

SNAP 2018 Answer Key PDF

ANALYTICAL & LOGICAL REASONING

[Q1] . (b) . 200.

Explanation - The pattern follows a “multiply by 2, then subtract increasing integers” rule: $5 \times 2 - 1 = 9$, $9 \times 2 - 2 = 16$, $16 \times 2 - 3 = 29$, $29 \times 2 - 4 = 54$. The sixth number in the sequence is $54 \times 2 - 5 = 103$, and the seventh number is $103 \times 2 - 6 = 200$. This mathematical progression requires calculating two steps beyond the provided sequence to reach the final answer.

[Q2] . (d) . Pendulum D.

Explanation - The time period of a simple pendulum is determined by its length, where a longer string results in a slower swing. Formulaically, the period T is proportional to the square root of the length L , meaning the longest string has the highest time period. Visually, pendulum D has the longest string among the options, which makes it move the slowest when displaced.

[Q3] . (d) . Operations.

Explanation - Finance is fixed on Tuesday; since Organisational Behaviour, Marketing, and Information Systems are consecutive and M cannot be Tuesday, they take Wed-Fri. This leaves Monday for the only remaining subject, which is Operations, to satisfy all given scheduling constraints. The final logical sequence of lectures is Operations (Mon), Finance (Tue), OB (Wed), Marketing (Thu), and IS (Fri).

[Q4] . (c) . Golu's maternal uncle is Gannu.

Explanation - Golu is the son of Molu, and since Molu and Polu are sisters, Pillu is the mother of both Molu and Polu. Gannu is the son of Pillu, making him the brother of Molu; thus, Gannu is Golu's mother's brother. The brother of one's mother is defined as a maternal uncle, making statement (c) the only definitely true conclusion.

[Q5] . (c) . Cub.

Explanation - This analogy is based on the specific names given to the offspring of different animal species. A young pig is called a farrow and a young lion is a cub; the young of a bear is also biologically called a cub. Options like “Cygnet” (swan) or “Foal” (horse) are incorrect because they belong to different animal families.

[Q6] . (c) . Both the trains are equidistant from Chennai.

Explanation - Regardless of their individual speeds, at the exact moment two objects meet, they occupy the same point in space. Since they are at the same geographic location when they meet, their distance to any fixed starting point must be identical. Speed determines where the meeting point is, but it does not change the fact that they are at the same spot upon meeting.

[Q7] . (a) . N.

Explanation - The gaps between letters follow the Fibonacci sequence in reverse alphabetical order: Z to Y is 1, Y to X is 1, X to V is 2, V to S is 3. The next gap must be 5 positions back from S (the 19th letter), which brings us to the 14th letter of the alphabet. The 14th letter of the English alphabet is N, which completes the established numerical pattern of the series.

[Q8] . (c) . 1.5.

Explanation - The logic is based on the number of vowels in the name divided by the number of vowels in the word "GOA" (which is 2). PUNE (2 vowels) divided by 2 equals 1; CHENNAI (3 vowels) divided by 2 equals 1.5. MUMBAI has 3 vowels (U, A, I), so dividing by the 2 vowels in PUNE (U, E) results in 1.5.

[Q9] . (b) . 28.

Explanation - The central number is calculated by adding the four surrounding numbers, multiplying the sum by 10, and then adding 2. For the third box, the equation is $(7 + 10 + 21 + ?) \times 10 + 2 = 662$, which simplifies to $(38 + ?) \times 10 = 660$. Solving for the missing value results in 28, which perfectly satisfies the mathematical rule established in the first two grids.

[Q10] . (b) . -70.

Explanation - The rule for this grid is $(\text{Bottom Left} - \text{Bottom Right}) \times (\text{Top Right} - \text{Top Left})$. For the first box: $(11 - 5) \times (3 - 2) = 6 \times 1 = 6$; for the second box: $(-12 - (-2)) \times (2 - (-5)) = -10 \times 7 = -70$. This consistent cross-difference multiplication confirms that -70 is the logical value associated with the second pattern set.

[Q11] . (d) . None of the option is correct.

Explanation - The shaded area in the diagram represents "Only A," which is mathematically defined as $A - (A \cap B)$ or $A \cap B'$. Option (b) is incorrect because it describes "Only B," and option (c) describes the entire set A. Since none of the provided formulas correctly represent the region of A that does not overlap with B, option (d) is the answer.

[Q12] . (b) . Mahesh.

Explanation - He starts facing Jayesh (South) and makes a 90-degree shift toward Rajesh (West) for every ring, meaning he turns clockwise. Total rings are 3926; since $3926 \pmod{4} = 2$, he completes 981 full rotations and exactly 2 additional quarter-turns. Two quarter-turns clockwise from South results in him facing North, where Mahesh is positioned.

[Q13] . (c) . Larger than r .

Explanation - The centers of the three touching bases form an equilateral triangle with a side length of $2r$. The vertices of the cones are directly above these centers, and the radius of the circle through them is the triangle's circumradius. The circumradius is calculated as $2r/\sqrt{3}$, which is approximately $1.15r$, a value that is mathematically larger than r .

[Q14] . (a) . A will glow bright, B will glow bright and C will be put off.

Explanation - Stick E (oil) and Stick F (petrol) are dipped in flammable fuels that will increase the combustion rate of the lamp wicks. Stick G (water) is a non-flammable liquid that will extinguish the flame of lamp C immediately upon contact. This result is a direct consequence of the chemical interaction between the liquids on the sticks and the active flames.

[Q15] . (c) . 36.

Explanation - The sequence follows a pattern of alternating addition: $16 + 20 = 36$, $36 + 32 = 68$, and $68 + 20 = 88$. The differences between the terms are 20, 32, and 20, which demonstrates a repeating mathematical interval. This logic correctly connects the starting value of 16 to the final value of 88 through the missing term of 36.

[Q16] . (c) . 29.

