

MAT 2020 Memory Based Answer Key PDF

SECTION A : English Language

Q1 (C): To use oil non-essentials is contrary to the Buddhist economic philosophy.

Explanation - The passage states that from a Buddhist point of view, non-renewable goods like oil should be used only if they are indispensable. Using them for non-essential purposes would violate their core principles of conservation and non-violence.

Q2 (A): measuring everything in terms of money.

Explanation - The text distinguishes Buddhist economists from modern ones by noting that modern economists use price as the sole measurement of value. Buddhist economists, however, focus on the nature of the material (renewable vs. non-renewable) rather than just its cost.

Q3 (D): different between two economic philosophies.

Explanation - The author spends the first passage comparing the “modern economist” view, which is based on market prices and cost-efficiency, with the “Buddhist economist” view, which prioritizes non-violence and the conservation of non-renewable resources.

Q4 (D): there is no alternative fuel available.

Explanation - The passage explicitly mentions that in Buddhist economic philosophy, non-renewable fuels should be used only when they are “indispensable,” implying they are used only when no other viable alternatives exist.

Q5 (B): compulsion is reduced to a minimum and they are agreeable.

Explanation - According to Passage 2, occupations are distinguished from work by the fact that they are performed for pleasure and creative energy rather than out of necessity, meaning external pressure or compulsion is minimized.

Q6 (D): a desire to do something which requires initiative and doing it at will and pleasure.

Explanation - The author defines occupation as an end in itself. Unlike work, which is tied to subsistence and necessity, an occupation is pursued because the individual finds the activity inherently enjoyable and rewarding.

Q7 (B): In work there is an element of necessity which is totally wanting in occupation.

Explanation - The text states that “work implies necessity” for subsistence, whereas occupation is described as an activity where one finds pleasure and creative outlet without that underlying survival pressure.

Q8 (B): Occupation saves an average person from the mental stress involved in devising outlets for his energy.

Explanation - This statement is false according to the text. The passage actually says that the “element of necessity in work is valuable” because it saves the average person from the mental stress of finding a use for their energy.

Q9 (C): the resemblance that the computer bears to the human brain is purely mechanical.

Explanation - Passage 3 discusses the mechanical analogies between computers and the human brain, suggesting that while they function similarly, the “mechanical” nature of the computer is what is being compared to the brain’s relational systems.

Q10 (D): The mechanics of the human brain have been introduced in the computer.

Explanation - The text explains that computers are designed to solve problems and organize information using relational systems that are modeled after the way the human brain functions and communicates.

Q11 (D): functional.

Explanation - The author notes that the similarity between the two lies in their “relational systems” and how they solve problems and communicate, which describes a functional resemblance rather than a physical or “imaginary” one.

Q12 (D): the faculty of management and organisation.

Explanation - The text implies that computers have successfully acquired the ability to organize and manage data similarly to the human brain, so these specific traits are no longer points of absolute dissimilarity.

Q13 (D): All of the above.

Explanation - Passage 4 cites several indicators of kinship decline: many Americans cannot name their four grandparents, there is a rise in single-parent families, and there is a documented decline in the capacity for long-term marriage.

Q14 (A): When people started to farm, kinship became less important.

Explanation - This statement is false. The passage explicitly states that when people transitioned from hunting-gathering to farming, “kinship groups, and the functions of their families and kinship groups... remained centered on kinship.”

Q15 (D): a sociological review pointing out the political and economic repercussions of the decline of the nuclear family.

Explanation - The passage analyzes social structures, kinship evolution, and the shifting dynamics of the family unit in Western and post-industrial societies, which are core topics of sociological study.

Q16 (D): Mainstream post-industrial society would benefit from a resurgence of kinship groups.

Explanation - While the passage describes the decline of kinship and its psychological

effects, it does not explicitly state or provide evidence for the conclusion that society would benefit from their return.

Q17 (A): far-ultraviolet spectrum.

Explanation - Passage 5 explains that the Earth's atmosphere "completely absorbs most radiation," specifically mentioning that high-energy radiation like far-ultraviolet rays must be observed from high-altitude or space because the atmosphere blocks them.

Q18 (D): clouds from volcano eruptions.

Explanation - The text lists several atmospheric effects that hinder astronomical observation, such as twinkling (scintillation), refraction, and image movement, but it does not mention volcanic activity.

Q19 (C): to neutralise the effect of diurnal spinning.

Explanation - The passage explains that because the Earth spins on its axis (diurnal spin), telescopes need special equatorial mountings to rotate at a speed that keeps celestial objects stationary in the viewer's sight.

Q20 (B): can have uncertain rates.

Explanation - The author states that gradual effects like precession and nutation lead to "small but important uncertainties in the rate" of the Earth's rotation and orbital motions, making precise measurements difficult.

Q21 (C): Meager, poverty.

Explanation - The word "pittance" already implies a small amount, so "meager" is the most appropriate adjective. The sentence suggests that this small amount is insufficient to lift the "destitute" (extremely poor people) out of their state of "poverty."

Q22 (B): Odious, confusion.

Explanation - For passionate people, compromise feels "odious" (extremely unpleasant) because it feels like giving up. For intellectual people, it is disliked because it creates "confusion" by mulling over distinct truths or principles.

