

Answer Key XAT 2014

1	B	2	D	3	E	4	C	5	A	6	A	7	E	8	B	9	E	10	B
11	C	12	A	13	E	14	D	15	D	16	D	17	D	18	E	19	C	20	E
21	D	22	A	23	D	24	B	25	E	26	D	27	A	28	B	29	B	30	D
31	D	32	A	33	A	34	E	35	C	36	B	37	*	38	B	39	D	40	A
41	E	42	C	43	C	44	E	45	D	46	E	47	B	48	E	49	B	50	D
51	C	52	C	53	A	54	B	55	A	56	D	57	A	58	B	59	E	60	C
61	A	62	E	63	C	64	D	65	A	66	D	67	D	68	C	69	D	70	E
71	E	72	D	73	D	74	C	75	D	76	B	77	E	78	C	79	B	80	C
81	C	82	D	83	B	84	E	85	B	86	D	87	C	88	B	89	D	90	C
91	B	92	D	93	A	94	A	95	D	96	B	97	A	98	E	99	B	100	C
101	A	102	C	103	E														

Solutions XAT 2014

1. B Statement 1 is an assumption as the entire sentence is the author's opinion which has to be assumed to be true for the passage to make any sense. Statements 2 and 3 are questions as they both elicit a response/opinion on part of the reader. Statement 4 can be classified as a reason as it gives the explanation for the question put forth in statement 3. Statement 5 is the author's opinion about having a disability, and hence is a proposition according to the definition given in the question. Statement 6 states a justification by citing the example of a research study. Hence, it is a reason. Statement 7 concludes the idea presented in the paragraph, making it a conclusion. Option (B) is the correct answer.
2. D All the three statements are examples of inductive inferences. In statement 1, the author comments upon the school education in India based on the Bihar incident mentioned before. Similarly, in statement 2 the author questions the commitment of the governments to universal primary education basing his statement on the inability of the government to store food without the risk of contamination. Statement 3 generalises the "Bihar horror" to the absence of normative procedures for the provision of infrastructure for any new school. Hence, option (D) is the correct answer.
3. E Option (E) is the correct answer because 'it' in (2) is a pronoun (refers to MBA), 'helps' in (3) is a verb, 'important' in (4) is an adjective, 'tackle' in (7) is a verb and 'and' in (8) is a conjunction.
4. C Option (C) is the correct answer because the central theme of the passage is that although the deluge has covered the "entire state", media attention remains riveted on Char Dhams. Option (A) is incorrect because it is not evidenced by the information in the passage. Option (B), although a true fact given in the passage, loses out to option (C) which is essentially the gist of what the author wants to convey through the passage. Option (D) is incorrect because it cannot be inferred that media cannot be 'trusted' if it does not cover all the news. Option (E) is incorrect because the passage nowhere talks about 'voluntary organizations'.
5. A The correct correlative conjunction is 'not only...but also'. The given phrase means that Patna is the capital of Bihar, one of the oldest cities in the world and the largest city in the state. Therefore, option (A) is the correct answer. Option (B), 'nevertheless' (in spite of that) is incorrect because the sentence does not imply that 'despite being the Capital of Bihar, Patna is one of the oldest cities in the world and the largest city in the state'. All other options are incorrect because 'older' is a comparative adjective and since we are not comparing any two cities in particular, we require a superlative adjective 'oldest' (and not the comparative 'older') to say that 'Patna is one of the oldest cities in the world'.
6. A The correct sequence is the one given in option (A). Sentence 1 is an apt beginning of the sequence as it introduces the main idea of the passage – 'mechanism of electroweak symmetry'. Statement 1 should be followed by statement 3 because while 1 talks about the importance of electroweak symmetry in Particle Physics, 3 further talks about what happens in a standard electroweak model. Statement 4 follows statement 3 because 3 tells us that Higgs doublet causes 'spontaneous symmetry breaking' and 4 makes a comparison by saying that Supersymmetry describes Fundamental Higgs boson better than the 'spontaneous symmetry breaking'. Statement 5 follows statement 4 by linking SUSY with the electroweak model and introducing the concept of two chiral superfields. Another reason statement 5 should follow 4 is because 5 uses an abbreviation 'SUSY' while the full name 'Supersymmetry' is given in 4. 5 and 2 are mandatory pairs because 'they' in statement 2 refer to 'doublets' mentioned in statement 5. Hence, option (A) is the correct answer.
7. E Option (E) contains the correct sequence and is hence the correct answer. Statement 1 should be followed by statement 4 because 1 talks about Shakespeare's official collection of plays being published after his death and 4 gives an example of a collection of his sonnets published in 1609 (probably after his death). Statement 4 should be followed by statement 5 because 5 adds to the information in 4 that many of his individual plays published during his lifetime were called quartos. 5, 3 and 2 are connected because all of them talk about Shakespeare's quartos. 532 is a mandatory sequence because 'these quartos' in statement 3 refers to 'quartos' in statement 5 and 'some' in statement 2 refers to 'these quartos' in statement 3. Another reason 2 should follow 3 is because 3 talks about some of these quartos being unreliable and 2 explains the reason for their unreliability – they are based on actors' memories of the plays. Thus, option (E) is the correct answer.
8. B Option (B) is the correct answer because the sentence implies that the incident that the prosecution rejects as 'apocryphal' or 'fictitious/false' very 'cavalierly' (in a disdainful and domineering manner), (according to the defense) did indeed take place. Option (A) is incorrect because the prosecution is unlikely to reject an 'undesirable' incident so 'blithely' or 'happily'. Option (C) is incorrect because 'factual', if put in the second blank, doesn't present a contrast that is required in the sentence. If the prosecution also thought of the incident to be 'factual' (fact-based; true), it makes no sense for the defense to say that the incident *did indeed* take place (as both the parties are essentially saying the same thing). Option (D) can be ruled on similar grounds as 'pointless' doesn't lead to a contrast that is required to make the sentence meaningful. Option (E) is incorrect because the prosecution is unlikely to 'reject' an incident that was 'inevitable' or unavoidable.
9. E Option (E) is the correct answer because the absence of 'recrimination' or 'counterattacks' and presence of 'insight' or 'understanding' and 'honesty' can bind up the wounds of a nation. Option (A) is close but can be ruled out as option (E) is a better fit in the sentence because 'insight' and 'honesty' are related terms while 'camaraderie' (friendship) does not pair well with 'honesty'. Options (B) and (D) are incorrect because absence of 'guilt' or 'love' is unlikely to bind up the nation's wound. Option (C) is incorrect because 'religion' doesn't fit in the context of the sentence. Also, it doesn't go well with 'honesty', which is a quality.
10. B The paragraph discusses that in physics there are cases when one has to deal with singular and collective excitations simultaneously and the penultimate sentence talks about the need for a system that considers Bosons (related to singular