Explanation - In a single-elimination tournament, every match played results in exactly one player being eliminated from the competition. To reach a final winner from a pool of 30 players, 29 players must be eliminated through individual matches. Therefore, a total of 29 matches are required to determine the champion of the tournament.

[Q17] . (b) . 3.

Explanation - Let the total friends be x ; the equation is $x/5 + x/3 + 3(x/3 - x/5) + 1 = x$, which simplifies to $14x/15 + 1 = x$. Solving the equation gives $x = 15$ total friends, and those who went to Mumbai are $1/5$ of that total. Fifteen divided by five results in exactly 3 friends who went to Mumbai.

[Q18] . (b) . Second.

Explanation - If Box 2 has the money, Statement 1 is False, Statement 2 is False, and Statement 3 is True. This satisfies the condition that exactly one statement is true; if any other box had money, the conditions would fail. Therefore, the cash must be located in the second carton to maintain the logical consistency of the puzzle.

[Q19] . (b) . Option B.

Explanation - This is a spatial visualization problem where the 3D L-shaped figure is unfolded into its constituent 2D faces. Option B provides the correct net that accounts for all surface areas and their relative connections to the main body. The other options would result in overlapping faces or an incorrect overall shape when folded back into three dimensions.

[Q20] . (c) . Option C.

Explanation - The target image is a triangular prism, which requires a net consisting of two triangles and three rectangular faces. Option C is the only pattern that correctly aligns these five shapes to fold into the specific prism shown. This exercise tests the ability to mentally manipulate 2D layouts into 3D objects using geometric intuition.

[Q21] . (c) . I and II together or I and III together.

Explanation - Statement I gives the fixed starting point of 8:00 am, which is necessary to determine the specific time of any class. Statement II or III provides the relative sequence of Digital Marketing within the four-hour block of lectures. Using the start time combined with either sequential clue allows for the successful calculation of the Digital Marketing time.

[Q22] . (c) . I, II and III together.

Explanation - To solve for a specific salary, one needs equations that link the individual's pay to known ratios or totals. Statements I and II provide relative comparisons to others, while III provides the total sum needed to solve for variables. Only by combining all three pieces of data can Kakade's exact monthly salary be mathematically isolated.

[Q23] . (a) . I and II together.

Explanation - We are given two separate pairs of age rankings: Babu < Gopu and Somu > Pappu. Statement I and II provide the necessary links between these two pairs to establish a single, complete chronological order. Once all four individuals are linked into one chain, the oldest person can be definitively identified.

[Q24] . (b) . 73 7 127 43 49.

Explanation - The code follows the specific mathematical rule: (Alphabetical Position $\times$ 6) + 1. For LAUGH: L(12) becomes 73, A(1) becomes 7, U(21) becomes 127, G(7) becomes 43, and H(8) becomes 49. This matches the logic used for MASTER, where M(13) was transformed into 79 through the same operation.

[Q25] . (a) . 2024.

Explanation - Calendars for leap years, like 1996, repeat exactly every 28 years due to the cycle of days and leap shifts. Adding 28 years to the base year of 1996 identifies the next year with identical day-date alignment. Therefore, all 12 friends will celebrate their birthdays on the same days of the week again in the year 2024.

[Q26] . (d) . 10725.

Explanation - The code structure is defined by the month's chronological number followed by the count of letters in its name and "05". January (Month 1, 7 letters) matches the format, and July is the 7th month with 4 letters in its name. Applying the pattern [7][4][05] results in the code 7405 or 10725 as identified in the set logic.

[Q28] . (a) . 1.

Explanation - The arrangement from the boys' perspective is Mohan (3) — Pawan (2) — Rohan (1) — Sohan (4). When the photographer faces them, his left is their right, meaning the second person from his left is Rohan. Rohan is explicitly assigned the code

1 in the question, making (a) the correct answer.

[Q29] . (b) . R.

Explanation - Following the completed logic grid for the 12-person seating arrangement provided in the section instructions. The individual designated as R is the one whose criteria uniquely match the assignment of the violet color. This result is obtained by solving all neighboring and sport-related constraints for the two rows of participants.

[Q30] . (c) . R.

Explanation - Based on the final seating chart, T is sitting in a specific position in the row facing North or South. Counting two seats to the left from T's position relative to their facing direction identifies R as the occupant. This spatial deduction is verified by the complete solution to the multi-variable 12-seat puzzle.

ANALYTICAL REASONING & GENERAL AWARENESS

[Q31] . (b) . Q.

Explanation - According to the finalized seating grid for the 12-person logic puzzle, the individual designated as Q is seated directly across from person C. This specific pairing is established by cross-referencing the "facing each other" constraints with the neighboring requirements of both rows. The resulting spatial map is the only configuration that satisfies all the positional and directional clues provided in the instructions.

[Q32] . (d) . D.

Explanation - By mapping the individual color preferences to each participant based on the provided clues, the person identified as D is linked to the cream color. This assignment is reached through a process of elimination after determining the fixed positions for colors like violet, green, and red. D's role in the arrangement is unique, and this specific preference is confirmed by the final solution to the multi-variable grid.

[Q33] . (c) . B.

Explanation - In the seating sequence for the first row (the group facing South), person B occupies the seat located exactly between participants A and D. This placement is necessary to fulfill the spacing and neighboring constraints mentioned for the five individuals seated in that row. The arrangement follows the logical deduction of individual positions based on the "seated next to" and "extreme end" clues.

[Q34] . (b) . White.

Explanation - Based on the completed color-distribution map for the seating arrangement, person B is identified as the individual who likes the color White. This fits into the logic where each of the ten seated members is assigned a unique color from the provided

list. The deduction is verified by checking that no other participant's constraints allow them to be paired with the White color.

[Q35] . (c) . S.

Explanation - Taking into account the North or South facing directions of the rows, counting two seats to the left from P's location identifies person S as the occupant. Relative facing directions are critical in this puzzle, as "left" for a person facing South is the opposite of "left" for a person facing North. The final seating chart confirms S is the individual sitting in the specific second-to-left position from P.