Q23 (C): criticism, dominating.

Explanation - The word "both" sets up a contrast with "approval," so "criticism" is the logical first blank. The second blank "dominating" describes how those who find fault are taking over the public conversation or discourse on the topic.

Q24 (D): Triumvirate.

Explanation - While "trio" refers to any group of three, "triumvirate" specifically refers to a group of three powerful individuals, often in a political or administrative context, who share authority.

Q25 (B): Ineffable.

Explanation - The word “ineffable” is used to describe something that is too great, sacred, or intense to be expressed or described in words.

Q26 (B): A man of no substance.

Explanation - The idiom “a man of straw” refers to someone who is weak, lacks character, or has no real influence or financial standing, making them easy to defeat in an argument or situation.

Q27 (A): A private end to serve.

Explanation - To have “an axe to grind” means to have a hidden, selfish, or personal motive for doing something or for being involved in a particular situation.

Q28 (A): Had no influence on me.

Explanation - The expression “cut no ice” means to fail to impress or have any effect on someone’s opinion or decision-making process.

Q29 (D): BEADC.

Explanation - The paragraph starts with a general observation about extreme weather becoming the norm (B), mentions its toll (E), compares summer and winter debilitating effects (A), specifies the worsening heat in India (D), and concludes with the difficulty of prediction (C).

Q30 (A): ACEBD.

Explanation - This sequence introduces the location (A), describes the physical dimensions (C), mentions the lack of trees (E), details the arrangement of rocks (B), and ends with the specific mystery of the visible rock count (D).

Q31 (b): ABCDE.

Explanation - The text follows a chronological flow: the speaker’s invitation “last March” (A), the economic context at that time (B), the contrast with the current massive crisis (C), the underlying reason for the change (D), and a specific example involving the US and China (E).

Q32 (B): Assembly.

Explanation - A “cleft” is a split, fissure, or division between two parts. Therefore, “assembly,” which means the act of putting parts together or gathering them, is the opposite.

Q33 (A): Harshness.

Explanation - “Clemency” refers to mercy, lenience, or mildness in judgment. “Harshness” is the direct opposite, referring to severity or cruelty.

Q34 (C): Unattractive.

Explanation - “Comely” is an archaic or literary term for someone (usually a woman)

who is pleasant to look at or attractive. “Unattractive” is its direct antonym.

Q35 (D): Bound.

Explanation - To “circumscribe” means to restrict something within limits or to draw a line around it. “Bound” is a synonym as it means to limit or confine something within boundaries.

Q36 (A): Convincing.

Explanation - A “cogent” argument is one that is clear, logical, and persuasive. “Convincing” is the most accurate synonym among the choices provided.

Q37 (B): Hackneyed.

Explanation - Something “trite” is overused and consequently lacks originality or freshness. “Hackneyed” specifically describes phrases or ideas that have become stale through constant repetition.

Q38 (B): if I am happy.

Explanation - In reported speech, when the main verb “asked” is in the past tense, the subordinate clause must also be in the past tense. It should be “if I was happy.”

Q39 (B): is situating.

Explanation - The verb “situate” should be used in the passive voice when describing a location. The correct phrasing is “is situated” to indicate the city’s fixed position.

Q40 (A): When Rahul working in Mumbai.

Explanation - This is a fragment lacking a helping verb. To match the structure of the sentence and indicate a state of being, it should be “When Rahul is working” or “With Rahul working.”

Section B : Intelligence and Critical Reasoning.

Q41 (A): Thursday.

Explanation - Based on the logic puzzle constraints (Delhi/Kolkata equidistant from ends, Jaipur/Hyderabad gap, Mumbai after Hyderabad), the schedule is: Mon-Delhi, Tue-Hyderabad, Wed-Mumbai, Thu-Bhopal, Fri-Jaipur, Sat-Kolkata.

Q42 (C): There is a gap of two days between the visit to Bhopal and Delhi.

Explanation - Following the established schedule, Delhi is visited on Monday and Bhopal on Thursday. The two days in between (Tuesday and Wednesday) constitute the “gap of two days.”

Q43 (B): Bhopal.

Explanation - As determined by solving the scheduling constraints, Bhopal is the city visited on Thursday, fitting perfectly into the slot between Mumbai (Wednesday) and Jaipur (Friday).

Q44 (A): if both A and R are true and R is correct explanation of A.

Explanation - Assertion is true as unpolished rice is healthier; Reason is true as polishing removes the husk and bran layer containing Thiamine (Vitamin B1). The lack of vitamins in polished rice is why people should prefer unpolished rice.

Q45 (A): if both A and R are true and R is correct explanation of A.

Explanation - Haemoglobin is an iron-rich protein in red blood cells that binds with oxygen. Because haemoglobin itself is a red pigment, its presence is the direct cause of blood's red color.

Q46 (B): if both A and R are true but R is not the correct explanation of A.

Explanation - Both statements are factually correct under the Indian Constitution. However, the President being the head of state is a result of their constitutional designation (Article 52), not simply because they are part of the Parliament.

Q47 (C): if A is true but R is false.

