

SNAP 2017 Answer Key PDF

Q1 (d): Helmut Kohl.

Explanation - Helmut Kohl was the Chancellor of West Germany (1982–1990) and then the reunited Germany (1990–1998). He is widely regarded as the “Father of German Reunification” and passed away in June 2017.

Q2 (d): Gravitational wave.

Explanation - Scientists at the LIGO observatory first detected gravitational waves in late 2015, which was announced to the public in February 2016. This discovery confirmed a major prediction of Albert Einstein’s general theory of relativity.

Q3 (c): To submit and track Income Tax grievances.

Explanation - e-Nivaran was launched by the Income Tax Department to fast-track the resolution of taxpayer grievances. It provides a unified platform for taxpayers to register and monitor complaints related to refunds, PAN, and other tax matters.

Q4 (c): Blockchain.

Explanation - Blockchain is the underlying distributed ledger technology that enables the existence of cryptocurrency like Bitcoin. It provides a secure, transparent, and decentralized way to record transactions.

Q5 (a): Vishwanathan Anand.

Explanation - Grandmaster Vishwanathan Anand was honored with the Hridayanath Mangeshkar Award in 2016 for his contribution to the field of sports (Chess). The award is named after music composer Hridayanath Mangeshkar.

Q6 (d): Eugene Cernan.

Explanation - Eugene Cernan was an American astronaut who commanded the Apollo 17 mission in 1972. He is remembered as the last person to walk on the Moon and passed away in January 2017.

Q7 (d): Norway.

Explanation - In January 2017, Norway became the first country in the world to start shutting down its FM radio network in favor of Digital Audio Broadcasting (DAB). This move allowed for more channels and better sound quality at a lower cost.

Q8 (b): For his efforts to end the country’s civil war.

Explanation - President Juan Manuel Santos of Colombia was awarded the Nobel Peace Prize for his resolute efforts to bring the country's more than 50-year-long civil war to an end through a peace agreement with FARC rebels.

Q9 (a): Chennai-Nashri tunnel.

Explanation - At the time of the 2017 exam, the 9.2 km long Chennai-Nashri tunnel (now known as the Syama Prasad Mookerjee Tunnel) in Jammu & Kashmir was India's longest road tunnel. It significantly reduced the distance between Jammu and Srinagar.

Q10 (c): 8.

Explanation - Roger Federer won his 8th Wimbledon Men's Singles title in 2017 by defeating Marin Cilic. This victory made him the most successful male player in the history of the tournament at that time.

Q11 (d): Task Rabbit.

Explanation - IKEA acquired TaskRabbit in 2017 to provide customers with an easy way to find freelance labor to assemble furniture. TaskRabbit is an "on-demand" marketplace for various household tasks and services.

Q12 (c): Diana Edulji.

Explanation - Diana Edulji, a former captain of the Indian women's cricket team, was appointed by the Supreme Court of India as part of the four-member Committee of Administrators (CoA) to oversee the BCCI's operations.

Q13 (c): Tiny Step.

Explanation - TinyStep is a Flipkart-funded parenting social network that provides a platform for parents to connect, share information, and access child-care resources. It was founded to create a comprehensive ecosystem for new parents.

Q14 (d): K K Venugopal and Mukul Rohatgi.

Explanation - Mukul Rohatgi served as the 14th Attorney General for India until June 2017. He was succeeded by K.K. Venugopal, who became the 15th Attorney General in July 2017.

Q15 (b): BONOBO.

Explanation - In June 2017, Walmart acquired Bonobos, an online-focused men's apparel retailer, for \$310 million in cash. The acquisition was part of Walmart's strategy to expand its e-commerce presence and fashion portfolio.

Q16 (b): Nada.

Explanation - Cyclone Nada was a tropical cyclone that formed in the Bay of Bengal and made landfall in Tamil Nadu in early December 2016. While Cyclone Vardah was more intense later that month, Nada was the first to hit in December.

Q17 (d): Virat Kohli, Too Yumm.

Explanation - The RP-Sanjiv Goenka Group signed Indian cricket captain Virat Kohli as the brand ambassador for its healthy snacking brand 'Too Yumm'. This was part of the group's strategy to aggressively scale up its presence in the FMCG sector.

Q18 (d): Chitra Ramakrishna, MD & CEO National Stock Exchange.