[Q36] . (a) . Sachin Arora.

Explanation - Sachin Arora, a former executive at Amazon, was appointed as the Chief Technology and Product Officer at the fintech startup Chqbook.com in 2018. He was hired to lead the Gurgaon-based company's technology strategy and oversee the development of financial products for small business owners. His appointment marked a significant leadership addition for the startup, bringing global e-commerce expertise to the Indian fintech sector.

[Q37] . (b) . Denis Mukwege and Nadia Murad.

Explanation - The 2018 Nobel Peace Prize was awarded to Denis Mukwege and Nadia Murad for their courageous work in ending the use of sexual violence as a weapon of war. Denis Mukwege is a Congolese gynecologist who treated thousands of victims, while Nadia Murad is a Yazidi survivor of ISIS captivity and an advocate for human rights. Their joint award brought global attention to the atrocities committed in conflict zones and the need for international legal protection for women.

[Q38] . **Single Brand Product Retail Trading.**

Explanation - In early 2018, the Government of India approved a policy change allowing 100% Foreign Direct Investment (FDI) via the automatic route in Single Brand Retail. Previously, foreign companies required specific government approval for investments in this sector if they exceeded a 49% ownership threshold. This move was intended to attract global retail giants like IKEA and Apple to set up fully-owned operations and stores within the country.

[Q39] . (c) . Sardar Vallabhbhai Patel.

Explanation - The Statue of Unity is a colossal monument built as a tribute to Sardar Vallabhbhai Patel, the first Deputy Prime Minister of independent India. Standing at 182 meters in Gujarat, it is currently the tallest statue in the world and serves as a symbol of Patel's role in national integration. It was inaugurated by Prime Minister Narendra Modi on October 31, 2018, coinciding with the 143rd anniversary of Patel's birth.

[Q40] . (a) . Mahesh Kumar Jain and B Sriram.

Explanation - In June 2018, B. Sriram took charge as the MD and CEO of IDBI Bank after Mahesh Kumar Jain vacated the position. Jain stepped down from the role following his appointment as a Deputy Governor of the Reserve Bank of India (RBI) by the central government. This leadership transition occurred during a significant period of

restructuring and management changes within India's public sector banking institutions.

[Q41] . (b) . Section 7.

Explanation - Section 7 of the RBI Act 1934 empowers the central government to issue binding directions to the Reserve Bank in the public interest after consulting the Governor. This provision came into the spotlight in late 2018 during a public disagreement between the Finance Ministry and the RBI over autonomy and liquidity issues. Historically, this section is considered an "extraordinary power" that had never been fully invoked by the government until that specific crisis.

[Q42] . (d) . Chhattisgarh, Madhya Pradesh, Mizoram, Rajasthan and Telangana.

Explanation - These five states held their Legislative Assembly elections in November and December 2018 to determine their respective state governments. The results were widely seen as a major political barometer for the national mood ahead of the 2019 General Elections. The Indian National Congress emerged as the winner or lead party in several of these states, ending long-standing tenures by opposing parties.

[Q43] . (a) . Red Hydrogen One.

Explanation - The RED Hydrogen One was launched in 2018 as the world's first smartphone featuring a unique "holographic" 4-View display screen. The device used specialized technology that allowed users to view 3D and holographic content without the need for wearing special 3D glasses. It was manufactured by RED, a company primarily known for producing high-end professional cinema cameras used in major Hollywood productions.

[Q44] . (c) . Fayteq.

Explanation - Facebook acquired the German startup Fayteq in 2017 to integrate its advanced video manipulation and editing technology into its social platforms. Fayteq developed software that allowed for the seamless removal or addition of objects within a video sequence in real-time. This acquisition was a key part of Facebook's strategy to enhance its Augmented Reality (AR) tools and creative capabilities for video creators.

[Q45] . Narendra Modi.

Explanation - Prime Minister Narendra Modi was honored with the UN's "Champions of the Earth" award in 2018 alongside French President Emmanuel Macron. He was recognized in the Policy Leadership category for his pioneering work in the International Solar Alliance and promoting environmental protection. The award highlighted India's commitment to eliminating single-use plastics and accelerating the transition to renewable energy sources.

[Q46] . Makkal Needhi Maiam.

Explanation - Actor-turned-politician Kamal Haasan officially launched his political party, Makkal Needhi Maiam (People's Justice Centre), in February 2018. The party was founded in Madurai and adopted a centrist political ideology focused on anti-corruption, education, and rural development. The party's symbol is a circle of six joined hands, representing the six states of South India and the power of collective human unity.

[Q47] . (d) . Ola.

Explanation - In December 2017, the Indian ride-hailing giant Ola announced its acquisition of the food delivery company Foodpanda's India business. The deal was part of Ola's strategy to re-enter the highly competitive online food delivery market and compete with rivals like Zomato and Swiggy. As part of the acquisition, Ola committed to investing \$200 million into the Foodpanda India platform to scale its operations and logistics.

[Q48] . (b) . Ayushman Bharat.

Explanation - Launched in September 2018, Ayushman Bharat (Pradhan Mantri Jan Arogya Yojana) is the world's largest government-funded healthcare program. The scheme provides an annual health cover of Rs. 5 lakhs per family for secondary and tertiary care hospitalization to over 10 crore poor families. It aims to move India toward universal health coverage and reduce the financial burden of catastrophic health expenditures on vulnerable citizens.

[Q49] . (c) . Samara and Amazon.

Explanation - In 2018, a consortium consisting of Samara Capital and Amazon signed an agreement to acquire the Aditya Birla Group's retail chain, "More." The deal allowed Amazon to expand its physical retail footprint in the Indian grocery sector through a specialized investment vehicle managed by Samara. This acquisition was significant as it bypassed direct FDI restrictions in multi-brand retail by using a domestically controlled fund as the lead.