excitations) and Fermions (related to collective excitations) together. Option (B) carries forward the idea by talking about the book that deals with Bosons and Fermions together. Option (A) is incorrect because it only talks about bosonic particles and not fermionic. Option (C) is incorrect because it talks about dealing with the two kinds of particles separately while the passage talks about cases where one has to deal with them together. Option (D) is incorrect because that which the book goes about proving – collective excitations are Bosonic and singular excitation are fermionics – is already given as a fact in the paragraph and hence leads to repetition. Option (E) is incorrect because if singular and collective excitation cannot exist together, then there is unlikely to be a system to deal with them simultaneously, something that the paragraph states.

11. C Option (C) is the correct answer because progressive development of planning techniques can lead to 'improvement' in firms' notions of what is likely to happen in the future and also 'reduction' in the incidence of mistakes. All other options are incorrect because firms' notions about something can 'improve' or 'deteriorate' but neither 'decline' (reduce) nor 'increase'.
12. A People can have mindfulness in/of something, which means that they are aware/conscious of something. Option (D) can be ruled out because one cannot have mindfulness 'for' something. Options (C) and (E) are incorrect because 'were' and 'could' are grammatically incorrect in this context. Out of options (A) and (B), option (B) can be ruled out because 'host of' should not be preceded by a definite article 'the' as the statement is not talking about any specific emotional and behavioural disorders. So, the correct article to be used here should be 'a' because the sentence refers to the treatment of a host (number) of emotional and behavioural disorders. Also, one should use 'such as' when introducing examples in a sentence and not 'like' because the latter is used to talk about similarities. In the last blank, 'has' should be used instead of 'have' because the verb should agree with the subject 'number' and not 'practitioners'. Therefore, option (A) is the correct answer.
13. E Both 'frequently' and 'often' are correct in the first blank. The second blank should be filled by a definite article 'the' and not 'a' because 'ontologies' are likely to be compared with something particular. Thus, options (A) and (D) can be eliminated. The third blank should be filled by 'but' (contrary to what you might expect) instead of 'yet' (nevertheless) because the sentence after the comma suggests that although ontologies are often equated with various forms, it doesn't mean they should be limited to these forms. So, option (B) and (C) can be eliminated. Hence, option (E) is the correct answer.
14. D The entire passage talks about how the "desire for an altered state of being" affects all our choices. The given sentence suggests that man has failed to transition from being a consumer to a producer. Option (D), which states that products that fulfil the desire (of man) will sell more, concurs both with the passage as well as with the given statement. Option (A) is incorrect as the concept of manliness is not mentioned in the passage. Option (B) is too general a conclusion as the passage only talks about the kind of products that appeal to people, and what makes them so appealing. The option on the other hand suggests that "boys" would "consume more"; something that cannot be inferred from the passage. Options (C) and (E) are in direct contrast to the given statement. The statement categorically mentions that man has 'failed' to transition from being a consumer to a producer. Thus, in the light of the given statement, man cannot be said to create and produce, nor can it be said that the

consumer is more likely to buy do-it-yourself kits (suggesting creation).