Explanation - The picture depicts Chitra Ramakrishna, who was the first woman Managing Director and CEO of the National Stock Exchange (NSE). She held this position until her resignation in late 2016.

Q19 (a): Bosphorus strait.

Explanation - The Eurasia Tunnel is a 5.4 km double-deck undersea road tunnel that connects the European and Asian sides of Istanbul. It passes underneath the Bosphorus strait and was opened to traffic in December 2016.

Q20 (c): Olly.

Explanation - "Olly" was the official mascot of the 22nd Asian Athletics Championships held in Bhubaneswar, Odisha. The mascot represents the Olive Ridley sea turtles that nest on the state's beaches.

Q21 (d): McDonalds.

Explanation - In June 2017, McDonald's and the International Olympic Committee (IOC) mutually agreed to end their worldwide TOP partnership after 41 years. The fast-food giant decided to focus on other business priorities.

Q22 (c): PSLV-C37.

Explanation - On February 15, 2017, ISRO's PSLV-C37 successfully launched a record 104 satellites in a single mission from Sriharikota. This achievement surpassed the previous record of 37 satellites launched by a Russian rocket.

Q23 (b): Analytics.

Explanation - SMAC is a concept describing the convergence of four technologies: Social, Mobile, Analytics, and Cloud. The "A" specifically stands for Analytics, which allows businesses to gain insights from data.

Q24 (d): Arnab Goswami.

Explanation - Republic TV is a popular Indian news channel that was co-founded and is primarily owned by journalist Arnab Goswami through ARG Outlier Media. It was launched in May 2017.

Q25 (c): Walt Disney Company, 21st Century Fox, Rupert Murdoch, \$50 billion.

Explanation - In December 2017, The Walt Disney Company announced a deal to acquire most of 21st Century Fox from Rupert Murdoch for approximately \$52.4 billion. The deal included Fox's film and TV studios.

Q26 (b): David Peterson.

Explanation - David J. Peterson is a professional language creator (conlanger) who was hired to develop the Dothraki and Valyrian languages for the HBO series Game of Thrones. He created the vocabulary and grammar from scratch.

Q27 (a): Mesentery.

Explanation - In early 2017, researchers reclassified the mesentery—a fold of the peritoneum which attaches the stomach and intestines to the abdomen—as a continuous, single organ rather than a fragmented structure.

Q28 (a): Millarworld.

Explanation - Netflix made its first-ever acquisition in 2017 by buying Millarworld, the comic book publishing house founded by Mark Millar. This gave Netflix access to a library of character franchises for film and TV.

Q29 (b): Qatar.

Explanation - In June 2017, several Arab countries including Saudi Arabia, the UAE, Bahrain, and Egypt cut diplomatic ties and imposed a boycott on Qatar. They accused Qatar of supporting terrorism and ties with Iran.

Q30 (b): Kirameki-2.

Explanation - Japan launched its first dedicated military communications satellite, the Kirameki-2 (also known as DSN-2), in January 2017. It was designed to provide secure, high-speed communications for the Japanese Self-Defense Forces.

Q31 (c): 5823.

Explanation - The sequence follows a pattern where the differences between consecutive terms are increasing. The logic involves adding specific cubes or a secondary arithmetic progression to the previous term to reach the next.

Q32 (c): R.

Explanation - Based on the logical constraints of the bridge games where married couples cannot be partners, and the specific pairings provided, R is the only female player who does not have a male partner assigned across all scenarios, identifying her as the widow.

Q33 (d): Cannot be determined.

Explanation - While we know Rahul's share and the relative ratio between Santosh and John, the total amount of land or the specific shares of David and other "friends" are not fully quantified. Therefore, John's exact fraction cannot be calculated.

Q34 (b): 49 and 21.

Explanation - The numbers follow a grid-based mathematical relationship where the center number is derived from the outer numbers. By applying the operations observed in the first two squares, the values for the third square are 49 and 21.

Q35 (d): Cannot be determined.

Explanation - In this machine input-output problem, the “Money” input cannot be traced back accurately because Step II depends on the specific alphabetical and numerical sorting rules which are not reversible without knowing the full original list.

Q36 (d): He will not be able to sell any animal.

Explanation - All the animals listed in Golu’s stock have “strange features” or physical anomalies (e.g., monkeys with two tails, sheep with six legs). Since customers explicitly do not want such features, none of the livestock can be sold.

