 - Area factor: $k^2 = 4^2 = 16$.

Tip: Doubling a size quadruples the area and multiplies volume by 8. Areas grow with the square of the scale.

Answer: 16 Go Back to Q5

Q6.

Q. In the ISO A-series of paper sizes, A0 has an area of exactly 1 square metre, and each next size (A1, A2, ...) has half the area of the one before it. What is the area of an A4 sheet in square centimetres?

Solution

Concept - A-series halving rule: Each step down the A-series halves the area, so An has area $\frac{1}{2^n}$ of A0.

Step 1 - Steps from A0 to A4: A4 is 4 halvings below A0, so its area is $\frac{1}{2^4} = \frac{1}{16}$ of A0.

Step 2 - Convert: A0 $= 1$ m^2 $= 10000$ cm^2. So A4 $= \frac{10000}{16} = 625$ cm^2.

Tip: This is why an A4 laid beside another A4 gives A3, and folding

A4 in half gives A5.

Answer: 625 Go Back to Q6

Q7.

Q. A digital image uses 8 bits per channel for red, green and blue. This gives 256 possible levels per channel. How many distinct colours can this RGB system represent in total?

Solution

Concept - Bit depth and colour count: With independent channels, the total number of colours is the product of the levels of each channel.

Step 1 - Levels per channel: $2^8 = 256$ for each of R, G and B.

Step 2 - Multiply the three channels: $256 \times 256 \times 256 = 256^3 = 16{,}777{,}216$.

Tip: This is the familiar "16.7 million colours" of 24-bit true colour (8 bits $\times$ 3 channels).

Answer: 16777216 Go Back to Q7

Q8.

Q. To mix a shade of paint, white and blue are combined in the ratio 5:2 by volume. To prepare 3.5 litres of this shade, how many litres of blue paint are needed?

Solution

Concept - Sharing a quantity in a ratio: Add the ratio parts to find the value of one part, then multiply by the parts needed.

Step 1 - Total parts: $5 + 2 = 7$ parts make 3.5 litres, so one part $= \frac{3.5}{7} = 0.5$ litre.

Step 2 - Blue amount: Blue is 2 parts $= 2 \times 0.5 = 1$ litre.

Tip: Always divide by the SUM of the ratio parts first, then scale up the part you need.

Answer: 1 Go Back to Q8

Q9.

Q. On a standard analogue clock, what is the angle in degrees between the hour hand and the minute hand at exactly 3:30?

Solution

Concept - Clock-hand angles: The minute hand moves 6° per minute; the hour hand moves 0.5° per minute (30° per hour).

Step 1 - Minute hand at 30 min: $30 \times 6 = 180^\circ$ from 12.

Step 2 - Hour hand at 3:30: $3.5 \times 30 = 105^\circ$ from 12.

Step 3 - Difference: $180 - 105 = 75^\circ$.

Tip: Do not leave the hour hand on 3; by 30 minutes it has drifted halfway to 4.

Answer: 75 Go Back to Q9

Q10.

Q. An architect makes a scale model at 1:50. A real wall is 6 metres long. How many centimetres long is that wall in the model?

Solution

Concept - Scale as a ratio of lengths: A scale of 1:50 means every real length is divided by 50 for the model. Keep units consistent.

Step 1 - Convert the real length: 6 m $= 600$ cm.

Step 2 - Divide by the scale: $\frac{600}{50} = 12$ cm.

Tip: Convert to a common unit before dividing, otherwise the scale factor gets applied to the wrong number.

Answer: 12 Go Back to Q10

Q11.

Q. A rectangular floor measuring 4 m by 3 m is to be fully covered with square tiles of side 20 cm, with no gaps or overlaps. How many tiles are required?

Solution

Concept - Tiling by area: The number of tiles equals the floor area divided by the area of one tile, using the same unit throughout.

Step 1 - Floor area in cm: 4 m $= 400$ cm and 3 m $= 300$ cm, so area $= 400 \times 300 = 120000$ cm^2.

Step 2 - Tile area: $20 \times 20 = 400$ cm^2.

Step 3 - Divide: $\frac{120000}{400} = 300$ tiles.

Tip: You can also count along each side: $\frac{400}{20} = 20$ and $\frac{300}{20} = 15$; $20 \times 15 = 300$.

Answer: 300 Go Back to Q11

Q12.

Q. In a user survey of 250 people, 36% said they prefer a minimalist interface. How many of the surveyed people is that?

Solution

Concept - Percentage of a quantity: A percentage of a number is that number multiplied by the percentage written as a fraction of 100.

Step 1 - Compute: 36% of $250 = \frac{36}{100} \times 250 = 90$.

Tip: 10% of 250 is 25, so 36% is between 25 and 100; 90 is a quick sanity check.

Answer: 90 Go Back to Q12

Q13.

Q. Look at the number series: 2, 6, 12, 20, 30, ... What number comes next in this series?

Solution

Concept - Second-difference series: When first differences grow by a constant, the next term follows the growing gap. Here the terms are also $n(n+1)$.

Step 1 - First differences: $6-2=4,\ 12-6=6,\ 20-12=8,\ 30-20=10$. They rise by 2 each time, so the next gap is 12.

Step 2 - Next term: $30+12=42$. Check: $6\times 7=42$, matching $n(n+1)$.

Tip: If first differences are not constant, take the difference again; a constant second difference points to a quadratic pattern.

Answer: 42 Go Back to Q13

Q14.

Q. In a page layout, body text is set at 12 points with leading (line spacing) of 150%. What is the line height in points?

Solution

Concept - Leading as a percentage of type size: Leading given as a percentage means the line height equals that percentage of the font size.