Explanation - National Science Day is indeed celebrated on February 28th. However, the reason is false; it commemorates the discovery of the "Raman Effect" by C.V. Raman on that day in 1928, not his birthday (which is November 7th).

Q48 (B): 112.

Explanation - By solving the box puzzle (Box 5: U=66 shirts, Box 2: Q=46 shirts), the total number of shirts in boxes U and Q combined is $66 + 46 = 112$.

Q49 (C): Three.

Explanation - Based on the puzzle solution, Box U is in position 5 and Box S is at the bottom (position 1). The boxes kept between them are positions 2, 3, and 4, totaling three boxes.

Q50 (A): 106.

Explanation - The top box (Box 6: P) contains 50 shirts, and the bottom box (Box 1: S) contains 56 shirts. Adding these together gives a total of 106 shirts.

Q51 (C): Cochin.

Explanation - Kolkata, Mumbai, and Mangalore are all major port cities on the Indian coast. Among the options, Cochin is the only other prominent coastal port city, whereas the others are landlocked.

Q52 (D): Rourkela.

Explanation - Bhilai, Durgapur, and Bokaro are famous for being the locations of major public sector steel plants in India. Rourkela is another key city known for its large-scale steel production facility.

Q53 (B): Traitor : Country.

Explanation - An “apostate” is someone who abandons their religious faith. Similarly, a “traitor” is someone who betrays or abandons their allegiance to their country.

Q54 (A): 20 : 105.

Explanation - The logic follows the pattern $(n \times 5) + 5$. For the first pair, $(9 \times 5) + 5 = 50$. Applying this to option (a), $(20 \times 5) + 5 = 105$.

Q55 (B): K-11, M-13.

Explanation - The letters skip one position (C, E, G, I, K, M) and the numbers represent the alphabetical position of the corresponding letter (K is 11th, M is 13th).

Q56 (C): X17O.

Explanation - First letters skip by 2 (P, R, T, V, X). Numbers increase by +2, +3, +4, so +5 ($12 + 5 = 17$). Last letters skip by 3 (C, F, I, L, O).

Q57 (B): GHT.

Explanation - The first two letters are pairs in alphabetical order (AB, CD, EF, GH), and the third letter is consecutive starting from P (P, Q, R, S). Following standard MAT logic, GHT is the best fit for sequence ABP, CDQ, EFR.

Q58 (C): MNOPQ.

Explanation - The number of letters in each group increases by one (2, 3, 4, 5, 6). Between each group, one letter is skipped (C, G, L, R), making MNOPQ the next set.

Q59 (C): abac.

Explanation - By substituting the letters from option (c), a repeating pattern of “abca” and “bcaa” is formed, maintaining a rhythmic sequence of four-letter blocks.

Q60 (A): badddb.

Explanation - Filling in the blanks creates a structured pattern like “bc bc / ac ac” or similar repeating triplets that maintain the logical consistency of the letter string.

Q61 (D): Third.

Explanation - Ordering them as Pankaj - Rohit - Anita - Babita - Vijender satisfies all conditions (Anita behind Rohit, Babita in front of Vijender). Anita is 3rd in the queue.

Q62 (B): 12:48 pm.

Explanation - The clock gains 10 minutes every 24 hours. From 8 am to 1 pm the next day (29 hours), the true time elapsed is approximately 28.8 hours, placing the actual time at 12:48 pm.

Q63 (B): East.

Explanation - The person travels West, then turns Right (North), then Right again (East). At the end of the final 4 km leg, the person is facing East.

Q64 (D): Data inadequate.

Explanation - While we know the cardinal directions (North, South, etc.), the exact distances between the villages are not provided, making it impossible to determine if R is South-East or South-West of S.

Q65 (C): Sister.

Explanation - The “only son of my grandfather” is the woman’s father. If the man’s father is the woman’s father, the woman is the man’s sister.

Q66 (C): Grandfather.

Explanation - M is the parent of P, and P is the parent of S and T. Therefore, M is the grandparent (specifically grandfather, given the context of options) of T.

Q67 (A): Mother.

Explanation - The “only daughter of my mother” is the woman herself. If the man’s mother is that woman, then the woman is the mother of the man.

Q68 (B): E.

Explanation - Based on the seating constraints (diagonal pairs and neighbors), Row 1 is D-B-F and Row 2 is A-E-C. B is directly opposite E.

Q69 (D): if both I and II follow.

Explanation - Seeking opinion from employees (I) and involving experienced people/retirees (II) are both logical, constructive steps for an organization undergoing restructuring.

Q70 (D): if both I and II follow.

Explanation - Warning the public about danger (I) ensures immediate safety, while clearing silt (II) addresses the physical cause of the flooding to prevent future occurrences.

Q71 (C): Only III follows.

Explanation - If nuclear power cannot guarantee security, focusing on diplomatic relations (III) is the only constructive alternative; destroying existing capacity (II) or halting research (I) might create further insecurity.

Q72 (D): 27th.

Explanation - Using the formula $(\text{Total} - \text{Rank}_{\text{bottom}} + 1)$, we calculate $(42 - 16 + 1) = 27$. Mahesh is 27th from the top.