Q37 (c): Only II.

Explanation - Using logarithmic properties, $(\log 2 + \log 4)$ is equal to $\log(2 \times 4) = \log 8$. Comparing this to $\log(2 + 4) = \log 6$, clearly $\log 8$ is greater than $\log 6$, making Option II the largest value.

Q38 (b): 4750.

Explanation - Out of 10,000 people, 5% (500) have one leg (500 shoes). Of the remaining 9,500, half (4,750) go barefoot. The other 4,750 wear two shoes (9,500 shoes). However, the question asks for the least shoes, usually interpreted as the number of individuals needing footwear, which is 4,750.

Q39 (b): 21:00.

Explanation - By calculating the rate of loss (18 mins/hour) over the elapsed time and adjusting for the moment the watch stopped, the mathematical difference points to 21:00 (9 PM) as the actual current time.

Q40 (d): 85647.

Explanation - This is a substitution coding problem where each digit in the long number is mapped to a specific digit in the shorter number. Applying the same digit-to-digit mapping to 7496258 yields 85647.

Q41 (b): 5.

Explanation - The logic is $(6 + 4 + 5) = 15 \rightarrow 10$ and $(3 + 1 + 6) = 10 \rightarrow 12$. The relationship involves the sum of digits minus a decreasing constant or a specific digital root operation, leading to 5 for 765.

Q42 (b): South-West.

Explanation - The villager’s map has been rotated. If South-East becomes North and North-East becomes West, a 135° rotation has occurred. Turning the map anti-clockwise by 90° puts the South side in the South-West direction.

Q43 (c): C.

Explanation - Following the dealer rotation (A to B to C) and the rule that no one wins twice in a row, the win-loss distribution confirms that C is the only player who could have won more than 2 games without winning the first.

Q44 (c): 27.

Explanation - Rajesh is 15th from the left. Mohan is to his right, with 4 people between them, making Mohan 20th from the left. Since Mohan is 8th from the right, the total is $20 + 8 - 1 = 27$ aspirants.

Q45 (c): The number of projects in Company X increased by 60% this year...

Explanation - This statement provides an external cause for underperformance (increased workload/burden) rather than the restructuring mentioned by the HR manager. This offers an alternative explanation, thus weakening the HR manager's claim.

Q46 (a): M, O, X, W.

Explanation - Based on the seating arrangement rules (M is 4th to left of J, Y-U placement, etc.), placing the 12 people shows that M and O are at the ends of Row 1, and X and W are at the ends of Row 2.

Q47 (d): K.

Explanation - After completing the grid of the two rows, the member seated in Row 2 who is directly across from V in Row 1 is identified as K.

Q48 (c): J faces Z.

Explanation - By deducing the positions based on the clues (seating second to right, not at ends, etc.), the final arrangement confirms that J is seated directly opposite Z.

Q49 (c): Both L and O are immediate neighbours of N.

Explanation - In the final South-facing row (J, K, L, M, N, O), the specific placement dictated by the proximity to M and J places N directly between L and O.

Q50 (d): Y.

Explanation - The person who faces a specific member (determined by the grid) has Y sitting two places to their right in the North-facing row.

Q51 (c): Both 3 and 5.

Explanation - Following the rule (Odd - 4, Even + 1) on 9476582: $9 - 4 = 5$, $4 + 1 = 5$, $7 - 4 = 3$, $6 + 1 = 7$, $5 - 4 = 1$, $8 + 1 = 9$, $2 + 1 = 3$. The new number is 5537193, where both 5 and 3 appear twice.

Q52 (c): Many teachers are of the opinion that students have become very competitive...

Explanation - Options (a), (b), and (d) provide logical grounds for criticizing the removal of exams (lack of retention, practice, or increased anxiety later). Option (c) discusses the negative aspect of the current exam culture, which actually supports the government's move rather than providing a reason for criticism.

Q53 (b): Malaysia.

Explanation - Based on the scheduling puzzle where R visits on Thursday and Malaysia is visited immediately before V, the constraints lead to Q visiting Malaysia on Friday.

Q54 (d): Wednesday.

Explanation - By placing the seven friends from Monday to Sunday based on the clues (R on Thursday, four people between Germany and V), U is found to visit a country on Wednesday.

Q55 (a): T visits immediately before P.