15. D The paragraph talks about how the socio-cultural context influences the preferences of a consumer. These preferences in turn affect the kind of objects he chooses, which (objects) further are a means for fulfilling the consumer's desire for love, respect, recognition, etc. The given statement talks about man fulfilling his desire for creating an atavistic (characterised by reversion to something ancient) masculine identity of being self-reliant (he gets his cue from the lives of pre-modern men, as imagined by him) through objects that help him do so. Option (D) is the correct answer as it expresses this idea clearly and is also in line with the content of the passage. The passage nowhere talks about anti-social behaviour or man being anti-social. This rules out options (A), (B) and (C). Option (E) is incomplete as it fails to bridge the gap between what is stated in the passage and the given statement. While the passage is a general take on desires and objects, the statement talks about a particular desire of man (creating a masculine identity). This option only restates what is already stated in the passage and doesn't take the given statement in its purview.
16. D The given statement, given in the context of fashion, states that consumers in search of creating a separate identity for themselves, often resist dominant (fashion) norms of the society. Option (A) and (C) can be eliminated as they talk about 'females' and 'feminism' that don't find any mention in the passage. Option (B) is too extreme a statement as the statement nowhere suggests that consumers resist all dominant norms. Option (E) is outside the scope of the passage as there is no mention of attractiveness or uniqueness, both in the passage and in the statement. Option (D) concurs with the idea present in the given statement and is in line with that stated in the passage. Hence, it is the correct answer.
17. D According to the passage, probability statements turn out to be "impervious to strict falsification", that is, they cannot be falsified (disproved) before they are experienced. Option (D) states the same and is hence the correct answer. Options (A) and (B) can be eliminated for the word 'only'. The passage or the statement in question nowhere suggests that probability can *only* be checked historically or through experience. Option (C), though may be true, is not what the given statement implies. It is more about how probability and experience are related. Option (E) is too vague a statement to be inferred from the given passage.
18. E The author aims to come up with a satisfactory, consistent definition of probability and to clarify the relations between experience and probability. In order to do so, he takes upon two tasks – to provide new foundations for the calculus of probability and to elucidate the relations between probability and experience. The author needs to carry out both the tasks to accomplish the goals of the theory. He doesn't give any precedence to one task over the other. Hence, option (E) is the correct answer.
19. C Options (C) is the correct answer as the passage clearly states that there is lack of a satisfactory, consistent definition of probability which causes physicists to "make much use of probability without being able to say, consistently, what they mean by probability". It can be inferred from here that the theory of probability is likely to be (may be) applied incorrectly in other fields too. Hence, option (C) is the correct answer. Options (A), (B) and (E) can be ruled out as the passage nowhere states that physics is the *only* discipline that uses the concept of probability or the *only* subject where probability is inaccurately applied or that experience relates to physical

objects *only*. Option (D) is incorrect because despite the fact that physics uses a lot of probability, the passage nowhere states that physics is highly mathematical.

20. E The author begins by stating that "that government is best which governs least or not at all." This sentence precedes the statement that talks about the objections (that deserve to prevail) brought against the standing army also being valid for a standing government. When read together, it can be clearly gauged that the author implies that as much as it is right to consider the army to be not required, the government, which is only an extension of the same, deserves to be considered similarly. Option (E) is hence the correct answer. Options (A), (C) and (D) contradict what the author is trying to suggest about the army (and the government). Option (B) is incorrect as objections can be brought against the very existence of something, and not necessarily because of its fallacies.
21. D Refer to the sentence, "Can there not be a government in which the majorities do not virtually decide right and wrong, but conscience?" It is clear from here that a government can be fair to the minorities only if it is the conscience (of all people, individually) that decides what is right and wrong. Hence, option (D) is the correct answer. Options (A), (B) and (C) are incorrect as the passage clearly states that a government by the majority that rules in all cases cannot be fair or good to the minorities. Option (E) is not evidenced by the information in the passage.
22. A The point that the author is trying to make through the passage is the importance of self-governance. Refer to the statement, "Must the citizen ever for a moment, or in the least degree, resign his conscience to the legislator?" It is evident that the author considers man to be far above any government and somebody who doesn't deserve to be ruled over by anything except his own conscience. This belief is best expressed in option (A) which is the correct answer. Option (B) cannot be inferred from the passage. Option (C), though correct according to the author, can be ruled out in favour of option (A) as the main idea of the author is that in option (A). The fact that government and army are not required finds its basis in the author's belief that man is superior to a government. Options (D) and (E) are incorrect as the author has neither commented upon the concept of nations nor on democracy.
23. D Refer to the sentence given in the parenthesis in the first paragraph. It is stated that firms are expected to be more rational than individuals. This implies that generally, or most of the times, firms are more rational than individuals. Hence, option (D) is the correct answer. Option (A) is incorrect as it contradicts the information in the passage. Option (B) is incorrect as the author only compares the rationality of firms with that of individuals. This doesn't mean that firms, themselves, are rational. Option (C), though seems to be correct, loses out to option (D) as the author has added the word "expected" to show that such is a behaviour (firms being more rational than individuals) is generally true, not necessarily true. Option (E) can be ruled out as the passage doesn't comment upon the market behaviour of physical goods at all.
24. B The author draws an analogy between consumer behaviour for psychophysical goods and Rutherford's experiment to show how it doesn't matter if we are (with a few years' training) able to disprove the assumption that quality of a product is related to (or determined by) the amount spent on advertising it. He states that just as disproving the assumption that molecules are little hard elastic balls doesn't undermine the statistical behaviour of gases, disproving the assumption

that consumers use advertising as an index to determine the quality of a product doesn't really make a difference at the level of markets. The bottom line is that we should not aim to draw parallels between two unrelated concepts, advertising spends and quality; hence the case of apples being compared to oranges. Option (B) is the correct answer. Option (A) is incorrect as it contradicts the information given in the passage. Option (C) cannot be evidenced from the passage. Option (D) is incorrect as the author doesn't compare beer to little hard elastic balls, but only compares the assumptions related to both of them. Option (E) cannot be inferred from the passage.