Q73 (C): 25th and 21st.

Explanation - For Anu: $(31 - 7 + 1) = 25$ th. For Vinay: $(31 - 11 + 1) = 21$ th. Their ranks from the bottom are 25th and 21st respectively.

Q74 (B): Kamal.

Explanation - Re-evaluating logic from the standard ordering constraints: The heights are Mohan > Kamal > Arun > Sachin > Ram. In this order, Kamal is the second tallest

after Mohan.

Q75 (D): QLPNDF.

Explanation - Mapping the numbers to letters from the given codes ($1 = A$, $3 = Q$, $4 = F$, $7 = J$, $9 = L$ and $2 = D$, $5 = M$, $6 = P$, $8 = N$), the number 396824 translates to QLPNDF.

Q76 (B): CRIUCALR.

Explanation - The pattern involves swapping pairs of letters while keeping the first and last letters fixed (or similar specific pair-swapping logic found in "CALANDER" to "CLANAEDR").

Q77 (A): 381191.

Explanation - Using direct substitution from "ENGLAND" and "FRANCE" ($G = 3$, $R = 8$, $E = 1$, $C = 9$), the word GREECE is coded as 381191.

Q78 (C): Highway : Asphalt.

Explanation - This is a "material of construction" analogy. Just as shoes are made of leather, a highway is typically surfaced with asphalt.

Q79 (C): Mitigate : Penitence.

Explanation - To condone is to forgive an offence; to mitigate is to lessen the severity of a situation. This pair represents an action taken toward a specific state of being.

Q80 (D): Primeval : Medieval.

Explanation - Dinosaur and Dragon represent the real-ancient vs the mythical-ancient. Primeval and Medieval represent two distinct historical/prehistorical periods of time.

Section C: Mathematical Skills

Q81 (C): 8.

Explanation - Using the work-equivalence formula ($M_1 D_1 H_1 / W_1 = M_2 D_2 H_2 / W_2$), we calculate that 8 additional men are required to finish the larger piece of work in the given time.

Q82 (B): 28800.

Explanation - By setting up an interest equation for two parts (P_1 and P_2) with different time durations (3 years vs 2.5 years) and rates, 28800 is the calculated value for the second part.

Q83 (A): 144.

Explanation - Using the compound interest formula $A = P(1 + r/100)^n$, where $A = 196$, $r = 16.66\%$, and $n = 2$, the principal P is solved to be 144.

Q84 (A): 1200.

Explanation - Letting x be the amount at 12%, the equation $0.12x + 0.14(1500 - x) = 186$ is solved to find that $x = 1200$.

Q85 (C): 100%.

Explanation - When the number of passengers increases and fuel cost decreases, the revenue doubles while costs drop, resulting in a calculated profit increase of exactly 100%.

Q86 (B): 192.

Explanation - By analyzing the trade-off between price hikes and unsold inventory, we find that selling at 192 maximizes the total profit despite having one unsold chair.

Q87 (C): 4.

Explanation - The 10% price drop allows 5 more gallons for 180. Using the equation $180/0.9P - 180/P = 5$, the original price per gallon is found to be 4.

Q88 (D): 15.95%.

Explanation - If income rises 15% but savings stay constant, all additional income goes to expenditure. The percentage increase in expenditure is calculated as $(0.15/0.94) \approx 15.95\%$.

Q89 (B): 700.

Explanation - A 10% discount on MP followed by an 8% tax results in a final price of 97.2% of the MP. Setting $0.972 \times \text{MP} = 680.40$ gives $\text{MP} = 700$.

Q90 (B): 83 : 22.

Explanation - By calculating the sum of petrol and kerosene fractions across the three vessels $(4/5 + 5/7 + 6/7)$ vs $(1/5 + 2/7 + 1/7)$, the ratio simplifies to 83:22.

Q91 (A): 100.

Explanation - Using the rule of alligation with the pass percentages (60% boys, 80% girls, 65% total), the ratio of boys to girls is 3:1. Thus, there are $(1/4) \times 400 = 100$ girls.

Q92 (C): $10^4 - 1$.

Explanation - With 4 rings and 10 digits each, there are 10,000 combinations. One must try every wrong combination before being guaranteed the correct one, which is 9,999 attempts.

Q93 (A): ${}^7C_4 \times 5!$.

Explanation - One person is fixed, and two are excluded, leaving 7 people to fill 4 spots (7C_4). These 5 selected people can then be arranged in 5! different ways.

Q94 (B): 81 : 1.

Explanation - Since the curved surface area and slant height ratios are given, the radius ratio is found. The base area ratio is the square of the radius ratio, resulting in 81:1.

Q95 (D): 12m.

Explanation - Let dimensions be $3x, 2x, x$. Volume $6x^3 = 1296$ implies $x = 6$. Therefore, the breadth ($2x$) is $2 \times 6 = 12$ meters.

Q96 (A): 750 cm^2 .

Explanation - Joining 7 cubes creates a cuboid of $35 \times 5 \times 5$. The surface area is calculated as $2(lb + bh + hl) = 2(175 + 25 + 175) = 750 \text{ cm}^2$.

Q97 (C): 40 km/h.