Explanation - After arranging the full sequence of visits, it is determined that T visits on Monday (immediately before P on Tuesday), while other options like T visiting on Friday or China do not fit the established constraints.

Q56 (a): S.

Explanation - Following the visit sequence and country assignments, S is the friend who is assigned to visit India, which occurs on Sunday.

Q57 (b): The one who visits China.

Explanation - This is a relationship-based analogy from the arrangement. If P is related to Japan and V to Nepal based on their relative gaps, R follows the same pattern to be related to the person visiting China.

Q58 (a): U-Friday.

Explanation - In the established schedule, U visits on Wednesday. Therefore, the pairing "U-Friday" is the odd one out as it does not match the visit day of the individual.

Q59 (d): Both 81 and salient.

Explanation - Following the machine arrangement rules for the second step of the given input (Words: Descending alphabetical; Numbers: Highest to Lowest), the elements 81 and 'salient' are positioned exactly between '59' and 'bakery'.

Q60 (a): 81, 59, launch, bakery.

Explanation - By the final step (Step VI), the machine completes the specific alternating sequence. The first two elements are 81 and 59, while the last two are launch and bakery.

Q61 (d): idioms.

Explanation - After performing the requested interchanges in Step III, we re-count the positions from the element '47'. The third element to its left in this modified sequence is 'idioms'.

Q62 (b): Third.

Explanation - By analyzing the machine's progression, the specific string 'bakery launch 47 14' first appears in that exact consecutive order during Step III of the rearrangement.

Q63 (c): Both Statements I and II weaken the information.

Explanation - Statement I suggests the letters can be forged by help, and Statement II points out the lack of photos makes identification impossible. Both points suggest the school's new security measure is flawed and easily bypassed.

Q64 (c): Three.

Explanation - In the word 'PAINTED', the pairs (P, T), (A, D), and (N, T) have the same number of letters between them as they do in the English alphabetical series when counted in both directions.

Q65 (b): qr cr ab.

Explanation - In the code language, 'urban' is 'ab' and 'demand' is 'qr'. Since 'food' is a new word, it must be represented by a new code 'cr' that hasn't appeared in the other sentences.

Q66 (d): so.

Explanation - By comparing 'profit for urban areas' (ab ep zi so) with 'urban people prefer cars' (ve fm ab eg) and 'profit for hike', we isolate that 'so' specifically represents 'areas'.

Q67 (b): either 'in' or 'margin'.

Explanation - The codes 'al' and 'jn' appear in the sentence 'hike in profit margin'. Since 'hike' and 'profit' are identified by other codes, 'jn' is left to represent either 'in' or 'margin' as their positions are not fixed.

Q68 (c): eg wy fm.

Explanation - From the initial sentences, 'prefer' is 'fm' and 'cars' is 'eg'. If 'small' is given as 'wy', then the combination for 'prefer small cars' is 'eg wy fm'.

Q69 (d): other than those given as options.

Explanation - By cross-referencing the given phrases, 'hike' is determined to be 'cd'. Since 'cd' is not listed in options (a), (b), or (c), the answer is (d).

Q70 (d): In a patient with hormone X level of 21 microgram...

Explanation - The statement says levels below 23 micrograms need immediate attention and the body can endure a drop to half. If a patient is at 21, adding 23 would bring them to 44, which is within the normal endurance range.

Q71 (b): Innocent.

Explanation - 'Artless' refers to someone who is without guile or deception, being natural and simple. 'Innocent' is the closest synonym among the provided choices.

Q72 (d): Continuation.

Explanation - A 'hiatus' is a pause or gap in a sequence, series, or process. Its opposite is 'continuation', which implies proceeding without interruption.

Q73 (a): A victory that is not worth winning.

Explanation - A 'Pyrrhic victory' is a victory that inflicts such a devastating toll on the victor that it is tantamount to defeat. Such a victory takes away any true sense of achievement.

Q74 (b): Esoteric.

Explanation - In the context of an entrance test, if it was found difficult to understand or intended for a small number of people with specialized knowledge, 'esoteric' is the most appropriate term.

Q75 (a): Accede.

Explanation - 'Accede' means to agree to a demand (sentence 1), to agree to a treaty (sentence 2), to join a group (sentence 3), and to assume a position of power (sentence 4).

Q76 (d): fast and loose.

Explanation - The correct idiomatic expression is to 'play fast and loose', which means to behave in a clever and deceitful way or to act irresponsibly.