25. E From the passage it can be inferred that 'psychophysical goods' are those which have same physical and psychological qualities, irrespective of the brand. Beer is called a psychophysical good as it shares similar physical qualities in most instances, irrespective of the brand. None of the goods mentioned in the options fall under the category of psychophysical goods as they all may have multiple variants and forms and thus having different qualities. Option (E) is hence the correct answer.
26. D The central idea of the passage is that man should work, "not to get his living, to get a "good job", but to perform well a certain work..." He intends to say that work should be done for the love of it, to achieve scientific or moral ends, and money should not be the driving force behind it. Option (D) is the correct answer as betting in a casino is not likely to achieve any moral or scientific purpose, but is only a means of satisfying man's greed for money. Hence, the author is least likely to approve of such an activity. Options (A) and (C) can be easily eliminated as both of these may be thought to contribute to the greater good of the society or to enrich the intellect of the person undertaking the work. Options (B) and (E), though can be largely related to the pursuit of money-making, lose out to option (D) as they both may still have worthy objectives such as creating awareness about the health benefits of a particular toothpaste and suggesting investment schemes to the not so fortunate so as to secure their future, respectively.
27. A The author discusses the importance of money that is attached to work and how it (money) should not be the end but a means to something more profound and consequential. Option (A) contains both the facets discussed in the passage and is hence the correct answer. Options (B) and (E) can be eliminated as they completely deviate from the central idea of the passage. Option (C) is incorrect as the author doesn't attach the idea of worship to work. Option (D) is incorrect as the passage nowhere talks about the "search for God".
28. B All through the passage the author talks about man being involved in doing things that pay him for being something less than a man. He is critical of mankind's obsession for economic gains but suggests that it is wisdom which the man should strive for. Option (B) is the closest to what the author suggests and is hence the correct answer. Options (A), (D) and (E) all talk about economic or monetary aspects and hence can be ruled out. Option (C) is out of scope of the author as he nowhere talks about family or happiness.
29. B As the prize money is the maximum for the International competition and the probability of winning it is very low, Ms. Banerjee should pick up those students whose ability to score cent percent marks is very high. Now, it can be observed that students 2, 8 and 14 are the top three students in terms of scoring cent percent marks, with 15, 12 and 20 times respectively. Hence, option (B) is the correct answer.

30. D Since the probability of winning the district level competition is very high, Ms. Banerjee should choose those students who have achieved a good average in the school level tests. It can be observed that students 1,4,11 and 13 had an average of 70 each, in the school level tests. Also, the ability of scoring cent percent is not an important factor. Hence, students 4, 11 and 13 should be selected.
31. D Since the national team is selected after the selection of the international team, students 2, 8 and 14 are not available for the selection. Also, the probability of winning the national competition is quite low. Ms. Banerjee should, therefore, consider students' ability to score cent percent marks along with their average while selecting the team. Out of the available students, 1, 3 and 6 are the best suited students for the national team.
32. A The given argument states that the main problems that arise from the work of professionally trained anthropologists is that they are late in colonial/post colonial trajectories. This is so because they have been trained to think and interpret in a certain way. So, this training influences their work and interpretations. At the same time, within their field of interest and training, their works are systematic. This implies that two things, i.e. unbiased interpretation and systematic word, cannot exist together. Option A is the correct answer as it states the same i.e. speed and position cannot be determined with complete accuracy simultaneously. Option B is incorrect because the given argument does not talk about making comparisons. Option C is out of scope, the argument states nothing about personal gains. Options D and E are also far fetched and not in line with the analogy implied in the question.
33. A The passage states that parents and business leaders are unhappy for the fact that no carrots/sticks are used to motivate teachers and very little or no importance is given to performance while determining the pay. Option A disapproves the claim of the parents as it suggests that teachers are self motivated. This altogether eliminates the need for carrots/sticks. Option B supports the claim rather than weakening it. Option C challenges the yardstick (a test given once a year) used for judging the performance but does not affect the claim in any way. Options D and E are beyond the scope of the argument.
34. E Risk reduces to half for those who drank 2 to 4 cups of coffee compared to those who drank very little or no coffee. So, the graph at 2 cups would fall to half of its value from 0 cups and after that it would be a straight line from 2 to 4. Hence, the graph would roughly look like an L shaped curve.
35. C Let the runners be denoted with their initials. Then the given information can be depicted as:
 (i) $F > A$
 (ii) $D > B, D > E$
 (iii) $C > I$
 (iv) $A > G$
 From (i) and (iv), it can be concluded that Girish finishes after Ashok and Faneesh. Hence, the best position to which Girish can finish is third.
36. B The cost of launching the product = 50 crores
 The probability of the success of the product is 50%.
 Hence, the profit = (50 % of 100 + 50% of 20) – 50
 = 10 crores.
37. * The correct answer is not present among the options.
 The success rate of a product if its results are favorable = 80%
- Total cost = 50 + 10 = 60 crores
 Sales = 80% of 100 + 20 % of 20 = 84 crore
 Hence, the profit = 84 – 60 = 24 crores.
38. B Required probability = $0.70 \times 0.20 + 0.30 \times 0.70$
 = $0.14 + 0.21 = 0.35$.
39. D Required profit = (30% of 100 + 70% of 20) – (50 + 10)
 = –16 crores.
40. A The problem at hand is that the demand for "quickie-quick" is increasing but the quality department is not happy with the quality of the product as the suppliers are willing to supply low standard raw material at a cheaper price. It would be illogical to increase the production of "quickie-quick" till this issue is resolved. Supplying low quality material will only bring a bad name to the company and could prove to be detrimental to its growth. This negates options B and C. Options D and E are incorrect because the company is making huge profits by selling this product. Therefore, stopping or reducing the production is impractical because the ultimate motto of any business is to make profits. Option A is the correct answer and is the only step that should not be taken by Ram because the caselet states that there is demand for the other two products as well. Refer to the line – "Some customers bought two...bought only one." In addition, it is important to resolve the quality issue before taking a step like the one mentioned in option A.
41. E The question states that the "customers were miffed with "run of the mill" and "maxi-max"". It also states that the committee proposed to continue manufacturing all the three branded products. In order to adhere to the committee's proposal, it is important to understand the reason behind customers' dissatisfaction. Only then can the company come up with the alternate solutions to their problems. This makes option E the correct answer. Option A is incorrect because it will not resolve the issue at hand – committee has proposed to continue the production of "run of the mill" and "maxi-max". Option B can be eliminated because the problem does not pertain to "quickie-quick". Option C is incorrect because the customers are already aware of the product and are dissatisfied. Option D is unprofessional and not of any significance. Hence, option E is correct.
42. C The affected managers being talked about in the question are the managers in the production, finance and marketing teams. Nothing in the question hints at the fact that their rights were violated. The question only talks about some changes in work management. Such issues can be sorted by discussing problems in an open forum. No external body is required to resolve such cases. This makes option C the correct answer and eliminates options A, B and D. Option E is illogical in the given situation.
43. C Options A and B are incorrect because nothing in the passage supports these statements. A makes a very definite statement but on the basis of these three reports, it cannot be said that newspapers publish inauthentic data. B is incorrect as nothing has been said about these companies buying the reports. Option D is incorrect because nothing has been specifically mentioned about Korean market. Option E is incorrect because the customer talks negatively about Samsung. So, it cannot be said that he is neutral. Option C is the correct choice as it talks about a possibility, 'may'. Also, it can be seen that all the reports have varied information regarding different companies.