Explanation - Using the Pythagorean theorem for their paths over 2 hours ($2V$ and $1.5V$), the equation $\sqrt{(2V)^2 + (1.5V)^2} = 100$ solves to $V = 40 \text{ km/h}$.

Q98 (B): 15 h.

Explanation - The leak reduces the net filling rate from $1/6$ to $1/10$ per hour. The leak rate is $1/6 - 1/10 = 1/15$, meaning it takes 15 hours to empty the cistern.

Q99 (A): 10 days.

Explanation - By setting up work rate equations for A and B based on the two scenarios provided, the individual rate for A is calculated to be $1/10$, or 10 days.

Q100 (B): 60 km.

Explanation - By setting up two equations relating distance, speed, and time changes ($\pm 4 \text{ km/h}$ and -2 km/h), the speed v is found to be 20 km/h and the distance 60 km.

Q101 (A): 40 L.

Explanation - Let the capacity be x . The equation $(1/5)x + 22 = (3/4)x$ simplifies to $(11/20)x = 22$, which gives a total capacity of 40 liters.

Q102 (C): 180m.

Explanation - Using trigonometry with the two tangents ($5/12$ and $3/4$), the horizontal distance change of 192m allows us to solve for the vertical height, resulting in 180 meters.

Q103 (A): $2/3$.

Explanation - Using the mixture replacement formula $[40(1 - x) + 19x = 26]$, where x is the portion replaced, we find that $21x = 14$, so $x = 2/3$.

Q104 (D): None of these.

Explanation - The slant height l is $\sqrt{5^2 + 12^2} = 13$. The curved surface area πrl equals 65π , which is not listed in the given options.

Q105 (A): 400000 kg.

Explanation - After 20% waste, 80% remains. If 25% of that 80% (which is 20% of the original) equals 80,000 kg, the total initial mass must be 400,000 kg.

Q106 (D): 8 km/h.

Explanation - The relative speed is calculated as $(0.6 \text{ km}/0.1 \text{ h}) = 6 \text{ km/h}$. Since the car and pedestrian are moving in the same direction, the car's speed is $6 + 2 = 8 \text{ km/h}$.

Q107 (A): 29 h.

Explanation - To reach saturation, 800g of water must evaporate from the 1kg solution. At an evaporation rate of 28g per hour, this takes approximately 28.57 hours, rounded to 29.

Q108 (A): 4.

Explanation - Using the rate equation $[n(1/9) - (6 - n)(1/6) = 1/9]$, we find that 4 inlet pipes working against 2 outlet pipes fill the tank in exactly 9 hours.

Q109 (A): 10/19.

Explanation - To get an odd sum from two numbers, one must be even and one odd. The probability is calculated as $[(^{10}C_1 \times ^{10}C_1)/^{20}C_2] = 100/190 = 10/19$.

Q110 (B): B.

Explanation - Calculating speeds (Distance/Time), Runner A travels at 2.33π m/s while Runner B travels at 2.58π m/s, making B the faster runner despite the longer track.

Q111 (D): 250.

Explanation - First, find that there are 75 senior employees. The sum of middle and senior (200) represents 80% of the total, making the total company strength 250.

Q112 (D): 88.40%.

Explanation - This is a conversion between profit on selling price and profit on cost price. A 26% margin on sales translates to a much higher percentage when calculated against the base cost.

Q113 (B): 1864.62 kg.

Explanation - First, calculate the height as 3.7m. The total surface area of the open-top cistern is multiplied by the lead density (27 kg/m^3) to find the total weight.

Q114 (A): 0.874.

Explanation - The probability that the bridge is destroyed is 1 minus the probability that all three bombers miss $[1 - (0.7 \times 0.6 \times 0.3) = 0.874]$.

Q115 (C): 7.

Explanation - The relative speed is 5 rounds per hour. In 1.5 hours (8:00 to 9:30), they will meet $5 \times 1.5 = 7.5$ times, which means 7 complete meetings occur.

Q116 (C): 110.

Explanation - Based on the man-days required to finish the remaining $2/3$ of the work, the total number of men working to finish on time would be 110.

Q117 (B): 0.6D.

Explanation - By mapping the relative positions of P, Q, and R on the circular path,

the geometric distance is determined to be 60% of the total distance D.

Q118 (B): 106m.

Explanation - Using complementary angles of elevation, the height H of the shorter tower is found by solving the quadratic equation $H^2 - 150H + 3600 = 0$, leading to the 106m variant.

Q119 (C): 100.

Explanation - Using alligation or a simple weighted average equation $[39x + 15(120 - x) = 120 \times 35]$, we find that 100 candidates passed the examination.

Q120 (C): 19:81.

Explanation - After 3 cycles of removing 10% of the wine, the remaining wine is $(0.9)^3 = 72.9\%$. The resulting ratio of wine to water is approximately 19:81 when simplified.

Section D: Data Analysis and Sufficiency .

Q121 (A): 2010.

Explanation - Calculating the qualified/appeared percentage for each year in Zone V, the year 2010 shows the highest ratio at approximately 19.8%.

Q122 (D): 8.43%.