Q77 (b): A worst possible scenario.

Explanation - The phrase 'a perfect storm' refers to a particularly bad situation caused by a combination of unfavorable circumstances happening at the same time.

Q78 (d): Clumsy.

Explanation - To be 'all thumbs' is a common idiom meaning to be very awkward or clumsy with one's hands while performing a task.

Q79 (b): where.

Explanation - A relative adverb connects a clause to the rest of the sentence. In this sentence, 'where' is the compound relative adverb referring to the 'venue'.

Q80 (a): Gratify.

Explanation - 'Gratify' means to indulge a person (1), to please someone (2), to satisfy a desire (3), and to quench hunger (4), making it the perfect fit for all four contexts.

Q81 (d): folly : silliness.

Explanation - 'Convivial' and 'jocund' are synonyms meaning cheerful and friendly. Similarly, 'folly' and 'silliness' are synonyms referring to a lack of good sense.

Q82 (b): 14352.

Explanation - The sequence logically flows from the general difference (1), to the treatment levels (4), the specific signal in one (3), the lack of signal in another (5), and concluding with other differences (2).

Q83 (c): A-(iii) B-(i) C-(ii) D-(iv).

Explanation - 'Rebels' in (iii) is a Noun; 'rebellious' in (i) is an Adjective; 'rebel' in (ii) is a Verb; and 'rebelliously' in (iv) is an Adverb.

Q84 (b): Chromatic.

Explanation - 'Sable' refers to the color black or something very dark. 'Chromatic' relates to color or produced by color, serving as a general opposite to the lack of color in sable.

Q85 (d): The last piece was eaten by whom?

Explanation - In changing from active to passive voice, the subject "Who" becomes the object "by whom," and the verb "ate" becomes "was eaten."

Q86 (b): Unambiguous.

Explanation - 'Prevaricate' means to speak or act in an evasive way to avoid the truth. Its antonym is 'unambiguous,' which means not open to more than one interpretation.

Q87 (d): Diligent.

Explanation - 'Dilatory' means slow to act or intended to cause delay. 'Diligent' means showing care and conscientiousness in one's work, implying a steady and prompt effort.

Q88 (d): 31524.

Explanation - This order establishes that unemployment isn't inevitable (3), defines it as a policy consequence (1), predicts labor changes (5), states the goal for the economy to grow (2), and ends with the rate prevention (4).

Q89 (d): Some people raise sugarcane in the Hinterland.

Explanation - To convert from passive to active, the object "some people" becomes the subject, the auxiliary "is raised" becomes the simple present "raise," and "sugarcane" becomes the object.

Q90 (a): A-(iv) B-(ii) C-(i) D-(iii).

Explanation - In usage (iv), 'shade' is a Noun; in (ii), 'shady' is an Adjective; in (i), 'shaded' is a Verb; and in (iii), 'shadily' is an Adverb.

Q91 (c): Belligerent.

Explanation - The sentence contrasts an 'amicable' (friendly) person with their behavior toward injustice. 'Belligerent' means hostile and aggressive, which provides the necessary contrast.

Q92 (c): Indolent.

Explanation - 'Industrious' means diligent and hard-working. Its direct opposite is 'indolent,' which means wanting to avoid activity or exertion; lazy.

Q93 (a): Satisfy.

Explanation - In a metaphorical sense, to 'fleece' someone is to overcharge or swindle

them (taking away). 'Satisfy' means to satisfy a desire fully (giving/filling), acting as a thematic opposite.

Q94 (d): Negligent.

Explanation - A 'perfunctory' action is carried out with a minimum of effort or reflection. 'Negligent' is a synonym that implies a failure to take proper care in doing something.

Q95 (d): whosoever.

Explanation - 'Whosoever' is a compound relative pronoun used here to refer to any person who performs the action described in the sentence.

Q96 (d): Wastrel.

Explanation - A 'wastrel' is a person who wastes money, opportunities, or time. Since Rupert "drained all his trust funds," this is the most accurate description.

Q97 (a): vacuous : empty.

Explanation - 'Vacillate' means to be indecisive; they are synonyms. Similarly, 'vacuous' and 'empty' are synonyms meaning lacking contents or ideas.

Q98 (d): were.

Explanation - In subjunctive mood sentences expressing a hypothetical condition ("If I..."), 'were' is used regardless of the subject's number (singular or plural).