44. E None of the options give the necessary explanation for the divergent ranks. Options A, B and C only talk about one brand while the reports show divergent ranks of more than one brand. Option D gives reason for higher customer loyalty while the issue in the reports is lower customer loyalty. The brands with higher consumer satisfaction have lower consumer loyalty or sales. So, the correct answer is option E.
45. D This question demands for another reason for the same data provided in the previous question. Report 1 is based on sales figures and Report 3 is based on customer satisfaction. Only option D takes into account both these aspects and can be viewed as a possible reason for divergent ranks of different companies. No other option brings forth a possible reason for this discrepancy in ranks.
46. E Refer to the last line of report 2 – "Without accurate self-reporting...are worth a damn." Throughout the report, the reader complains that Samsung does not give accurate data as to the number of phones/tablets sold and that is why he says that none of the market share charts can be relied upon as they do not reflect authentic numbers. He wants companies to release more objective data. This makes option E the correct answer. Nothing in the report hints at the possibility of the reader being an Apple or HTC user, so options A, B and C can be negated. Option D is incorrect because the reader talks about Samsung and not about Android phones.
47. B The last line of the caselet states that hiring new consultants was very difficult. This implies that statement 5 should be the last in the order. The question states that some consultants were good at applying old solutions to the new problems. So if the consultants start working inter-industry and inter-domain, a lot of problems will be tackled across domains and this will benefit the organization. So statement 4 should be the first in the sequence. This should be followed by decreasing the work load of the consultants as they are overburdened with work. Next in the order should be statement 3 as hiring competent staff is important to keep consultants updated. This will also help them in performing better. The next best thing to do would be to reduce time on client interaction and to focus more on generating solutions. Thus, the correct sequence is 4, 3, 2, 1, 5. This makes option B correct.
48. E The best course of action in the given scenario would be to discuss the issue in an open forum. This will give everyone an equal opportunity to voice their opinion (suggestions, problems) and will also help in reaching to a solution amicably. This makes option E the correct answer. Option A is incorrect because the passage states that hiring new consultants was very difficult. Also, the old consultants were experienced but the new hires would have required a lot of training. Option B is unethical and such biases only increase the problem. Option C would prove to be unfair for the new consultants and hence is incorrect. Option D is vague and does not offer a solution to the problem.
49. B Options A, C and D can be negated because statement 1 – Do nothing – is impractical and not the right course of action. Between options B and E, B is a better choice because benchmarking performance with respect to the best consulting is more important than hiring outsiders. Since, the question states that Ajay wanted to leave behind a legacy and it can also be inferred from the caselet that he was very concerned about the company's growth and well being, so it can be understood that he will give more priority to company's performance. Hence, option B is correct.
50. D It can be inferred from the caselet that Rajinder shares a very good rapport with Balwant. Of the given options, the person who is most likely to understand Rajinder's problem is Balwant. And since the problem is regarding Balwant's store, it gives all the more reason to discuss the situation with him and no one else. Option A is incorrect because his wife has been talked about only once in the passage and we know nothing about her personality. Option B is incorrect as the boss will think from business point of view and may not understand Rajinder's dilemma. Option E can also be eliminated for the same reason. Option C is very general in nature and does not provide a solution to the given problem.
51. C Rajinder fears that Balwant's business will be affected if Bigmart opens its store in Bhatinda. Option A is incorrect because it addresses the issue of farmers while Balwant is not a farmer but a retailer. Option B also talks about farmers and hence is incorrect. Options D and E are highly impractical and do not offer a solution to the given problem. Only option C addresses the issue at hand as it talks about developing new solutions that can benefit the retailers, farmers, consumers etc. If the company comes up with any such solution, the local retailers' and traders' businesses would not be affected.
52. C Refer to the sixth paragraph of the caselet – "Bigmart had been a major force in improving the quality of life...as middlemen were removed." From these lines, it can be inferred that consumers were the ones who benefitted most from the Bigmart chain. The passage also states that "local stores in small towns often went out of business within a year of the Bigmart's opening". This implies that retailers were least likely to get benefitted and hence would be the first in the ascending order. Thus, the correct answer is option C i.e. retailers, farmers, consumers.
53. A The sum of the four numbers
 $= x + 17 + (3x - y^2 - 2) + (3x + y^2 - 30) = 7x - 15$
 The given numbers are in A.P.
 $\therefore (3x + y^2 - 30) - (3x - y^2 - 2) = 17 - x$
 $\Rightarrow 2y^2 - 28 = 17 - x$
 $\Rightarrow 2y^2 + x = 45 \quad \dots (i)$
 Similarly,
 $(3x + y^2 - 30) - x = 3 \{(3x - y^2 - 2) - 17\}$
 $\Rightarrow 2x + y^2 - 30 = 9x - 3y^2 - 57$
 $\Rightarrow 4y^2 - 7x = -27 \quad \dots (ii)$
 Multiplying (i) by 2 and subtracting it from (ii), we get,
 $\Rightarrow x = 13$
 Hence, the sum $= 7x - 15 = 76$
 Out of the given options, 76 is divisible by 2 only.
54. B In a triangle, the sum of two sides is always greater than the third side.
 In $\triangle PSQ$,
 $QS < PQ + PS$
 $\Rightarrow QS < 5 + 9$
 $\Rightarrow QS < 14 \quad \dots (i)$
 Also, the difference between any two sides is less than the third side.
 In $\triangle QRS$,
 $QS > QR - RS$
 $\Rightarrow QS > 17 - 5$
 $\Rightarrow QS > 12 \quad \dots (ii)$
 Combining (i) and (ii), we get, $12 < QS < 14$.