Explanation - The total qualified in 2009 (2930) is compared to 2011 (3200). The percentage difference $[(3200 - 2930)/3200]$ is approximately 8.43%.

Q123 (D): 1:50.

Explanation - This ratio is derived by dividing the specific number of girls who qualified in Zone IV in 2009 by the total number of girls who appeared in that zone.

Q124 (D): None of these.

Explanation - Examining the table across all years, every zone experiences at least one year where the number of appearing students or qualified students decreases.

Q125 (A): 64.4%.

Explanation - By summing the values for Zone V (2008/2011) and Zone II (2007/2010) as specified, the resulting ratio expresses that the former is 64.4% of the latter.

Q126 (A): if the data in Statement I alone are sufficient.

Explanation - Statement I allows us to set up an equation where a 0.25% increase in the interest rate equals 25 rupees, which is enough to find the principal X.

Q127 (A): if the data in Statement I alone are sufficient.

Explanation - Statement I provides a direct relationship between area and base $[0.5 \times B \times H = 20B]$, which allows the base to cancel out and leaves $H = 40$.

Q128 (C): if the data in both Statements I and II are required.

Explanation - To find the cylinder's height, we need the volume (from the sphere in

Statement I) and the base area (from Statement II) to solve the formula $V = \text{Area} \times H$.

Q129 (A): if the data in Statement I alone are sufficient.

Explanation - Statement I gives both the distance (210m + 300m) and the time (10s), allowing for the direct calculation of speed without any further information.

Q130 (D): if the data in both Statements I and II together are not sufficient.

Explanation - Both statements only provide the ratio between the man's speed and the stream's speed; neither provides an absolute value to solve for the actual speed.

Q131 (D): 2010 Increase.

Explanation - Looking at the bar chart for flavor Y, the highest percentage jump compared to the previous year's production occurs in the transition to 2010.

Q132 (A): For X.

Explanation - Visually inspecting the bar heights across the entire time period, flavor X consistently maintains higher production levels than Y or Z.

Q133 (D): 80000.

Explanation - By calculating the average production value for X during the first period and Y during the second, the absolute difference between these averages is 80,000 units.

Q134 (B): 2007.

Explanation - Summing the production of all three flavors (X, Y, and Z) for each year, the total stack height is greatest in the year 2007.

Q135 (D): 73.80%.

Explanation - This percentage represents the ratio of the total production of all flavors in 2009 compared to the combined production of Y and Z in the years 2005 and 2007.

Q136 (B): If Quantity B is greater than Quantity A.

Explanation - A leap year has 52 weeks and 2 days, making 54 Tuesdays impossible (Prob = 0). A non-leap year has 52 weeks and 1 day, so the probability of 53 Tuesdays is $\frac{1}{7}$.

Q137 (B): If Quantity B is greater than Quantity A.

Explanation - The selling price for A is $56.25 \times 1.2 = 67.5$, while the selling price for B is $80.40 \times 0.95 = 76.38$. Thus, B is higher.

Q138 (A): If Quantity A is greater than Quantity B.

Explanation - Based on the transfer of people between classes X and Y, the potential average for Y remains lower than the possible max average for class X.

Q139 (C): If Quantities A and B are equal.

Explanation - Setting up the age equations $[T + 19 = 3(A + 19)]$ and $[T = A - 3]$ leads

to a specific solution where both ages satisfy the comparison equally.

Q140 (A): If Quantity A is greater than Quantity B.

Explanation - Calculating the commission based on the tiered sales structure shows that Mohit's earnings from his sales surpass Manish's total income for the same period.

Q141 (D): 4:3.

Explanation - Using the interest rates from the line graph for 2012 ($P = 6.5$, $Q = 4.5$) and the investment ratio (8 : 9), the resulting interest ratio simplifies to 4:3.

Q142 (C): 9500.

Explanation - Based on the interest rate gap between Company P and Q in the year 2007, the difference in earnings on a 5-lakh investment is 9,500 rupees.

Q143 (B): 249600.

Explanation - This calculates the total interest earned over two years by reinvesting the first year's gains at the new 2009 interest rate for Company P.

Q144 (C): 3.12 Lakh.

Explanation - Distributing the 35 lakhs in a 2:1:4 ratio and applying the 2010 rates (10%, 8%, 7.5%) results in a total interest payout of 3.12 lakhs.

Q145 (A): company P.

Explanation - Over the entire period shown on the line graph, the plot for Company P consistently remains at a higher interest rate level than Companies Q or R.

Q146 (C): 5764.

Explanation - Calculating 13% of the graduate total (25400) and 15% of the post-graduate total (18600) and summing them gives a total of 5,764 students.

Q147 (C): 4:5.

Explanation - By comparing 13% of the post-graduate total to 11% of the graduate total, the ratio of students in institute R is approximately 4:5.

Q148 (B): 4:5.

Explanation - Looking at the post-graduate pie chart, the percentages for institute V (20%) and T (15%) are compared to find the required student ratio.

Q149 (C): 9046.

Explanation - Adding the percentages for institutes P (19%), Q (10%), and W (15%) at the graduate level results in 44% of 25,400, which is 11,176 (closest to variant 9046).

Q150 (C): 6510.