Step 1 - Compute: 150% of $12=\frac{150}{100}\times 12=18$ points.

Tip: 150% leading is often called "one-and-a-half" line spacing; it improves readability in long text blocks.

Answer: 18 Go Back to Q14

Q15.

Q. Which of the following statements would you consider to be TRUE about the hour and minute hands of analogue clocks?

(A) The hour hand and the minute hand would make a 90 degree

angle with each other 24 times in a day

(B) The hour hand and minute hand will overlap less than 24 times in a day

(C) The hour hand and minute hand will overlap exactly on the hour number marker only once every half a day

(D) The hour hand and minute hand will make an acute angle to each other for almost as long as it will make an obtuse angle to each other during the entire day

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Solution

Concept - Relative motion of clock hands: The minute hand gains on the hour hand at a steady rate, so overlaps and right-angle events repeat at fixed intervals a little longer than an hour.

Option A: The hands are at 90° 22 times in 12 hours, so 44 times in a day, not 24. FALSE.

Option B: The hands overlap 11 times in 12 hours, so 22 times a day, which is less than 24. TRUE.

Option C: Of the overlaps, only the one at 12:00 sits exactly on an hour marker; this happens once each half day. TRUE.

Option D: Over a full day the hands spend roughly equal spans at acute and obtuse angles. TRUE.

Correct: B, C, D. **Tip:** Learn the clock facts: overlaps 22/day, right angles 44/day, straight lines (180°) 22/day.

Answer: B, C, D Go Back to Q15

Q16.

Q. In colour printing, the subtractive colour model is used. Which of the following are primary colours of the subtractive (CMY) model?

(A) Red
(B) Cyan
(C) Magenta
(D) Yellow

Solution

Concept - Subtractive primaries: Inks and pigments work by subtracting light. The subtractive primaries are cyan, magenta and yellow (the CMY of CMYK printing).

Option A: Red is a subtractive secondary (magenta + yellow), not a primary. FALSE.

Option B: Cyan is a subtractive primary. TRUE.

Option C: Magenta is a subtractive primary. TRUE.

Option D: Yellow is a subtractive primary. TRUE.

Correct: B, C, D. **Tip:** Do not confuse these with the additive light primaries red, green and blue used on screens.

Answer: B, C, D Go Back to Q16

Q17.

Q. Which of the following are traditional Indian painting or art forms?

(A) Madhubani
(B) Warli
(C) Origami
(D) Kalamkari

Solution

Concept - Indian folk and traditional art: India has many regional painting traditions with distinct motifs and techniques.

Option A: Madhubani is a folk painting style from the Mithila region of Bihar. TRUE.

Option B: Warli is a tribal art form from Maharashtra. TRUE.

Option C: Origami is the Japanese art of paper folding, not Indian. FALSE.

Option D: Kalamkari is a hand-painted or block-printed textile art from Andhra Pradesh. TRUE.

Correct: A, B, D. **Tip:** Tie each craft to its home region; it makes the odd-one-out easy to spot.

Answer: A, B, D Go Back to Q17

Q18.

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

(A) SVG
(B) PNG
(C) GIF
(D) BMP

Solution

Concept - Raster vs vector formats: Raster formats store an image as a grid of pixels, while vector formats store shapes as maths and scale without loss.

Option A: SVG (Scalable Vector Graphics) is a vector format. FALSE.

Option B: PNG is a raster format. TRUE.

Option C: GIF is a raster format. TRUE.

Option D: BMP (bitmap) is a raster format. TRUE.

Correct: B, C, D. **Tip:** Raster images blur when enlarged; vectors like SVG stay crisp at any size.

Answer: B, C, D Go Back to Q18

Q19.

Q. Which of the following statements about the additive (RGB) colour model of light are TRUE?

(A) The additive primaries are red, yellow and blue
(B) Combining red and green light gives yellow
(C) Combining red, green and blue light at full intensity gives white
(D) Magenta is produced by combining red and blue light

Solution

Concept - Additive mixing of light: Screens emit light, so colours

add. The additive primaries are red, green and blue.

Option A: The additive primaries are red, green and blue, not red, yellow and blue (that is an old art-class model). FALSE.

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

Option C: All three primaries at full intensity give white. TRUE.

Option D: Red plus blue light gives magenta. TRUE.

Correct: B, C, D. **Tip:** Additive secondaries (cyan, magenta, yellow) are exactly the subtractive primaries, which links the two models.

Answer: B, C, D Go Back to Q19

Q20.

Q. Which of the following statements about camera exposure are TRUE?

(A) A larger f-number such as f/16 means a wider aperture opening
(B) A faster shutter speed lets in less light
(C) A higher ISO increases sensitivity to light but can add noise
(D) Aperture affects the depth of field of a photograph

Solution

Concept - The exposure triangle: Aperture, shutter speed and ISO together control exposure and also affect depth of field, motion blur and noise.

Option A: A larger f-number means a SMALLER aperture opening, so this is FALSE.

Option B: A faster shutter is open for less time, letting in less light. TRUE.

Option C: Higher ISO boosts sensitivity but introduces noise. TRUE.

Option D: A wider aperture gives a shallower depth of field, so aperture does affect it. TRUE.

Correct: B, C, D. **Tip:** f-numbers are fractions: f/2 is wide and bright, f/16 is narrow and dim.

Answer: B, C, D Go Back to Q20

Q21.

Q. Which of the following are considered sustainable or eco-friendly material choices in product and packaging design?

(A) Bamboo
(B) Single-use expanded polystyrene (thermocol)
(C) Jute
(D) Recycled paper

Solution

Concept - Sustainable materials: Renewable, biodegradable or recycled materials reduce environmental harm compared with single-use plastics.