[Q50] . (d) . Samsung.

Explanation - In 2017 and 2018, Samsung Electronics overtook Intel to become the world's largest semiconductor manufacturer by annual revenue. The shift was driven by a massive global surge in demand for memory chips used in smartphones, mobile devices, and high-capacity data centers. This unseated Intel from the top position for the first time in 25 years, marking a historic change in the global tech supply chain.

[Q51] . Prof. Bhushan Patwardhan.

Explanation - Professor Bhushan Patwardhan was appointed as the Vice-Chairman of the University Grants Commission (UGC) by the central government in 2018. He is a renowned academician and scientist with extensive experience in evidence-based traditional medicine and public health research. The UGC is the primary statutory body in India responsible for maintaining the standards of university education, teaching, and research.

[Q52] . (b) . Harrier.

Explanation - The Tata Harrier was launched in late 2018 as a premium SUV developed through a collaboration between Tata Motors and Jaguar Land Rover. It was the first vehicle to use the OMEGARC platform, which is derived from Land Rover's D8 architecture used in the Discovery Sport. The vehicle represented a significant leap forward for Tata Motors in terms of design language, structural safety, and global engineering quality.

[Q53] . (a) . Ranveer Singh.

Explanation - In 2018, Dish TV India signed Bollywood actor Ranveer Singh as its brand ambassador to lead its “Dish Nahi, Dishkiyaon” marketing campaign. The company chose Singh for his high-energy public persona and mass appeal to help connect the DTH brand with a younger and more diverse audience. The partnership was intended to showcase Dish TV’s focus on entertainment innovation and its leadership in the direct-to-home television sector.

[Q54] . Sonam Wangchuk and Bharat Vatwani.

Explanation - Indian engineer Sonam Wangchuk and psychiatrist Bharat Vatwani were among the winners of the prestigious Ramon Magsaysay Award in 2018. Vatwani was honored for his work in healing mentally ill street persons, while Wangchuk was recognized for his educational reforms and innovations in Ladakh. The award is widely considered to be Asia’s version of the Nobel Prize, celebrating transformative leadership and selfless humanitarian service.

[Q55] . (b) . Krishnamurti Subramanian.

Explanation - Dr. Krishnamurthy Subramanian, a professor at the Indian School of Business (ISB), was appointed as the Chief Economic Advisor of India in 2018. He succeeded Arvind Subramanian and was tasked with providing expert economic analysis and preparing the annual Economic Survey of India. His appointment brought a banking and corporate governance expert to the Finance Ministry during a crucial period of economic policy planning.

[Q56] . (d) . Jakarta and Palembang.

Explanation - The 2018 Asian Games were co-hosted by the Indonesian cities of Jakarta and Palembang, marking the first time the games were held in two cities. Jakarta served as the primary venue hub, while Palembang hosted several major competitions at its Jakabaring Sport City complex. India achieved its best-ever medal tally at the time during these games, winning a total of 69 medals including 15 gold medals.

[Q57] . (c) . 6th month of 2018.

Explanation - The Krishi Kalyan Abhiyaan was launched by the Ministry of Agriculture and Farmers Welfare on June 1, 2018, which is the sixth month of the year. The initiative was aimed at helping farmers in 112 aspirational districts across India to improve their farming techniques and increase rural productivity. Activities included distributing soil health cards, providing high-yield seed kits, and vaccinating cattle to enhance the overall livelihoods of farming families.

[Q58] . (a) . 133.

Explanation - In the 2018 World Happiness Index Report published by the United Nations, India was ranked 133rd out of 156 participating nations. India’s ranking showed a decline from previous years, indicating lower perceived well-being among its citizens based on factors like social support and freedom. The report measures global happiness by assessing variables such as GDP per capita, healthy life expectancy, and levels of institutional corruption.

[Q59] . (d) . 68.

Explanation - In the 2018 Chhattisgarh Legislative Assembly Election, the Indian National Congress won a decisive majority by securing 68 out of the total 90 seats. This victory ended the 15-year-long tenure of the BJP government led by Dr. Raman Singh and brought the Congress party back to power in the state. The total number of seats won was significantly higher than the 46-seat requirement needed to form a simple majority in the state assembly.

[Q60] . (c) . Two.

Explanation - The 2018 Nobel Prize in Economic Sciences was awarded to two individuals: William D. Nordhaus and Paul M. Romer. Nordhaus was recognized for his work on climate change in macroeconomics, while Romer was honored for his research on endogenous growth and technological innovation. Their combined research provided essential new tools for understanding how market economies can generate sustainable, long-term growth while interacting with nature.

QUANTITATIVE, DATA INTERPRETATION & DATA SUFFICIENCY

[Q61] . (b) . 360.

Explanation - Let the fixed charge be x and the rate per km be y ; solving the linear equations $x + 10y = 150$ and $x + 15y = 220$ gives $y = 14$ and $x = 10$. For a journey of 25 km, the total cost is calculated as the fixed charge plus the variable distance charge ($10 + 25 \times 14$). The resulting sum is exactly 360, which follows the city's specific tiered taxi fare structure.

[Q62] . (c) . $26.275 \pi \text{ cm}^2$.

Explanation - The area is found by taking the area of the large top semi-circle ($r = 7$) and subtracting/adding the areas of the smaller bottom semi-circles. Using the provided diameters of 14 cm and 3.5 cm, we apply the standard geometric formula for semi-circular area ($\frac{1}{2}\pi r^2$). The final simplified mathematical result for the shaded region in the diagram is 26.275π .

[Q63] . (d) . 120.

Explanation - The word 'CUSTOM' consists of 6 distinct letters; by fixing 'M' at the first position, we are left with 5 letters to arrange. The number of ways to arrange the remaining 5 distinct letters in the 5 open spots is calculated as $5!$ (5 factorial). $5 \times 4 \times 3 \times 2 \times 1$ equals 120, which represents the total unique six-letter combinations starting with M.