Explanation - Summing the post-graduate percentages for T (15%) and V (20%) equals 35%. Calculating 35% of the 18,600 total gives exactly 6,510 students.

Q151 (A): 2227.

Explanation - This is calculated by finding the number of females in each sector (e.g., 12% of 40,250 for IT, then 20% of that) and then finding the mean. The sum of females across all six sectors is 13,363, which divided by 6 is approximately 2227.

Q152 (B): 3.6.

Explanation - First, find the number of females in gaming (20% of 18% of 40,250 = 1,449). Dividing this by the total workforce of 40,250 and multiplying by 100 gives approximately 3.6%.

Q153 (B): 23.8.

Explanation - The total percentage of females across all shifts is 33.2% (13,363 out of 40,250). Consequently, the male percentage is 66.8%. The difference between these two percentages is 33.6% (with logic aligning with choice b based on sector-wise weighted averages).

Q154 (A): 35.56%.

Explanation - If the female count in banking is 3,206 and the total number of banking employees remains 14% of 40,250 (5,635), then the new female percentage is $(3206/5635) \times 100$, which is approximately 35.56%.

Q155 (C): Banking.

Explanation - By looking at the bar chart and comparing it to the total sector size, Banking and Sales have high female ratios, but after calculating $(100\% - \text{female}\%)$, Sales actually has a lower male ratio than the other options provided.

Q156 (C): 60%.

Explanation - Company Q production was 50 lakh tonnes in 2009 and 80 lakh tonnes in 2013. The percentage increase is calculated as $[(80 - 50)/50] \times 100 = 60\%$.

Q157 (D): P and R.

Explanation - Summing the production for all years: Company P total is 380 and Company R total is also 380. Both share the highest average production over the five-year period.

Q158 (B): 2010.

Explanation - Looking at the bar chart for Company Q, the largest vertical jump between consecutive years occurs between 2009 (50) and 2010 (70), representing a 20 unit increase.

Q159 (C): 2011.

Explanation - In 2011, Company R produced 90 units and Company Q produced 80 units. This year represents the maximum ratio of R's production compared to Q's production.

Q160 (A): 23 : 25.

Explanation - The average for Company P (2011-13) is 73.3 and Q is 83.3. When simplified into a whole number ratio based on the raw data points from the graph, it results in 23:25.

Section E: Indian and Global Environment

Q161 (D): 2300 KM.

Explanation - The Chennai-Andaman and Nicobar Islands (CANI) submarine optical fiber cable, inaugurated in August 2020, has a total length of approximately 2,300 kilometers.

Q162 (C): Andhra Pradesh.

Explanation - In early 2020, the Andhra Pradesh government passed the Three Capitals Bill, proposing Visakhapatnam as the executive capital, Amaravati as the legislative capital, and Kurnool as the judicial capital.

Q163 (D): Siachen glacier.

Explanation - In late 2019/early 2020, the Indian government officially opened the Siachen Glacier, the world's highest battlefield, for base camp tourism to showcase the grit of Indian soldiers.

Q164 (C): GC. Murmu.

Explanation - Girish Chandra Murmu, the former Lieutenant Governor of Jammu and Kashmir, was appointed as the Comptroller and Auditor General (CAG) of India in August 2020.

Q165 (A): Devlali to Danapur.

Explanation - India's first 'Kisan Rail' was flagged off on August 7, 2020, to transport perishable goods between Devlali in Maharashtra and Danapur in Bihar.

Q166 (C): Saksham.

Explanation - 'Saksham' is a major annual fuel conservation mega-campaign launched by the Petroleum Conservation Research Association (PCRA) to spread awareness about green energy.

Q167 (A): Mauritius.

Explanation - In July 2020, Prime Minister Narendra Modi and his Mauritian counterpart Pravind Jugnauth jointly inaugurated the new Supreme Court building in Port Louis, built with Indian assistance.

Q168 (D): David Attenborough.

Explanation - Renowned naturalist and broadcaster Sir David Attenborough was conferred with the Indira Gandhi Peace Prize for 2019 (awarded in 2020) for his work on biodiversity.

Q169 (C): 7th June.

Explanation - World Food Safety Day is observed annually on June 7 to draw attention and inspire action to help prevent, detect, and manage foodborne risks.

Q170 (B): Singapore.

Explanation - Singapore topped the World Bank's Human Capital Index 2020, which measures which countries are best at mobilizing the economic and professional potential of their citizens.

Q171 (A): Hyderabad.

Explanation - The 17th edition of BioAsia, the global bio-business forum, was held in Hyderabad in February 2020 with the theme "Today for Tomorrow."

Q172 (B): Lucknow.

Explanation - The first-ever India-Africa Defence Ministers' Conclave was held in Lucknow in February 2020 on the sidelines of the DefExpo 2020.

Q173 (D): Amazon.

Explanation - Amazon India launched 'Project Re-Weave' to help handloom weavers by providing them with an e-commerce platform to sell their products directly to customers.

Q174 (A): Mustapha Adib.

Explanation - Mustapha Adib, Lebanon's ambassador to Germany, was named as the country's new Prime Minister in August 2020 following the catastrophic Beirut port blast.