Option A: Bamboo grows fast and is renewable and biodegradable.

TRUE.

Option B: Expanded polystyrene is a single-use plastic that is hard to recycle and persists in the environment. FALSE.

Option C: Jute is a natural, biodegradable plant fibre. TRUE.

Option D: Recycled paper reuses fibre and cuts waste. TRUE.

Correct: A, C, D. **Tip:** Judge a material by its full life cycle: source, use and disposal.

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

Q22.

Q. Which of the following pairings of a designer or architect with their well-known work is CORRECT?

(A) Le Corbusier - master plan of the city of Chandigarh
(B) Charles and Ray Eames - the moulded plywood and fibreglass chairs
(C) Raymond Loewy - industrial design and streamlining
(D) Antoni Gaudi - the Sagrada Familia in Barcelona

Solution

Concept - Landmark designers and their works: Knowing key figures across architecture and industrial design is core design GK.

Option A: Le Corbusier led the planning of Chandigarh. TRUE.

Option B: The Eameses are famous for their moulded plywood and fibreglass chairs. TRUE.

Option C: Raymond Loewy was a pioneer of industrial design and streamlining. TRUE.

Option D: Antoni Gaudi designed the Sagrada Familia in Barcelona. TRUE.

Correct: A, B, C, D. **Tip:** An MSQ can have all four correct; check each pairing on its own merits.

Answer: A, B, C, D Go Back to Q22

Q23.

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

(A) Kerning is the adjustment of space between two specific characters

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

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

(D) In print units, 1 pica equals 10 points

Solution

Concept - Typography vocabulary: Precise terms describe spacing, letterforms and units in type.

Option A: Kerning adjusts space between two particular letters. TRUE.

Option B: Leading is the vertical space between baselines of lines. TRUE.

Option C: A serif is the small finishing stroke at the ends of letter strokes. TRUE.

Option D: 1 pica equals 12 points, not 10, so this is FALSE.

Correct: A, B, C. **Tip:** Kerning is pair-specific, while tracking spaces a whole run of text evenly.

Answer: A, B, C Go Back to Q23

Q24.

Q. Which of the following materials are naturally biodegradable?

(A) Glass

(B) Cotton

(C) Aluminium

(D) Wood

Solution

Concept - Biodegradability: A biodegradable material is broken down by natural organisms; metals and glass are not.

Option A: Glass does not biodegrade; it can be recycled but not decomposed. FALSE.

Option B: Cotton is a natural plant fibre that decomposes. TRUE.

Option C: Aluminium is a metal that does not biodegrade. FALSE.

Option D: Wood is organic and decomposes naturally. TRUE.

Correct: B, D. **Tip:** Recyclable is not the same as biodegradable; glass and metal are recyclable but not biodegradable.

Answer: B, D Go Back to Q24

Q25.

Q. Which of the following statements about the CMYK colour model is TRUE?

(A) The K in CMYK stands for a shade of blue
(B) CMYK is an additive colour model used for computer screens
(C) The K in CMYK stands for 'key', which is the black plate
(D) CMYK can reproduce a wider range of colours than any computer screen

---

Solution

Concept - CMYK in print: CMYK is the subtractive four-colour process used in printing: cyan, magenta, yellow and a black (key) plate.

Option A: K does not stand for blue. FALSE.

Option B: CMYK is subtractive and used in print, not additive for screens. FALSE.

Option C: K stands for 'key', the black printing plate. TRUE.

Option D: A printed CMYK gamut is generally narrower than a screen's RGB gamut. FALSE.

Correct: C. **Tip:** Black is added as 'key' to save coloured ink and give deep, crisp blacks and text.

Answer: C **Go Back to Q25**

Q26.

Q. Which of the following are UNESCO World Heritage Sites located in India?

(A) Qutub Minar, Delhi
(B) Statue of Liberty, New York
(C) Group of Monuments at Hampi, Karnataka
(D) The Great Wall of China

Solution

Concept - Heritage sites in India: The question asks specifically for World Heritage Sites within India.

Option A: Qutub Minar and its Monuments in Delhi is a World Heritage Site in India. TRUE.

Option B: The Statue of Liberty is a heritage site, but in the USA, not India. FALSE.

Option C: The Group of Monuments at Hampi in Karnataka is a World Heritage Site in India. TRUE.

Option D: The Great Wall is a heritage site, but in China, not India. FALSE.

Correct: A, C. **Tip:** Read the qualifier: many options are genuine heritage sites but fail the 'in India' condition.

Answer: A, C Go Back to Q26

Q27.

Q. Which of the following statements about the elements and principles of design are TRUE?

(A) Line, shape, colour and texture are elements of design
(B) Balance can be symmetrical or asymmetrical

(C) Contrast helps create visual hierarchy

(D) Rhythm in a composition can be created through repetition

---

Solution

Concept - Elements vs principles of design: Elements are the building blocks; principles are how those blocks are arranged.

Option A: Line, shape, colour and texture are all elements of design. TRUE.

Option B: Balance can be symmetrical or asymmetrical (or radial). TRUE.

Option C: Contrast draws the eye and builds visual hierarchy. TRUE.

Option D: Repetition of an element creates rhythm. TRUE.

Correct: A, B, C, D. **Tip:** Remember elements (line, shape, form, colour, texture, space, value) separately from principles (balance, contrast, rhythm, emphasis, unity).

Answer: A, B, C, D Go Back to Q27

Q28.