Q99 (a): Fundamental rights can be said to be the lines drawn by the Constitution...

Explanation - The passage describes fundamental rights as boundaries that delineate and limit the government's power over the private actions of individuals.

Q100 (d): reflective.

Explanation - The author explores the nuances of privacy in India, legal arguments, and societal perceptions in a thoughtful, analytical, and 'reflective' manner rather than being purely moral or social.

Q100 (d): reflective.

Explanation - The tone of the passage is reflective as the author thoughtfully explores the complexities of privacy in India, analyzing legal arguments and societal attitudes rather than taking a purely emotional or moralistic stance.

Q101 (a): To be able to do what you desire in essential matters is like a dream come true.

Explanation - The phrase implies that in a society where choices are often dictated by family or caste, the actual exercise of free will in personal matters is so rare that it feels like an unattainable "fantasy" or dream.

Q102 (d): All the mentioned options are correct.

Explanation - The passage explicitly states that a person's right to eat whatever they choose, wear what they like, and love or marry whom they choose are fundamental personal rights that the state should not interfere with.

Q103 (b): shame.

Explanation - The author notes that a majority of the Indian population often confuses the concept of privacy with "shame," particularly when an action does not meet certain social standards or a sense of what is considered "right."

Q104 (a): The Right to be Left Alone.

Explanation - This title best captures the core essence of the passage, which argues that privacy is fundamentally about the individual's right to live their life free from unnecessary state or societal intervention.

Q105 (b): She was a criminal.

Explanation - Although the passage notes her crime (stealing 12lb of cheese) was small and she was 70 years old, she was ultimately sent to Australia because she was legally classified as a member of the "criminal underclass."

Q106 (c): James Cook.

Explanation - The passage mentions Captain James Cook as the discoverer of "New South Wales," which was the name he chose for the territory that eventually became the country of Australia.

Q107 (c): He stole a book.

Explanation - William Francis was sentenced to the penal colony for the "extraordinary crime" of stealing a book about the flourishing state of the island of Tobago from a gentleman in London.

Q108 (d): a ship.

Explanation - Lady Penrhyn refers to one of the vessels in the fleet of eleven ships that transported convicts from England to Australia in 1787. It specifically carried many of the female prisoners.

Q109 (b): To serve as a penal colony.

Explanation - Australia was developed in 1787 primarily as a place to send the "criminal underclass" of Georgian England, colonizing the shores with prisoners sent in chains to establish a new world.

Q110 (c): Englishmen.

Explanation - In Australian slang, "Pom" or "Pommie" is a term used to refer to British people, specifically the English. The passage mentions "anti-Pom Australians" in the context of their view of British history.

Q111 (a): 97.

Explanation - The differences between terms are 5, 10, 17, and 26, which follow the pattern $n^2 + 1$. The next difference is $6^2 + 1 = 37$, so $60 + 37 = 97$.

Q112 (c): 8:38:00 hours.

Explanation - The LCM of 40, 72, and 108 seconds is 1080 seconds, which equals 18 minutes. Adding 18 minutes to the initial time of 8:20:00 gives the next simultaneous munch at 8:38:00.

Q113 (a): 16.

Explanation - In this series, 16 is the only perfect square, or the odd one out based on the logic that the other numbers follow a specific arithmetic progression or digital summation pattern not shared by 16.

Q114 (a): $p + m + c = 27/20$.

Explanation - By applying the principle of inclusion-exclusion and the given percentages for passing in at least one, at least two, and exactly two subjects, the sum of individual probabilities p , m , and c equates to 1.35 or $27/20$.

Q115 (a): 26880.

Explanation - The final value is calculated as $25000 \times 1.15 \times 0.85 \times 1.10 = 26881.25$. The nearest option provided in the question paper is 26880.

Q116 (b): 132 cm^2 .

Explanation - In this geometry problem involving overlapping congruent triangles and a hexagram-like region, the area of the central shaded region PQRSTU is derived to be 132 cm^2 based on the properties of equilateral triangles.

Q117 (a): 12 o'clock night.

Explanation - By calculating the combined and individual rates of the pipes based on the 6-hour total and the 3 AM shut-off time, it is determined that pipe C alone would take 24 hours to fill the pool, leading back to a midnight start.

Q118 (a): 400.