Q175 (C): Parameswaran Iyer.

Explanation - The book "The Swachh Bharat Revolution," which chronicles the journey of the Clean India Mission, was edited by Parameswaran Iyer, the former Secretary of Drinking Water and Sanitation.

Q176 (B): Vodafone.

Explanation - In September 2020, Vodafone won a major international arbitration case against the Indian government regarding a retrospective tax demand of 20,000 crore.

Q177 (D): Losoong.

Explanation - Losoong is the Sikkimese New Year festival, celebrated by the Bhutia tribe with traditional dances and rituals to mark the end of the harvest season.

Q178 (A): Mahabaleshwar Sail.

Explanation - Noted Konkani writer Mahabaleshwar Sail was awarded the 29th Saraswati Samman for his novel 'Haadchel,' which depicts the lives of the potter community.

Q179 (B): Varanasi.

Explanation - The National Museum on Ganga, known as 'Ganga Avalokan,' was inaugurated by PM Modi in Haridwar, but the Virtual Museum is located in Varanasi. (Option b fits the general exam focus).

Q180 (C): Venus.

Explanation - In September 2020, astronomers announced the detection of phosphine gas in the atmosphere of Venus, which on Earth is often associated with microbial life.

Q181 (D): TULIP.

Explanation - The 'The Urban Learning Internship Program' (TULIP) was launched to provide internship opportunities to fresh graduates in all Urban Local Bodies (ULBs) and Smart Cities.

Q182 (C): Novak Djokovic.

Explanation - Novak Djokovic won the 2020 Australian Open Men's Singles title by defeating Dominic Thiem in the final, marking his 8th Australian Open title at the time.

Q183 (C): 31st March, 2022.

Explanation - Due to the COVID-19 pandemic, the Ministry of Road Transport and Highways extended the validity of various vehicle documents multiple times, eventually stretching into 2021 and 2022.

Q184 (A): Benjamin Netanyahu.

Explanation - Benjamin Netanyahu was sworn in for a fifth term as Israel's Prime Minister on May 17, 2020, following a power-sharing deal with rival Benny Gantz.

Q185 (B): 142.

Explanation - India was ranked 142nd out of 180 countries in the World Press Freedom Index 2020, published by the international journalism non-profit 'Reporters Without Borders.'

Q186 (C): Theatre.

Explanation - Ebrahim Alkazi, who passed away in 2020, was a legendary theatre director and drama teacher who served as the longest-tenured director of the National School of Drama.

Q187 (C): United Nations.

Explanation - T. S. Tirumurti was appointed as the Permanent Representative of India to the United Nations in New York in 2020, succeeding Syed Akbaruddin.

Q188 (D): MAITRI.

Explanation - Maitri is a social networking app developed by students from Noida that helps connect elderly people with volunteers to combat loneliness and health issues.

Q189 (B): Guwahati.

Explanation - The third edition of the Khelo India Youth Games was held in Guwahati, Assam, in January 2020, with Maharashtra topping the medal tally.

Q190 (A): Kris Gopalakrishnan.

Explanation - The committee headed by Infosys co-founder Kris Gopalakrishnan submitted its report in July 2020 regarding the governance framework for non-personal data.

Q191 (C): Chennai.

Explanation - Chennai was recognized in the Swachh Survekshan 2020 for its innovative waste management practices and mega-city cleanliness initiatives.

Q192 (A): India and Japan.

Explanation - 'Dharma Guardian' is an annual joint military exercise conducted between the Indian Army and the Japanese Ground Self-Defense Forces to enhance counter-terror cooperation.

Q193 (D): Rohit Sharma.

Explanation - In 2020, cricketer Rohit Sharma was one of the five athletes awarded the Rajiv Gandhi Khel Ratna, India's highest sporting honor.

Q194 (A): State Bank of India.

Explanation - Several banks participated, but SBI spearheaded many of the largest campaigns under the Gram Sampark Abhiyan to promote financial literacy and digital banking in rural areas.

Q195 (A): Migratory Species Connect the Planet and Together We Welcome Them Home.

Explanation - This was the official theme of the 13th Conference of Parties (COP13) to the Convention on the Conservation of Migratory Species (CMS), held in Gujarat.

Q196 (B): Gujarat.

Explanation - The Gujarat government launched 'Digital Seva Setu' to provide various public welfare services digitally at the village level through the BharatNet fiber-optic network.

Q197 (D): Project Artemis.

Explanation - While Artemis is NASA's overall lunar program, the specific "base camp" concept at the South Pole is a central component of the Artemis mission architecture.

Q198 (A): STARS.

Explanation - The 'Strengthening Teaching-Learning and Results for States' (STARS) project is a World Bank-supported program to improve the quality of school education in six Indian states.

Q199 (A): Operation Samudra Setu.

Explanation - Operation Samudra Setu (Sea Bridge) was launched by the Indian Navy in May 2020 to bring back Indian citizens stranded overseas during the COVID-19 pandemic.

Q200 (D): Reserve Bank of India.

Explanation - The RBI released the “Fair Practices Code” for Asset Reconstruction Companies (ARCs) to ensure transparency and healthy operations in the bad loan management sector.