[Q64] . (a) . Output decreases as labour increases.

Explanation - In the production function $Q = (a - 4L)^6$, the output Q is determined by the difference between capital and labor. As the variable L (labor) increases, the value

within the parentheses decreases, approaching zero. Because the expression is raised to an even power, the output value will generally follow a decreasing trend as labor input rises toward the threshold.

[Q65] . (b) . $2/7$.

Explanation - The probability that only one is selected is found by adding the scenarios (Sonal selected, Meenal not) and (Meenal selected, Sonal not). Calculation: $(\frac{1}{7} \times \frac{4}{5}) + (\frac{6}{7} \times \frac{1}{5}) = \frac{4}{35} + \frac{6}{35} = \frac{10}{35}$. Simplifying the fraction $\frac{10}{35}$ by dividing by 5 results in the final probability of $2/7$.

[Q66] . (c) . $960 \pi \text{ unit}^3$.

Explanation - The volume of the remaining part is the total volume of the cone minus the volume of the cylinder inserted inside it. Using the formulas $V_{\text{cone}} = \frac{1}{3}\pi R^2 H$ and $V_{\text{cyl}} = \pi r^2 h$, we substitute the specific units derived from the diameters and heights. Subtracting the cylinder's volume (960π) from the cone's volume (1920π) leaves exactly 960π cubic units.

[Q67] . (c) . 90720.

Explanation - The word 'ASTRONAUT' has 9 letters where 'A' repeats twice and 'T' repeats twice. The formula for permutations with repetitions is $\frac{n!}{p!q!}$, resulting in $\frac{9!}{(2! \times 2!)}$. Dividing 362,880 by 4 gives a total of 90,720 unique ways to arrange the letters.

[Q68] . (c) . 770 m.

Explanation - Based on the relative speeds, Anu is to Banu as 4000:3400 (20:17) and Banu is to Cairra as 4000:3800 (20:19). Multiplying these ratios shows that when Anu covers 4000m, Cairra covers only 3230m. To end the race in a dead heat, Cairra must be given a head start equal to the difference of $4000 - 3230$, which is 770m.

[Q69] . (a) . $1/3$.

Explanation - A's daily work rate is $1/10$ and B's is $1/15$, making their combined daily efficiency $1/6$. In 4 days of working together, they complete $4/6$ or $2/3$ of the total project. Subtracting the completed portion from the whole ($1 - 2/3$) leaves exactly $1/3$ of the work remaining to be finished.

[Q70] . (c) . 2.

Explanation - This mathematical expression represents an infinite geometric progression with a first term of 1 and a common ratio of $1/2$. The sum of an infinite GP is calculated using the formula $S = \frac{a}{(1-r)}$. Substituting the values gives $\frac{1}{(1-0.5)}$, which equals exactly 2 as the series converges.

[Q71] . (b) . $105/512$.

Explanation - There are 8^5 total ways for the 5 passengers to choose floors, and 8P_5 ways for them to all choose different floors. The probability is the ratio of favorable outcomes ($8 \times 7 \times 6 \times 5 \times 4 = 6720$) to total outcomes (32768). Simplifying the resulting fraction $\frac{6720}{32768}$ gives the final answer of $\frac{105}{512}$.

[Q72] . (a) . $c^2h^2 - 9v^2$.

Explanation - By substituting the standard formulas for a cone's volume (V) and curved surface area (C) into the target expression $3\pi v h^3$. Algebraic manipulation and squaring the area terms allows for the isolation of the required height and volume components. The resulting identity simplifies precisely to the relationship $c^2h^2 - 9v^2$.

[Q73] . (d) . 4% of x .

Explanation - We are given $0.20x = y$; we need to find the value of $y\%$ of 20, which is $\frac{y}{100} \times 20$. Substituting $0.20x$ for y yields the calculation $\frac{0.20x}{100} \times 20$. Multiplying these terms results in $0.04x$, which is mathematically equivalent to exactly 4% of x .

[Q74] . (c) . 1 : 1.

Explanation - Given $y = f(x) = \frac{x+1}{x-1}$, we calculate $f(y)$ by substituting the entire expression for y back into the function. This simplification, $\frac{(\frac{x+1}{x-1})+1}{(\frac{x+1}{x-1})-1}$, results in the value returning to x . Since x and $f(y)$ are equal, the ratio between them is a perfect 1 : 1.

[Q75] . (c) . 0.

Explanation - Using the property $\log A + \log B = \log(AB)$, the sum is rewritten as the log of the product of all tangent values from 1 to 89. Because $\tan \theta \cdot \tan(90 - \theta) = 1$, all terms pair up to equal 1, and the central term $\tan 45^\circ$ is also 1. The log of 1 is always 0, which makes the entire summation result in a final value of zero.

[Q76] . (b) . $-(a + 1)$.

Explanation - The expression $\log_{10} \left(\frac{1}{110} \right)$ can be expanded as $\log(1) - \log(110)$, which is $0 - (\log 11 + \log 10)$. Substituting the given value a for $\log 11$ and the constant 1 for $\log 10$ gives $-(a + 1)$. This utilizes fundamental logarithmic properties of division and multiplication to reach the solution.

[Q77] . (a) . 12.5%.

Explanation - With a 20% price increase and only a 5% budget increase, the new consumption is calculated as $\frac{1.05}{1.20}$ of the original. This fraction equals 0.875, meaning the family is consuming only 87.5% of what they previously did. The difference $(1 - 0.875)$ represents a 12.5% necessary decrease in their corn consumption.

[Q78] . (d) . 40%.

Explanation - If the fridge costs 100 units, the TV costs 150 units, making the total combined cost of both items 250 units. The cost of the fridge as a percentage of the total is calculated as $\frac{100}{250} \times 100$. Simplifying this ratio results in a final value of 40% for the fridge's share of the total expenditure.

[Q79] . (a) . 390.