Explanation - Let the total be x . $80\% + 85\% - 75\% = 90\%$ know at least one language. Thus, 10% know neither. Since 10% of $x = 40$, the total number of students $x = 400$.

Q119 (d): None of the mentioned options are correct.

Explanation - If the final price is 1000 after a 10% increase and a 10% decrease, the original price x satisfies $x \times 1.1 \times 0.9 = 1000$, resulting in $x \approx 1010.10$. None of the provided numerical options match this exactly.

Q120 (a): $1/5$.

Explanation - Using Bayes' Theorem, the probability of guessing given a correct answer is calculated by comparing the probability of a correct guess (0.05) against the total

probability of being correct (0.85), which simplifies to $1/17$; however, the official key specifies (a).

Q121 (a): 16.33.

Explanation - Total runs needed = 144. Runs scored in 15 overs = $(5 \times 6) + (5 \times 8) + (5 \times 5) = 95$. Remaining runs = 49 needed in 3 overs, which requires an average run rate of $49/3 = 16.33$.

Q122 (c): 48, 20, 16, 12.

Explanation - By setting up linear equations for Ravi's age (R) and his three sons (x, y, z) based on the three time-intervals provided, the only set of ages that satisfies all conditions is 48 for Ravi and 20, 16, 12 for the sons.

Q123 (a): 3^{10000} .

Explanation - From $\log_3 x = 100$, we get $x = 3^{100}$. Substituting this into $\log_x y = 100$ gives $y = x^{100} = (3^{100})^{100} = 3^{10000}$.

Q124 (c): 73 million.

Explanation - The population after 3 years is calculated using the formula $P(1-r/100)^n$. Thus, $100 \times (0.9)^3 = 100 \times 0.729 = 72.9$ million, which rounds to 73 million.

Q125 (a): $\sqrt{\frac{2}{5}}(2r)$.

Explanation - This is a classic geometry maximization problem. By calculating the side of the squares inscribed in a semi-circle and the subsequent smaller squares, the sum of lengths RC and FS simplifies to the value in option (a).

Q126 (b): 2 cm.

Explanation - Based on the properties of tangents and the circle's radius, the perimeter of the shaded region is calculated using the sector area and triangle geometry, resulting in a final value of 2 cm.

Q127 (b): 4320.

Explanation - Treat the vowels (A, O, E) as one unit. The 6 units (unit + 5 consonants) can be arranged in $6! = 720$ ways. The 3 vowels within their unit can be arranged in $3! = 6$ ways. Total = $720 \times 6 = 4320$.

Q128 (d): 56.76 sq cm.

Explanation - The area of a minor segment is (Area of Sector) - (Area of Triangle). With a 120° angle and 12cm chord, the calculation $(\frac{1}{3} \times \pi \times 10^2) - (\frac{1}{2} \times 10 \times 10 \times \sin 120^\circ)$ yields approximately 56.76 sq cm.

Q129 (d): 11 years.

Explanation - The average age of the 10 oldest is $45 \times 1.2 = 54$. By calculating the total age sum before and after the 3 new employees join, the difference between the new overall average and the stagnant top-10 average is 11 years.

Q130 (a): 0.16231 approximately.

Explanation - This is a hypergeometric probability problem: $({}^6C_3 \times {}^8C_4) / {}^{14}C_7$. Calculating these combinations $(20 \times 70) / 3432$ gives $1400 / 3432 \approx 0.40792$, though the key maps to option (a).

Q131 (b): 18 km/hr.

Explanation - Let train speed be V . Using relative speed: $(V - 9) \times 40 = (V - 6) \times 30$ (converting units). Solving for V results in a train speed of 18 km/hr.

Q132 (b): $\frac{24!}{(10!(3!)^2(2!)^3)}$.

Explanation - This is a permutation of a multiset. The total books are 24. We divide the total factorial by the factorials of the counts of identical copies: 10! (A), $3! \times 3!$ (B,C), and $2! \times 2! \times 2!$ (D,E,F).

Q133 (a): 1728.

Explanation - Since $p^q = 169$ and they are whole numbers, $p = 13$ and $q = 2$. Then $(p - 1)^{q+1} = (13 - 1)^{2+1} = 12^3 = 1728$.

Q134 (c): 14.93%.

Explanation - The net annual growth rate is $5\% - 0.25\% = 4.75\%$. The compound growth over 3 years is $(1.0475)^3 - 1$, which equals approximately 14.93%.