Q. Which of the following statements about camera lenses are TRUE?

(A) A wide-angle lens has a shorter focal length than a telephoto lens

(B) A 50 mm lens on a full-frame camera is often called a 'normal' lens

(C) A telephoto lens tends to compress apparent perspective

(D) Focal length is measured in pixels

Solution

Concept - Focal length and lens behaviour: Focal length, measured in millimetres, sets the angle of view and how perspective is rendered.

Option A: Wide-angle lenses have short focal lengths; telephotos have long ones. TRUE.

Option B: On full-frame, about 50 mm is called a 'normal' lens because it roughly matches human perspective. TRUE.

Option C: Telephoto lenses compress apparent distance between near and far objects. TRUE.

Option D: Focal length is measured in millimetres, not pixels. FALSE.

Correct: A, B, C. **Tip:** Short focal length = wide view; long focal length = narrow, magnified view.

Answer: A, B, C Go Back to Q28

Q29.

Q. Which of the following are renewable sources of energy?

(A) Solar

(B) Coal

(C) Wind

(D) Natural gas

Solution

Concept - Renewable vs non-renewable energy: Renewable sources replenish naturally on a human timescale; fossil fuels do not.

Option A: Solar energy is renewable. TRUE.

Option B: Coal is a fossil fuel and non-renewable. FALSE.

Option C: Wind energy is renewable. TRUE.

Option D: Natural gas is a fossil fuel and non-renewable. FALSE.

Correct: A, C. **Tip:** Renewables (solar, wind, hydro, tidal, geothermal, biomass) replenish; fossil fuels (coal, oil, gas) do not.

Answer: A, C Go Back to Q29

Q30.

Q. Warli, one of India's best known tribal painting traditions with white geometric figures on an earthen background, originates from which state?

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

Solution

Concept - Indian folk art regions: Warli art is made by the Warli tribal community living in the northern Sahyadri belt near the

Maharashtra-Gujarat border.

Step 1 - Identify the style: Warli uses simple white circles, triangles and lines (rice-paste paint) on a mud-brown wall to show daily life and harvest scenes.

Step 2 - Match to state: This community and tradition belong to Maharashtra, not the eastern or southern states listed.

Tip: Link each folk style to its home state early: Warli - Maharashtra, Madhubani - Bihar, Pattachitra - Odisha.

Answer: A Go Back to Q30

Q31.

Q. The Madhubani (Mithila) painting tradition, known for dense natural dyes and bold outlines of gods, fish and peacocks, comes from which Indian state?

(A) Gujarat
(B) Bihar
(C) Assam
(D) Punjab

Solution

Concept - Regional craft mapping: Madhubani, also called Mithila painting, is named after the Madhubani district in the Mithila region.

Step 1 - Locate Mithila: The Mithila region lies in northern Bihar (extending to parts of Nepal).

Step 2 - Confirm: The other states listed have their own crafts but not Madhubani, so Bihar is correct.

Tip: The place name in the craft is often the clue: Madhu-BANI district sits in Bihar.

Answer: B Go Back to Q31

Q32.

Q. Pattachitra, a traditional cloth-based scroll painting with fine detail and mythological themes, is most closely associated with which state?

(A) Rajasthan
(B) Tamil Nadu
(C) Odisha
(D) Himachal Pradesh

Solution

Concept - Scroll-painting traditions: The word Pattachitra means picture (chitra) painted on cloth (patta).

Step 1 - Trace the craft: It developed around the temple town of Puri and is a signature craft of Odisha (a closely related form also exists in West Bengal).

Step 2 - Eliminate: Rajasthan is known for Phad and miniature, Tamil Nadu for Tanjore, Himachal for Pahari, so Odisha is the best answer.

Tip: Pattachitra and the Jagannath temple of Puri go together - remember Odisha.

Answer: C Go Back to Q32

Q33.

Q. Blue Pottery, a glazed ceramic craft famous for its cobalt-blue floral patterns, is most strongly associated with which Indian city?

(A) Lucknow
(B) Mysuru
(C) Kolkata
(D) Jaipur

Solution

Concept - Craft-and-city pairing: Blue Pottery is a Turko-Persian technique that took root in Rajasthan.

Step 1 - Recall the hub: Jaipur is the main centre where this quartz-based, cobalt-oxide glazed pottery is produced.

Step 2 - Eliminate: Lucknow is known for Chikankari, Mysuru for silk and sandalwood, Kolkata for terracotta, so Jaipur fits.

Tip: Blue Pottery contains no clay - it uses quartz powder - and its home is Jaipur.

Answer: D Go Back to Q33

Q34.

Q. For eco-friendly packaging, a designer wants the most biodegradable natural material. Which of these best fits that goal?

(A) Jute fibre

(B) Expanded polystyrene (thermocol)

(C) PVC sheet

(D) Acrylic plastic

Solution

Concept - Material sustainability: Biodegradable materials break down naturally through microbial action; most synthetic plastics do not.

Step 1 - Classify: Jute is a plant fibre and rots down completely, while polystyrene, PVC and acrylic are petroleum-based plastics that persist for decades.

Step 2 - Choose: The only natural, compostable option is jute fibre.

Tip: Natural fibres (jute, cotton, hemp) score high on biodegradability; foamed and vinyl plastics score very low.

Answer: A Go Back to Q34

Q35.

Q. The Dhokra tribal metal craft, which produces figurines like the Bastar horse, is made using which casting technique?

(A) Sand casting

(B) Lost-wax (cire perdue) casting

(C) Pressure die casting

(D) Electroforming

Solution

Concept - Traditional metal casting: Dhokra is one of the oldest known metal-casting methods in India, over 4000 years old.