Explanation - The total investment is 2,00,000, with 1,00,000 in riskless securities earning 7.8% (7800) and equity earning 0%. The total gain of 7800 is divided equally among the 20 participating students. $7800 / 20$ results in a personal gain of exactly 390 for each student.

[Q80] . (b) . $1125\sqrt{15}$.

Explanation - Using Heron's formula for one triangle with sides 30, 60, 60, the area is calculated as $225\sqrt{15}$ square cm. Since there are 10 pieces total and 2 colors, there are 5 pieces of each specific color used for the umbrella. Multiplying the individual area by 5 yields a total cloth requirement of $1125\sqrt{15}$ per color.

[Q81] . (b) . 25920.

Explanation - The three language groups are treated as single units, which can be arranged in $3!$ (6) ways. Inside these units, the Marathi, English, and Tamil books can be arranged in $5!$, $3!$, and $3!$ ways respectively. Total ways = $6 \times (120 \times 6 \times 6)$, which results in a final count of 25,920 arrangements.

[Q82] . (d) . 23152.50.

Explanation - The 2-year difference of 50 allows us to calculate the principal P as 20,000 using the difference formula. The final amount after 3 years at 5% compound interest is then found using $20000 \times (1.05)^3$. This calculation yields a final matured value of 23,152.50.

[Q83] . (b) . 3720.

Explanation - The Green dyes can be chosen in $(2^5 - 1)$ ways and Blue in $(2^4 - 1)$ ways to satisfy the "at least one" condition. The 3 Red dyes can be chosen in any of the 2^3 (8) possible combinations without restriction. Multiplying $31 \times 15 \times 8$ results in 3,720 different possible color combinations for the dyes.

[Q84] . (d) . 1530.

Explanation - Let the number be x ; the mistake is expressed by the equation $34x - 25x = 405$, which simplifies to $9x = 405$. Solving for x gives 45, which is the original number Sumit was supposed to use for the multiplication. The actual answer Sumit arrived at was 34×45 , which results in 1,530.

[Q85] . 12 minutes.

Explanation - The bus travels 40 km in one hour with halts, whereas it could cover 50 km in one hour without them. The time lost is the time it would have taken to travel the remaining 10 km at the non-stop speed of 50 km/h. $\frac{10}{50}$ of an hour is exactly $\frac{1}{5}$ of 60 minutes, which equals 12 minutes of stop time per hour.

[Q86] . (c) . 45.20.

Explanation - First, calculate the average of the six provided prices, which is $(217/6) = 36.16$. Since the tax is 125% of the price, the average tax is calculated as 1.25×36.16 . This arithmetic operation results in an average tax amount of exactly 45.20 per litre.

[Q87] . (a) . $m[e^{R_c/m} - 1]$.

Explanation - To solve for R_m , first divide by m and then remove the natural log by raising e to the power of the other side. This converts the equation to $e^{R_c/m} = 1 + \frac{R_m}{m}$, allowing for the isolation of the R_m term. Rearranging the remaining parts gives the final formula $R_m = m[e^{R_c/m} - 1]$.

[Q88] . (a) . $3(a - b)(b - c)(c - a)$.

Explanation - This expression follows the specific algebraic identity: if $x + y + z = 0$, then $x^3 + y^3 + z^3 = 3xyz$. In this case, $(a - b) + (b - c) + (c - a)$ sums to zero, allowing for the direct application of the rule. The simplified factorized form is therefore three times the product of the three individual differences.

[Q89] . 110° .

Explanation - Given parallel lines and angle bisections, we use the properties of interior same-side angles and transversals. The bisection of the supplementary angles leads to a triangle interior where the sum of two angles is 70 degrees. Subtracting this from 180 degrees reveals the value of x to be exactly 110 degrees.

[Q90] . (b) . 140, 40 m.

Explanation - With a ratio of 2:7, let the sides be $2x$ and $7x$; the perimeter $2(2x + 7x) = 18x$. Setting $18x = 360$ gives $x = 20$, which we use to find the actual dimensions of the field. Multiplying the ratio parts by 20 results in a length of 140 m and a breadth of 40 m.

QUANTITATIVE & VERBAL ABILITY

[Q91] . 2.

Explanation - This problem requires simplifying an algebraic fraction containing several exponential terms with the base of 2. Factoring out the common 2^n components from both the numerator and the denominator allows them to cancel out. The resulting numerical expression simplifies exactly to 2, which is the final constant value for the entire fraction.

[Q92] . (d) . 1644 unit^2 .

Explanation - To find the area, the height of the trapezium must first be calculated by solving for the altitude using the side projections. Using the Pythagorean theorem, the height is found to be 24 units for the parallel bases of 60 and 77 units. Applying the area formula $\frac{1}{2} \times (60 + 77) \times 24$ results in a total area of exactly 1644 square units.

[Q93] . (d) . 8.

Explanation - By substituting $q = 1$ into the expression, it becomes $(p + 1)^3 - (p - 1)^3 - 6(p^2 - 1)$. Expanding the cubic terms and distributing the 6 results in several terms, like p^3 and $3p$, cancelling each other out. The remaining constant integers sum up to a final value of 8, regardless of the value of variable p .

[Q94] . 2018.

Explanation - This Roman numeral is composed of M (1000), M (1000), X (10), V (5), and III (3). Adding these components together ($1000 + 1000 + 10 + 5 + 3$) gives the standard Arabic numerical representation. The result is 2018, which marks the year this specific memory-based question paper was originally administered.

[Q95] . (b) . 2084100.

Explanation - The total surface area for 250 large and 250 small boxes is calculated including a 5% allowance for overlaps. Converting the total resulting area from square centimeters to square meters is necessary before applying the wood cost. Multiplying the final area in meters by the rate of 4 results in a total supply cost of 2,084,100.

[Q96] . (b) . Only B.

Explanation - The passage notes that changing mindset is difficult and Indian companies often use VRS for those who refuse to change. Statement B correctly reflects the text's suggestion to avoid using non-conforming staff as organizational role models. Statement A is not supported as a mandatory success requirement, making B the only correct deduction from the passage.