55. A If $y = \frac{x}{k+x}$ where k is a positive integer, the value of y increases with the increase in value of x .

Hence, in the given expression, $S = \frac{\alpha * \omega}{\tau + \rho * \omega}$, the value of S will increase with increase in value of ω .

56. D Let the total marks scored by Ramesh before the final quiz be x and the total number of quizzes, including the final, be y .
If he had scored 97 marks in the final quiz, he would have just managed an A.

$$\therefore \frac{x+97}{y} = 90$$

$$\Rightarrow x + 97y \quad \dots(i)$$

But he scores 70 and just manages a B.

$$\therefore \frac{x+70}{y} = 87$$

$$\Rightarrow x + 70 = 87y \quad \dots(ii)$$

From (i) and (ii), we get, $y = 9$.

57. A Let $y = ax^3 + bx^2 + cx + d$.

At $x = 0$, $y = 2$,

$$\Rightarrow a(0)^3 + b(0)^2 + c(0) + d = 2$$

$$\Rightarrow d = 2$$

At $y = 0$, $x = 1$,

$$\Rightarrow a(1)^3 + b(1)^2 + c(1) + 2 = 0$$

$$\Rightarrow a + b + c + 2 = 0 \quad \dots(i)$$

Also, at $y = 0$ and $x = -1$,

$$\Rightarrow a(-1)^3 + b(-1)^2 + c(-1) + 2 = 0$$

$$\Rightarrow -a + b - c + 2 = 0 \quad \dots(ii)$$

Adding (i) and (ii), we get,

$$\Rightarrow 2b = -4$$

$$\Rightarrow b = -2$$

Hence, the value of b is -2 .

58. B We have,

$$|X+7| + |X-8| = 16$$

For $X \leq -7$,

$$-X-7-X+8 = 16 \text{ or } -2X = 15 \text{ or } X = \frac{-15}{2} = -7.5$$

For $-7 \leq X \leq 8$,

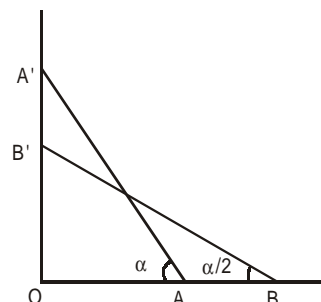
$$X+7-X+8 = 16 \text{ or } 15 = 16, \text{ which is not true.}$$

For $X \geq 8$,

$$X+7+X-8 = 16 \text{ or } 2X = 17 \text{ or } X = \frac{17}{2} = 8.5$$

Hence, the sum of the possible values of $X = -7.5 + 8.5 = 1$.

59. E The figure can be shown as:



In $\triangle AA'O$,

$$AO^2 = 30^2 - 26^2$$

$$AO^2 = 224$$

$$AO = 4\sqrt{14} = 14.96 \approx 15$$

$$\text{Now, } \cos \alpha = \frac{AO}{AA'}$$

$$\Rightarrow \cos \alpha = \frac{15}{30} = \frac{1}{2} \Rightarrow \alpha = 60^\circ$$

$$\therefore \cos\left(\frac{\alpha}{2}\right) = \frac{OB}{BB'}$$

$$\Rightarrow \frac{OB}{BB'} = \frac{\sqrt{3}}{2}$$

$$\Rightarrow \frac{OB}{30} = \frac{\sqrt{3}}{2}$$

$$\Rightarrow OB = 15\sqrt{3}$$

$$\Rightarrow OB = 25.98$$

$$\Rightarrow AB = 25.98 - 15 = 10.98$$

$$\Rightarrow AB \geq 10.5 \text{ m}$$

60. C The results of Amitabh and Sashi in consecutive steps can be tabulated as:

Step	Amitabh	Sashi
1	$2x$	$2x + 50$
2	$4x + 100$	$4x + 150$
3	$8x + 300$	$8x + 350$
4	$16x + 700$	$16x + 750$
5	$32x + 1500$	$32x + 1550$

In step 5, both the results are more than 1000, so step 4 has to be the last step.

Since Amitabh wins the game, the result of Sashi must be greater than 1000.

$$\text{Now, } 16x + 750 \geq 1000 \Rightarrow x \geq 16$$

Hence, the minimum value of x should be 16 and the required sum of digits $= 1 + 6 = 7$.

61. A **From statement I:** The only possible solution when all the four numbers are prime is:

$$x = 5, y = 2, x + y = 7 \text{ and } x - y = 3.$$

Hence, the sum of the numbers can be determined.

From statement II: A unique solution cannot be found as there can be more than one set of numbers x , y , $x + y$ and $x - y$ such that their arithmetic mean is greater than 4. Hence, only statement (I) is sufficient to determine the sum of the given numbers.