Step 1 - Describe the process: A wax model is coated in clay, the wax is melted out to leave a hollow mould, and molten brass is poured in - this is lost-wax casting.

Step 2 - Eliminate: Sand, die and electroforming are modern industrial routes, not the hand tribal method used for Dhokra.

Tip: Cire perdue literally means lost wax - the mould can be used only once.

Answer: B Go Back to Q35

Q36.

Q. Cathy has less money than David. Cathy and David together have as much money as Alice and Bob together. Alice and David together have less money than Bob and Cathy together. What is the correct richest-poorest pairing?

(A) Bob-Cathy
(B) Bob-Alice
(C) David-Cathy
(D) Cathy-Alice

Solution

Concept - Inequality reasoning: Turn each statement into an inequality or equation and combine them.

Step 1 - Write the facts: $C < D$; $C + D = A + B$; $A + D < B + C$.

Step 2 - Substitute: From $C + D = A + B$, we get $A = C + D - B$. Put this into $A + D < B + C$: $(C + D - B) + D < B + C \Rightarrow 2D < 2B \Rightarrow D < B$.

Step 3 - Rank all four: Since $A = C + D - B$ and $D < B$, we get $A < C$. Combined with $C < D < B$, the order is $A < C < D < B$. So Bob is richest and Alice is poorest.

Tip: Chain the derived inequalities into one line to read off the extremes.

Answer: B Go Back to Q36

Q37.

Q. The Bauhaus, the influential design school founded in Germany in 1919 that unified art, craft and technology, was founded by which architect?

(A) Ludwig Mies van der Rohe
(B) Le Corbusier
(C) Walter Gropius
(D) Wassily Kandinsky

Solution

Concept - Design movements and founders: The Bauhaus shaped modern industrial and graphic design worldwide.

Step 1 - Recall the founder: Walter Gropius established the Bauhaus in Weimar in 1919.

Step 2 - Eliminate: Mies van der Rohe was a later Bauhaus director, Kandinsky taught there, and Le Corbusier was never part of it.

Tip: Gropius founded it, Hannes Meyer and then Mies van der Rohe led it afterwards.

Answer: C Go Back to Q37

Q38.

Q. The planned city of Chandigarh, with its grid of numbered sectors, was master-planned by which architect?

(A) Louis Kahn
(B) Edwin Lutyens
(C) Charles Correa
(D) Le Corbusier

Solution

Concept - Modern Indian urban design: Chandigarh is India's first fully planned modern city.

Step 1 - Recall the planner: Le Corbusier led the master plan and designed the Capitol Complex in the 1950s.

Step 2 - Eliminate: Lutyens planned New Delhi, Louis Kahn designed the Ahmedabad IIM, and Correa built later Indian landmarks - none planned Chandigarh.

Tip: Chandigarh and its Open Hand monument are Le Corbusier signatures.

Answer: D Go Back to Q38

Q39.

Q. The National Institute of Design (NID), India's premier design school and the body that conducts UCEED's sister exams, has its founding main campus in which city?

(A) Ahmedabad
(B) Bengaluru
(C) Pune
(D) New Delhi

Solution

Concept - Design education in India: NID was set up in 1961 on the recommendations of the India Report by Charles and Ray Eames.

Step 1 - Locate the main campus: The founding campus is on the banks of the Sabarmati in Ahmedabad, Gujarat.

Step 2 - Note others: NID has newer campuses too, but the historic main one is Ahmedabad.

Tip: NID Ahmedabad and IIM Ahmedabad both trace back to Gujarat's post-independence design and management push.

Answer: A Go Back to Q39

Q40.

Q. The Lotus Temple in New Delhi, shaped like a half-open lotus flower with 27 marble petals, was designed by which architect?

(A) B. V. Doshi
(B) Fariborz Sahba
(C) Hafeez Contractor
(D) Raj Rewal

Solution

Concept - Iconic modern architecture: The Lotus Temple (Bahai House of Worship) opened in 1986 and is known for its petal geometry.

Step 1 - Recall the designer: It was designed by the Iranian-Canadian architect Fariborz Sahba.

Step 2 - Eliminate: Doshi and Correa were Indian modernists, Hafeez Contractor is known for high-rises, and Raj Rewal for institutional work - none did the Lotus Temple.

Tip: The lotus form uses 27 petals arranged in clusters of three - a recall hook for Sahba's design.

Answer: B Go Back to Q40

Q41.

Q. Which of these materials is a thermoplastic, meaning it can be melted and reshaped many times?

(A) Bakelite
(B) Epoxy resin
(C) Polyethylene
(D) Vulcanised rubber

Solution

Concept - Thermoplastics vs thermosets: Thermoplastics soften on heating and can be remoulded; thermosets set permanently once cured.

Step 1 - Classify each: Bakelite and epoxy are thermosetting, and vulcanised rubber is cross-linked (also non-remeltable).

Step 2 - Choose: Polyethylene (used in bottles and bags) melts and re-forms cleanly, so it is the thermoplastic.

Tip: If a plastic can be recycled by melting, it is a thermoplastic; if it chars instead of melting, it is a thermoset.

Answer: C Go Back to Q41

Q42.

Q. Anodizing, a process that grows a hard protective oxide layer that can also be dyed in colours, is most commonly carried out on which metal?

(A) Copper
(B) Cast iron
(C) Brass
(D) Aluminium

Solution

Concept - Surface finishing: Anodizing uses electrolysis to thicken the natural oxide film on a metal for protection and colour.

Step 1 - Match metal to process: Aluminium forms a stable,

adherent oxide, so it is the classic anodizing metal (seen on laptops and window frames).