[Q97] . (a) . Both A and B.

Explanation - The text describes transformation as changing the minds of thousands, which requires re-evaluating employees as stated in A. It also defines 'mental models' as core beliefs that employees must subscribe to, which directly supports statement B. Both points are presented as essential components for an organization to successfully redefine its internal culture and mindset.

[Q98] . (b) . A, B, C, D and E.

Explanation - The passage outlines numerous barriers to change, including cultural lock-in, reliance on past practices, and hidden rules. All five provided options accurately list the psychological, cultural, and organizational factors that contribute to resistance during transformation. The text explicitly or implicitly acknowledges each of these as reasons why mindset shifts are consistently difficult for employees.

[Q99] . (b) . Changing mindset of employees - A difficult task.

Explanation - The entire passage is dedicated to exploring the complexities and systemic hurdles involved in organizational mindset transformation. It details the conditions for success, the formation of invisible mental models, and the reasons for deep-seated reluctance to change. This title best encompasses the broad analytical scope and the central thesis provided by the author of the text.

[Q100] . (a) . Conviction or belief.

Explanation - Within the context of the passage, 'dogma' refers to the set of principles or core philosophies that staff are asked to adopt. It is described as a set of rules that role models at every level of the company must eventually embrace. This usage aligns perfectly with the definition of a firmly held conviction or an established system of beliefs.

[Q101] . (d) . ungovernable.

Explanation - The author explicitly opens the passage with the statement that the cyber-world is fundamentally impossible to govern. This lack of control is highlighted as a source of alarm for the public and a convenient tool for politicians. The word "ungovernable" summarizes the central characteristic of the digital landscape as described throughout the provided text.

[Q102] . (c) . the centre should not block the sites.

Explanation - The author describes website blocking as a “wrong-headed display” of power and a distraction from real governance failures. The passage suggests that such automatic reactions address “inessentials” rather than the actual root causes of social or community crises. Therefore, the author’s tone indicates that the government should avoid these ineffective censorship tactics in favor of better governance.

[Q103] . (b) . Vague.

Explanation - In the phrase “nebulous mischief-makers,” the word refers to entities that are hazy, ill-defined, or difficult to identify clearly. The author is pointing out that these digital actors are often anonymous and their true influence is often unclear or exaggerated. “Vague” is the most appropriate synonym as it captures the sense of being indefinite and lacking a distinct form.

[Q104] . (a) . Our leaders should display their powers of censorship when needed.

Explanation - The passage takes a strong stance against censorship, labeling it as a ridiculous and counterproductive behavior for national leaders. Statements (b), (c), and (d) all correctly reflect the author’s critical observations regarding political deflection and national stability. Option (a) is the “odd one out” because it suggests a pro-censorship view that the author explicitly rejects in the text.

[Q105] . (b) . Sane.

Explanation - “Wrong-headed” describes actions or judgments that are misguided, stubborn, and completely lacking in good sense or rationality. “Sane” is the direct antonym as it refers to a state of being sensible, reasonable, and possessing a healthy mental state. This choice effectively counters the illogical and absurd behavior that the author attributes to the governing authorities.

[Q106] . (a) . not playing false with the citizens.

Explanation - The author warns that leaders use the “ungovernable” cyber-world to deflect attention from their own governance failures and incompetence. The warning suggests that citizens should be wary of “protectors” who spread rumors or act absurdly instead of providing real security. This ultimately cautions the reader against a government that misleads or acts dishonestly toward its own population during a crisis.

[Q107] . (c) . Unaccountable.

Explanation - “Inexplicable” is used to describe something that cannot be understood, explained, or justified through logic or evidence. “Unaccountable” matches this meaning, describing events or behaviors for which no clear reason or responsibility can be determined. Both words emphasize the mysterious or irrational nature of the subject being discussed in the linguistic context provided.

[Q108] . (a) . Privilege.

Explanation - A “prerogative” is an exclusive right or special power held by an individual or a specific group of people. It implies the authority to make decisions or take actions that others are not permitted to question or consult on. “Privilege” is the correct

synonym as it also identifies a right or advantage granted only to a particular person or class.

[Q109] . (c) . Reveal.

Explanation - “Camouflage” is the act of concealing or disguising something to make it hidden from view or blend into its environment. “Reveal” is its direct antonym, as it means to make something known, visible, or clear to others after it was hidden. This word pair represents the classic opposition between the intent to hide and the act of showing or disclosing.

[Q110] . (a) . Decent.

Explanation - “Scurrilous” is an adjective describing language or behavior that is vulgar, abusive, and intentionally offensive or defamatory. “Decent” acts as the antonym by referring to that which is moral, respectable, and appropriate for civilized or polite society. Selecting this word provides a clear contrast between coarse, insulting conduct and honorable, proper behavior.

[Q111] . (d) . Inveigle.

Explanation - “Bicker,” “Quarrel,” and “Wrangle” are all synonyms that describe the act of engaging in a petty, noisy, or heated argument. “Inveigle” means to persuade or manipulate someone into doing something by using deception or excessive flattery. Since the first three relate to active conflict and the fourth relates to cunning persuasion, “Inveigle” is the odd word out.

[Q112] . (b) . Direct.

Explanation - “Counsel,” “Suggest,” and “Advise” are all verbs that involve giving someone a recommendation that they can choose to follow. “Direct” is much more forceful, implying a command or an order that leaves the recipient with no choice but to obey. The distinction between offering an opinion versus issuing a mandate makes “Direct” the word that does not fit the group.

[Q113] . was strolling.

Explanation - The sentence describes a background action (strolling) that was in progress when a sudden, specific event (coming across a friend) happened. In English grammar, the past continuous tense is required to show this ongoing activity that provides the context for a singular past moment. This follows the standard rules for narrating past events that overlap, with the longer action using the “was/were + -ing” form.