62. E The length of AC cannot be determined without using all the statements together.

However, by using all the statements together we can determine the length of AC as:

In $\triangle ABC$,

$$AB^2 + BE^2 = (19)^2$$

$$\Rightarrow AB^2 + \left(\frac{BC}{2}\right)^2 = 19^2$$

$$\Rightarrow 4AB^2 + BC^2 = 4 \times 19^2$$

... (i)

Similarly,
 $BC^2 + BD^2 = (22)^2$

$$\Rightarrow BC^2 + \left(\frac{AB}{2}\right)^2 = 22^2$$

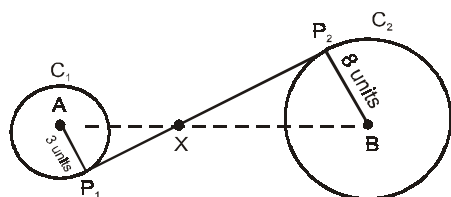
$$\Rightarrow 4BC^2 + AB^2 = 4 \times 22^2 \quad \dots (ii)$$

Adding (i) and (ii), we get,
 $5AB^2 + 5BC^2 = 4 \times (22^2 + 19^2)$

$$\Rightarrow AB^2 + BC^2 = 676 = AC^2$$

$$\Rightarrow AC = 26 \text{ units.}$$

63. C The given circles can be represented as:



In $\triangle AXP_1$,

$$P_1X^2 = 5^2 - 3^2 = 4^2$$

$$\Rightarrow P_1X = 4$$

The triangles AXP_1 and BXP_2 are similar.

$$\frac{AP_1}{P_1X} = \frac{BP_2}{P_2X}$$

$$\Rightarrow \frac{3}{4} = \frac{8}{P_2X}$$

$$\Rightarrow P_2X = \frac{32}{3} = 10.67$$

$$P_1X + P_2X = 4 + 10.67$$

$$\therefore P_1P_2 = 14.67$$

Hence, the length of line segment P_1P_2 lies between 14 and 15 i.e. $14 < P_1P_2 \leq 15$.

64. D $10^{29} = 2^{29} \times 5^{29}$

Total number of positive divisors of $10^{29} = 30 \times 30$

According to the question, $10^{29} = k \times 10^{23}$ or $k = 10^6$

Total number of divisors of $10^6 = 7 \times 7$

Probability of a randomly chosen divisor of 10^{29} to be an integral multiple of 10^{23}

$$= \frac{7 \times 7}{30 \times 30} = \left(\frac{7}{30}\right)^2$$

$$\Rightarrow a = 7 \text{ and } b = 30$$

$$\text{Hence, } b - a = 23.$$

65. A Since diameter PQ of the circle C_1 is parallel to the x-axis, the points P and Q will have the same y coordinate. Let the coordinates of point P be (x_1, y) and that of Q be (x_2, y) . Diameter of the circle = $PQ = x_2 - x_1 = 6$. According to the question,

$$2a^{x_1} = a^{x_2}$$

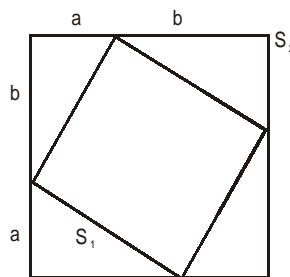
$$\Rightarrow \frac{2a^{x_1}}{a^{x_2}} = 1$$

$$\Rightarrow a^{x_1 - x_2} = \frac{1}{2}$$

$$\Rightarrow a^6 = \frac{1}{2}$$

$$\Rightarrow a = \frac{1}{\sqrt[6]{2}}$$

66. D The given squares can be shown as:



Since the area of the bigger square and that of the smaller square are 9 and 8 sq. units respectively, their corresponding edges must be 3 and $2\sqrt{2}$ units respectively.

From the figure,

$$a + b = 3$$

... (i)

$$a^2 + b^2 = 8$$

Putting value of a from (i) in the above equation, we get.

$$\Rightarrow (3 - b)^2 + b^2 = 8$$

$$\Rightarrow b^2 - 6b + 9 + b^2 = 8$$

$$\Rightarrow 2b^2 - 6b + 1 = 0$$

$$\Rightarrow b = \frac{6 \pm \sqrt{36 - 8}}{4}$$

$$\Rightarrow b = \frac{6 \pm 2\sqrt{7}}{4}$$

$$\Rightarrow b = \frac{3 \pm \sqrt{7}}{2}$$

$$\Rightarrow b = 2.82 \text{ or } 0.177$$

$$\Rightarrow b = 2.82 \quad (\text{As in the figure } b > a)$$

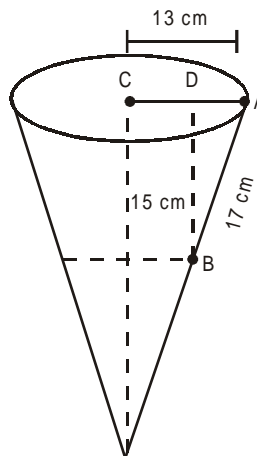
$$\text{And, } a = 3 - 2.82 = 0.18$$

$$\text{Now, } \frac{b}{a} = \frac{2.82}{0.18} = 15.67$$

Hence, option (D) satisfies the given value of b/a ,

$$\text{i.e. } 14 \leq \frac{b}{a} < 17.$$

67. D The figure of the cone be drawn as:



$$\text{Here, } AD = \sqrt{17^2 - 15^2} = 8 \text{ cm}$$

$$CD = 13 - 8 = 5 \text{ cm}$$

The volume of the frustum so formed (till the point where the pipe is attached)

$$= \frac{\pi h}{3} [R^2 + rR + r^2] \quad (\text{Where 'R' is the larger radius and 'r' is the smaller radius})$$

$$= \frac{22}{7} \times \frac{15}{3} [13^2 + (5)(13) + 5^2]$$

$$= 4070 \text{ cm}^3$$

Rate of flow of water through the pipe

$$= \pi \times \left(\frac{5}{10}\right)^2 \times (10 \times 100) = \frac{22}{7} \times 250 = 785.7 \text{ cm}^3 / \text{min}$$

$$\text{The required time} = \frac{4070}{785.7} = 5.18 \text{ minutes}$$

Hence, among the given options, option (D) satisfies.