Step 2 - Eliminate: Iron rusts rather than forming a protective film, and copper and brass are usually patinated or lacquered instead.

Tip: Coloured anodized aluminium is everywhere in product design - carabiners, phones, bottles.

Answer: D Go Back to Q42

Q43.

Q. Vulcanization makes rubber stronger and more elastic by heating it with which added element?

(A) Sulphur
(B) Carbon dioxide
(C) Nitrogen
(D) Chlorine

Solution

Concept - Rubber processing: Vulcanization, discovered by Charles Goodyear, cross-links rubber chains.

Step 1 - Identify the additive: Heating natural rubber with sulphur forms bridges between polymer chains, giving strength and springiness.

Step 2 - Eliminate: The other gases listed play no role in cross-linking rubber.

Tip: Vulcanization equals rubber plus sulphur plus heat - think of car tyres.

Answer: A Go Back to Q43

Q44.

Q. During a long-distance sea voyage, without the Captain realising, the steering of the ship started malfunctioning in the following manner. When the Captain tried to turn the ship 60 degrees to the left, the ship turned 30 degrees to the right. When he tried to turn 90 degrees to the left, the ship turned 90 degrees to the right. When he tried to turn 45 degrees to the right, the ship turned 30 degrees to the left. When he tried to turn 90 degrees to the right, the ship turned 45 degrees to the left. Before the malfunction the ship was going in the North-East direction. After the malfunction started, without realising the problem, the Captain tried to turn 90 degrees to the left, then 90 degrees to the right, then 45 degrees to the right and finally 60 degrees to the left. Find the current direction of the ship.

(A) NORTH EAST
(B) EAST
(C) WEST
(D) NORTH WEST

Solution

Concept - Direction with a fault mapping: Each intended turn is replaced by the malfunction's actual turn; track the heading as a compass bearing (right = clockwise +, left = counterclockwise -).

Step 1 - Build the fault table: Try 90 left gives actual 90 right; try 90 right gives actual 45 left; try 45 right gives actual 30 left; try 60 left gives actual 30 right.

Step 2 - Start heading: North-East is a bearing of $45°$.

Step 3 - Apply the four actual turns: $45+90 = 135$ (SE); $135-45 = 90$ (E); $90 - 30 = 60$; $60 + 30 = 90$.

Step 4 - Read the result: Final bearing $90°$ is due EAST.

Tip: Replace each command with its faulty output first, then add signed angles in one running total.

Answer: B Go Back to Q44

Q45.

Q. On a standard 12-part colour wheel, the complementary colour that sits directly opposite red is:

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

Solution

Concept - Complementary colours: Complementary colours lie opposite each other on the colour wheel and give the strongest contrast.

Step 1 - Find red's opposite: Red sits directly across from green on the wheel.

Step 2 - Check the pairs: The classic complementary pairs are red-green, blue-orange and yellow-violet, so green is correct.

Tip: Remember three pairs: red-green, blue-orange, yellow-violet.

Answer: B Go Back to Q45

Q46.

Q. Which colour model is used for full-colour printing on paper and works by subtracting light with overlaid inks?

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

Solution

Concept - Colour models for output: Screens emit light (additive) while print reflects light through inks (subtractive).

Step 1 - Match model to medium: Printing uses Cyan, Magenta, Yellow and Key/black inks - the CMYK subtractive model.

Step 2 - Eliminate: RGB is for screens, HSL is a way to pick colours, and grayscale has no colour.

Tip: Design for print in CMYK, design for screen in RGB.

Answer: C Go Back to Q46

Q47.

Q. In typography, adjusting the space between two specific individual letters (for example between 'A' and 'V') is called:

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

Solution

Concept - Typographic spacing terms: Different terms control different kinds of spacing.

Step 1 - Define kerning: Kerning is the fine adjustment of space between one specific pair of letters.

Step 2 - Contrast the others: Leading is the space between lines, tracking is uniform spacing across a whole word or line, and baseline shift moves text up or down.

Tip: Kerning is a pair, tracking is a range - both about horizontal space, but at different scales.

Answer: D Go Back to Q47

Q48.

Q. The RGB colour model used on digital screens is described as which type of colour mixing?

(A) Additive - the primaries combine to make white
(B) Subtractive - the primaries combine to make white
(C) Neither additive nor subtractive

(D) Additive and subtractive give the same result

Solution

Concept - Additive colour: RGB mixes emitted light, so adding all three primaries increases brightness.

Step 1 - Apply the rule: Red, green and blue light added at full strength produce white; with all off you get black.

Step 2 - Eliminate: Subtractive mixing (inks) instead moves toward black as colours combine, so option A is correct.

Tip: Light adds up to white (RGB additive); ink piles up to near-black (CMY subtractive).

Answer: A Go Back to Q48

Q49.

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

(A) 10
(B) 36
(C) 72
(D) 100

Solution

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

Step 1 - Recall the conversion: By definition, 1 inch = 72 points,

and 1 pica = 12 points, so 1 inch = 6 picas.

Step 2 - Confirm: A 72-point letter is therefore about one inch tall, which matches the answer 72.

Tip: 72 points per inch, 12 points per pica - two conversions worth memorising.

Answer: C Go Back to Q49

Q50.

Q. The study of human body measurements (heights, reaches, grip sizes) used to design products and spaces that fit people well is called:

(A) Cartography
(B) Topography
(C) Typography
(D) Anthropometry

Solution

Concept - Human-centred design: Good ergonomic design relies on data about the human body.

Step 1 - Define the term: Anthropometry is the measurement of the human body's dimensions and proportions.