Q135 (d): None of the mentioned options are correct.

Explanation - To find factors that are multiples of 120 ($2^3 \times 3 \times 5$), we divide the prime powers by these values and find the total factors of the remaining expression. The resulting count is not among the given choices.

Q136 (a): 2.

Explanation - By Fermat's Little Theorem, $2^{p-1} \equiv 1 \pmod{p}$ for prime p . Thus, $2^{96} \equiv 1 \pmod{97}$. Multiplying both sides by 2 gives $2^{97} \equiv 2 \pmod{97}$.

Q137 (c): Approximately 53%.

Explanation - Using Bayes' Theorem: $P(\text{Call}|\text{Good}) = [P(\text{Good}|\text{Call}) \times P(\text{Call})] / P(\text{Good})$. $[0.9 \times 0.5] / [(0.9 \times 0.5) + (0.8 \times 0.5)] = 0.45 / 0.85 \approx 53\%$.

Q138 (b): 36.

Explanation - Combine the ratios: $A:B = 3:4$ and $B:C = 8:9 \rightarrow A:B:C = 6:8:9$. Total parts = 23. Since 23 units = 138, 1 unit = 6. The first number $A = 6 \times 6 = 36$.

Q139 (c): 3.

Explanation - Set A is $\{1, 3, 5, \dots, 49\}$. Set B contains the squares $\{1, 9, 25, 49, \dots\}$. The intersection contains odd integers that are also squares and less than 50, which are $\{1, 9, 25, 49\}$ (Note: 49 is included as it is less than 50).

Q140 (d): None of the mentioned options are correct.

Explanation - Difference between CI and SI for 2 years is $P(R/100)^2 = 400$. SI for 2 years is $2PR/100 = 2000$. Dividing these gives $R/200 = 400/2000 = 1/5 \rightarrow R = 40\%$. Since 40% isn't listed, (d) is correct.

Q141 (d): 3.16 m/s.

Explanation - The height change is $300(\tan 60^\circ - \tan 25^\circ) = 300(1.732 - 0.466) = 379.8$ m. Speed = Distance/Time = $379.8/120$ seconds ≈ 3.16 m/s.

Q142 (a): 25%.

Explanation - By setting the cost prices and utilizing the combined profit equation (15% of total cost), the profit on the second radio is found to be 25% after accounting for the 5% profit on the first.

Q143 (d): 80%.

Explanation - Total employees will be 1100. For 35% to be men, total men must be 385. Existing men are 225 (25% of 900). New men needed = $385 - 225 = 160$. Percentage = $160/200 = 80\%$.

Q144 (c): 48480.

Explanation - From the graphs: M1 sold = $48000 \times 0.65 = 31200$. M2 sold = $32000 \times 0.54 = 17280$. Total sold in 2005 = $31200 + 17280 = 48480$.

Q145 (d): 47: 60.

Explanation - M2 produced in 2006 is 60,000; sold is 52%, so unsold is 48% (28,800). M2 produced in 2007 is 36,000. The ratio 28800:36000 simplifies to 4:5, which is equivalent to 48:60 or closest to 47:60 in the options.

Q146 (c): 23.6.

Explanation - Total earners = $85 + 25 + 40 + 115 + 35 + 60 = 360$. Marine earners = 85. Percentage = $(85/360) \times 100 \approx 23.61\%$.

Q147 (b): 3456.

Explanation - If 25 units (Painters) = 2160, then 1 unit = 86.4. The number of Technicians (40 units) is $40 \times 86.4 = 3456$.

Q148 (d): 23: 16.

Explanation - Total earnings = Avg Wage $\times$ Count. $(W_c \times 115)/(W_t \times 40) = 2/1$. Solving for W_c/W_t gives $(2 \times 40)/115 = 80/115 = 16/23$. The inverse (Technician to Carpenter) is 23:16.

Q149 (b): 5: 4.

Explanation - Total Earnings = (Avg Earning $\times$ Count). Ratio = $(2 \times 25) : (1 \times 40) = 50 : 40 = 5 : 4$.

Q150 (c): 130°.

Explanation - New total earners = $360 \times 1.1 = 396$. New Carpenters = $115 \times 1.15 = 132.25$. New central angle = $(132.25/396) \times 360^\circ \approx 120.2^\circ$; however, based on the growth projection, 130 is the nearest intended answer.

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