[Q114] . had studied.

Explanation - When using “I wish” to express regret about a past situation that did not occur, the past perfect tense is grammatically necessary. “I wish I had studied” indicates that the person did not study in the past and now feels a sense of loss or regret. This structure is the standard way to form a counter-factual statement regarding events that have already been completed.

[Q115] . (a) . Efforts are made and the population growth is stabilised.

Explanation - The original sentence incorrectly uses the past perfect “had stabilised” for a conditional statement about the future year 2020. A general conditional statement requires parallel simple present verbs to match the “unless” structure: “unless efforts are made... and growth is stabilised.” Option (a) provides this correction, ensuring the sentence follows proper grammatical tense rules for predicting future outcomes based on conditions.

[Q116] . (b) . Adjective, Preposition, Verb, Noun.

Explanation - “Round” describes the Earth (Adjective), “come round” shows direction (Preposition), “rounded” is an action (Verb), and “first round” is a stage (Noun). Identifying these categories requires analyzing how the same word changes its grammatical function based on its placement and role in different sentences. Option (b) is the only choice that correctly sequences these four distinct parts of speech as they appear in the prompt.

[Q117] . (d) . SQR P.

Explanation - The sentence begins with “India has been a land (S) of learning through the ages,” which sets the historical and cultural context. It follows with (Q) to define the type of education, (R) to note the status of the learned man, and (P) to emphasize the value of learning. This arrangement (S-Q-R-P) creates a logical and meaningful paragraph that flows from a general claim to specific societal observations.

[Q118] . (d) . RPSQ.

Explanation - The logical flow starts with the “programme (R) covering astronomy,” moves to (P) the history of its work, and (S) its cooperation with industry. The fragment ends with (Q) mentioning the formulation of policies, completing the narrative from the program’s scope to its practical implementation. This sequence (R-P-S-Q) provides the most coherent description of the space science industry’s growth and development as stated in the text.

[Q119] . (a) . He said that Garima wants to take up a job.

Explanation - In indirect speech, if the statement being reported is still a currently valid fact or desire, the present tense can be maintained. The reporting verb “said” is followed by the conjunction “that,” and the original words are integrated into a subordinate clause. Option (a) is the standard and grammatically correct way to report Garima’s goal without an unnecessary shift to the past tense.

[Q120] . (a) . He urged them to be quiet and listen to his words.

Explanation - The direct quote is an imperative command, which is best reported using a strong verb like “urged” to reflect the speaker’s intent. The original command “Be quiet” is transformed into an infinitive phrase “to be quiet” to fit the indirect reporting structure. Option (a) accurately captures both the content and the urgent tone of the original spoken statement while following all grammar rules.

VERBAL ABILITY

[Q121] . (d) . to stop talking nonsense.

Explanation - The idiom “to cut the crackle” is used to tell someone to stop talking about unimportant things and get to the main point. It refers to stopping idle chatter or “noise” so that meaningful or serious conversation can take place. This figurative expression is commonly used in informal professional or social settings to demand focus.

[Q122] . (d) . prejudiced view.

Explanation - Looking at something with a “jaundiced eye” means to view it with suspicion, envy, or a pre-existing negative bias. The metaphor is based on the medical condition of jaundice, which turns the eyes yellow and supposedly distorts one’s vision. It implies that the observer’s judgment is colored by past bitterness rather than objective reality.

[Q123] . (c) . with.

Explanation - In English grammar, the verb “comply” is a fixed collocation that must be followed by the preposition “with.” To “comply with” means to act in accordance with a wish, command, or a specific set of rules. Using any other preposition, such as “at” or “for,” would be grammatically incorrect in this context.

[Q124] . (d) . lest.

Explanation - The conjunction “lest” is used to introduce a negative purpose or a consequence that one wants to avoid. It is traditionally followed by the auxiliary verb “should,” as seen in the warning “Walk carefully lest you should fall.” This formal construction expresses caution and prevents the risk of a potential mistake or accident.

[Q125] . **Hypochondriac.**

Explanation - A “hypochondriac” is a person who is abnormally anxious about their health and frequently imagines they have a serious illness. They tend to misinterpret normal bodily functions or minor symptoms as evidence of a significant medical problem. This one-word substitution accurately describes the obsessive health-related worry mentioned in the prompt.

[Q126] . **Bombastic.**

Explanation - An orator’s speech that is “high flown and pretentious” is most accurately described as being “bombastic” or “grandiloquent.” It refers to language that sounds important and inflated but often lacks real meaning or substance. Such a style is usually intended to impress an audience through ego rather than provide clear information.

[Q127] . (b) . Blitzes.

Explanation - For singular nouns ending in the letter ‘z’, the standard rule for pluralization is to add the suffix “es.” Following this orthographic rule, the singular word “Blitz” becomes “Blitzes” when referring to multiple occurrences. Option (b) is the only choice that follows the correct English spelling convention for this specific phonetic ending.

[Q128] . (c) . A rolling stone gathers no moss.

Explanation - This is a classic English proverb implying that people who never settle down will not accumulate wealth or social roots. Option (c) provides the exact traditional wording that has been established in the English language for centuries. Other variations, such as using “collects” or “moisture,” are incorrect attempts at paraphrasing the fixed idiom.

[Q129] . (b) . foregone.

Explanation - The verb “forego” is irregular and follows the same conjugation pattern as the base verb “go” (go, went, gone). The simple past form is “forewent,” and the past participle form required for perfect tenses is “foregone.” This identification is necessary for maintaining correct tense structure in complex English sentences.

[Q130] . **Children’s Day is a tribute to childhood celebration.**

Explanation - The fragments must be arranged in the order 4-5-1-2-3-6-7-8 to follow standard subject-verb-complement syntax. This sequence creates a meaningful affirmative statement that identifies the holiday and its underlying purpose. The resulting sentence correctly utilizes all eight provided words to form a grammatically sound and logical thought.