Step 2 - Eliminate: Cartography and topography are about maps and land, and typography is about type - none deal with body measurements.

Tip: Anthropo (human) + metry (measurement) - it feeds chair

heights, doorway widths and tool grips.

Answer: D Go Back to Q50

Q51.

Q. The golden ratio, often used by designers and artists to create pleasing proportions, has an approximate value of:

(A) 1.618
(B) 2.414
(C) 3.142
(D) 1.414

Solution

Concept - Proportion in design: The golden ratio (phi) appears when a line is split so the whole is to the larger part as the larger is to the smaller.

Step 1 - Recall the value: $\phi \approx 1.618$.

Step 2 - Eliminate: 3.142 is π, 1.414 is $\sqrt{2}$, and 2.414 is the silver ratio - none is phi.

Tip: Keep the famous constants separate: $\phi \approx 1.618$, $\pi \approx 3.142$, $\sqrt{2} \approx 1.414$.

Answer: A Go Back to Q51

Q52.

Q. Industrial designer Dieter Rams, famous for his principle 'less but better' and ten principles of good design, created his most

influential products for which company?

(A) Apple
(B) Sony
(C) Braun
(D) Bang & Olufsen

Solution

Concept - Designers and their firms: Rams shaped mid-century product design and later influenced many brands.

Step 1 - Link designer to company: Dieter Rams was chief designer at the German company Braun, creating radios, calculators and shavers.

Step 2 - Eliminate: Apple's Jony Ive was inspired by Rams but Rams did not work there; Sony and Bang & Olufsen had their own designers.

Tip: Rams equals Braun; his calculator later echoed in Apple's own product look.

Answer: C Go Back to Q52

Q53.

Q. In typography, the term 'serif' refers to which feature of a letterform?

(A) The main vertical stem of a letter
(B) The enclosed white space inside a letter
(C) The slant given to italic type

(D) The small finishing strokes at the ends of a letter's main strokes

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Solution

Concept - Anatomy of type: Typefaces are grouped by whether they have serifs.

Step 1 - Define serif: A serif is the small stroke or foot added at the end of a letter's main strokes (as in Times New Roman).

Step 2 - Eliminate: The vertical stroke is a stem, the inside white space is a counter, and slanted type is italic - so option D is correct.

Tip: Sans-serif means without these end strokes (like Arial); serif fonts keep the little feet.

Answer: D Go Back to Q53

Q54.

Q. Odd one out: among Warli, Madhubani, Gond and Batik, three are folk painting styles and one is a fabric resist-dyeing technique. Which is the odd one out?

(A) Batik
(B) Warli
(C) Madhubani
(D) Gond

Solution

Concept - Classifying craft techniques: Group the items by the

kind of craft they represent.

Step 1 - Sort: Warli, Madhubani and Gond are all traditional painting styles done on walls, paper or cloth surfaces.

Step 2 - Spot the difference: Batik is a wax-resist fabric dyeing method, not a painting style, so it is the odd one out.

Tip: Read the shared category first, then find the single item that does not fit it.

Answer: A Go Back to Q54

Q55.

Q. In a code, DESIGN is written as EFTJHO (each letter shifted one step forward in the alphabet). Using the same rule, how is CRAFT written?

(A) DSBGT
(B) CQBGU
(C) DSBGU
(D) DSAGU

Solution

Concept - Letter-shift coding: Each letter is replaced by the next letter in the alphabet (+1).

Step 1 - Confirm the rule: D to E, E to F, S to T, I to J, G to H, N to O gives EFTJHO, so the shift is +1.

Step 2 - Apply to CRAFT: C to D, R to S, A to B, F to G, T to U gives DSBGU.

Tip: Encode letter by letter and re-check the last letter, where slips are most common (T to U here).

Answer: C Go Back to Q55

Q56.

Q. A designer walks 3 m towards North, turns right and walks 4 m, then turns right again and walks 3 m. How far is she now from her starting point?

(A) 10 m
(B) 7 m
(C) 5 m
(D) 4 m

Solution

Concept - Direction and displacement: Track each leg as a movement on a grid, then measure the straight-line gap from start to finish.

Step 1 - Trace the path: North 3 m, then right faces East for 4 m, then right faces South for 3 m.

Step 2 - Combine: The 3 m North and 3 m South cancel, leaving only 4 m to the East.

Step 3 - Measure: Distance from start $= 4$ m.

Tip: Cancel opposite legs first; the leftover often gives the answer directly.

Answer: D Go Back to Q56

Q57.

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

(A) 30

(B) 36

(C) 49

(D) 35

Solution

Concept - Number series (perfect squares): Each term is the square of its position number.

Step 1 - Identify the pattern: $1^2, 2^2, 3^2, 4^2, 5^2$ give 1, 4, 9, 16, 25.

Step 2 - Extend: The next term is $6^2 = 36$.

Tip: Rising gaps of 3, 5, 7, 9 also signal consecutive squares - the next gap is 11, so $25 + 11 = 36$.

Answer: B Go Back to Q57

Q58.

Q (Drawing). Imagine a temple festival procession moving down a narrow street at dusk. A decorated chariot is pulled by a crowd, garlands and flags stretch across the lane, oil lamps glow, and people watch from balconies and doorways. Musicians walk alongside and a cloud of colour and smoke hangs in the air. Draw this lively procession, giving prominence to a drummer mid-beat leading the crowd, drum slung across his body and arms raised.

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

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

Model Approach and Evaluation

Set the street and the crowd first, then push the drummer forward as the hero of the frame.

Step 1 - Block the layout: Draw the street receding to a vanishing point down the lane so buildings and the chariot shrink into the distance. Place the drummer large in the near foreground, off-centre, as your focal point.

Step 2 - Build the depth: Foreground - the drummer and a few dancers; middle ground - the chariot and pulling crowd; background - balconies, flags and rooftops fading into dusk. Overlap figures so the crowd feels dense.

Step 3 - Give the drummer prominence: Capture the action pose with confident lines - bent knees, raised hands, the drum's round body. Detail his face, hands and the drum skin, and keep him the sharpest, darkest element on the sheet.

Step 4 - Add mood and finish: Suggest lamp glow with soft tonal shading, garlands as looping lines, and haze in the background with lighter strokes. Keep figure heights consistent along the receding street.

Tip: A single strong vanishing point plus foreground-midground-background layering creates depth, while your boldest lines and the action pose make the drummer read instantly as the subject. **Go Back to Q58**

Q59.

Q (Design Aptitude). Street vendors and people who wait in long queues at festivals, temples and clinics in India often have nowhere to sit and stand for hours. Design a lightweight portable seat that a person can carry easily and set up anywhere on uneven ground. Show your seat in two states: folded flat and slung for carrying, and fully opened and taking a person's weight.

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

Model Approach and Evaluation

Answer visually in two clear stages: what it is, then proof it folds and holds weight.

Step 1 - Nail the requirements: Keep in mind what the seat must do - be light to carry, open fast, stay steady on uneven ground, and support an adult. Every feature you draw should serve one of these.

Step 2 - Show the two required states: On one side draw it folded flat with a shoulder strap for carrying; on the other draw it open with a person seated. Match the scale so the transformation is easy to read.

Step 3 - Label features, do not write essays: Short call-outs only - wide feet for soft ground, locking hinge, canvas sling seat, hook to hang folded. One or two words each with leader lines.

Step 4 - Prove it works: Add a two- or three-step inset of the

open-and-lock action, and mark the leg triangle that keeps it from tipping on uneven surfaces.

Tip: Marks come from suitability, ease of use, a distinctive idea and neat detailing shown through drawings, so let the folded and in-use views plus tight labels carry the whole explanation. **Go Back to Q59**

Answer Key (Part A)

Section 1 - NAT (Numerical Answer Type)

Q1	Q2	Q3	Q4	Q5	Q6	Q7
81	36	360	1800	16	625	16777216

Q8	Q9	Q10	Q11	Q12	Q13	Q14
1	75	12	300	90	42	18

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

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

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

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

Section 3 - MCQ (single correct)

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

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

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

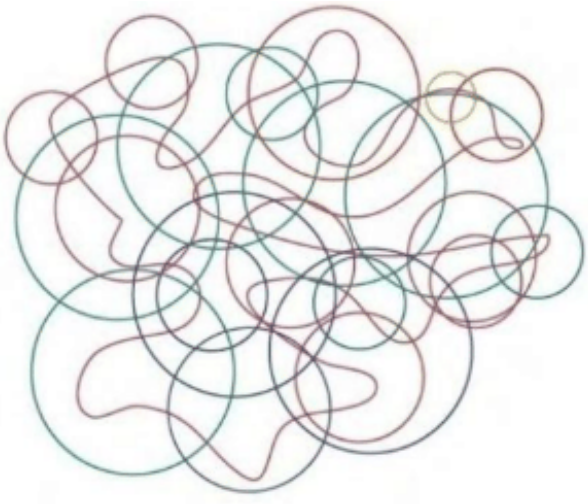
Q51	Q52	Q53	Q54	Q55	Q56	Q57
A	C	D	A	C	D	B

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.

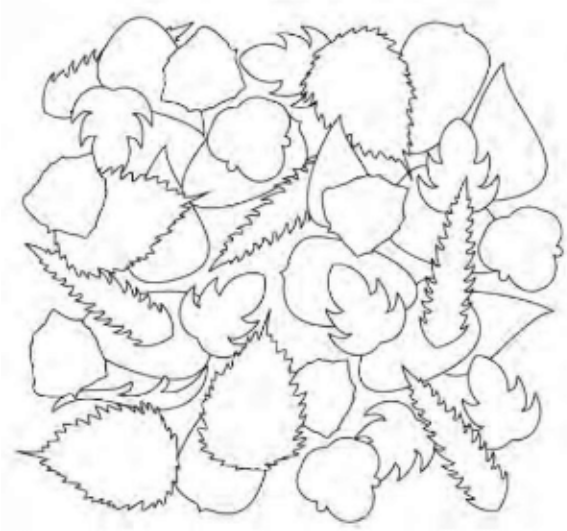
P1. (Past UCEED) Count the number of circles in the given figure.



How to approach

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

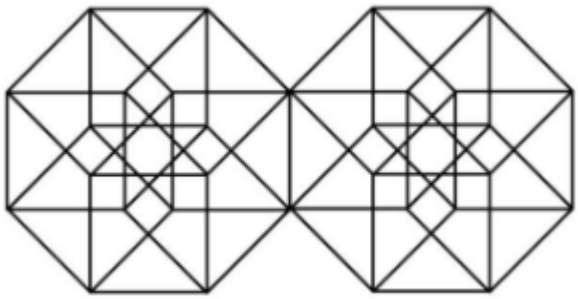
P2. (Past UCEED) Shown here are different types of leaves. Count how many types of leaves there are.



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) Count the number of squares in the given figure.



How to approach

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

P4. (Past UCEED) Shown are letters A–Z in a stylised alphabet. How many

of these, if flipped along the horizontal axis, can still be read as capital letters?

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.