68. C Let the total number of balls in the bag I be 'x', the total number of balls in bag II be (18 - x), the number of red balls in bag I and bag II be 'a' and 'c' respectively, and the number of blue balls in bag I and bag II be 'b' and 'd' respectively.

$$\therefore a + b = x \text{ and } c + d = 18 - x$$

$$\therefore \frac{a}{x} \times \frac{c}{18-x} = \frac{5}{16}$$

Let $a \times c = 5k$ and $x \times (18 - x) = 16k$, where k is a natural number.

Each bag has marbles of both colors.

$$\therefore 2 \leq x \leq 16 \text{ and } 2 \leq (18 - x) \leq 16$$

$$\text{As } x + (18 - x) = 18 \Rightarrow \text{Max } \{x \times (18 - x)\} = 81$$

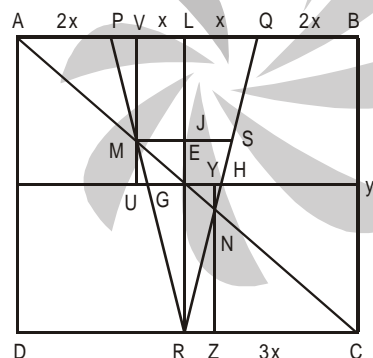
$$\therefore k \leq 5$$

By hit and trial, the only possible value of k comes out to be 5.

$$\therefore x = 10, 18 - x = 8, a = 5, b = 5, c = 5 \text{ and } d = 3$$

$$\text{Hence, the required probability} = \frac{5}{10} \times \frac{3}{8} = \frac{3}{16}$$

69. D The given rectangle can be drawn as:



Let $AB = CD = 6x$ and $BC = AD = y$.

According to the question,

Area of rectangle ABCD = $6xy = 90$ units

$$\Rightarrow xy = 15 \text{ units.}$$

$$\Delta RPL \sim \Delta RGE.$$

$$\therefore \frac{GE}{PL} = \frac{RE}{RL} = \frac{1}{2}$$

$$\Rightarrow GE = \frac{x}{2}$$

$$\Rightarrow GH = x$$

Area of trapezium PGHQ

$$= \frac{1}{2} \times (2x + x) \times \frac{y}{2} = \frac{3xy}{4} = \frac{45}{4} = 11.25.$$

$$\Delta GME \sim \Delta PMA.$$

$$\therefore \frac{UM}{VM} = \frac{GE}{AP} = \frac{x\sqrt{2}}{2x} = \frac{1}{4}$$

$$\therefore UM = \frac{UV}{5} = \frac{y}{10}$$

$$\text{Area of } \Delta MGE = \frac{1}{2} \times \frac{x}{2} \times \frac{y}{10} = \frac{xy}{40} = \frac{15}{40} = 0.375 \text{ sq. units}$$

Similarly, area of $\Delta EHN \approx 0.27$ sq. units

Now, area ($\square PQNM$) = Area ($\square PGHQ$) - Area (ΔMGE) +

Area (ΔEHN) = $11.25 - 0.375 + 0.27 = 11.145$ sq. units.

Hence, option (D) is the correct answer.

70. E According to the question, $(7B^2 + 9B + 2) = k(2B^2 + 9B + 7)$ (Where k is natural number)

$$k = \left(\frac{7B^2 + 9B + 2}{2B^2 + 9B + 7} \right)$$

Among the given options, B = 19 gives the value of k as an integer, which is 3.

$$\therefore B = 19$$

71. E Let the number of students who scored 6, 8 and 20 marks be x, y and z respectively.

According to the question,

$$6x + 8y + 20z = 504 \quad \dots (i)$$

$$y = x + 2z \quad \dots (ii)$$

From equations (i) and (ii), we get,

$$6x + 8x + 16z + 20z = 504$$

$$\Rightarrow 14x + 36z = 504$$

$$\Rightarrow 7x + 18z = 252$$

As x and z are natural numbers, by going through hit and trial, we get $x = 18$ and $z = 7$.

Putting the values of x and z in (ii), we get, $y = 32$.

Hence, the required sum = $18 + 32 + 7 = 57$.

72. D We have,

$$\sum_{n=1}^{13} \frac{1}{n} = \frac{x}{13!}$$

$$\Rightarrow x = 13! \times \left[\frac{1}{1} + \frac{1}{2} + \frac{1}{3} + \dots + \frac{1}{13} \right]$$

$$\Rightarrow x = \left[\frac{13!}{1} + \frac{13!}{2} + \frac{13!}{3} + \dots + \frac{13!}{11} + \frac{13!}{12} + \frac{13!}{13} \right]$$

All the terms on right hand side in the expansion are divisible

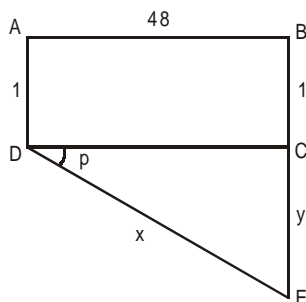
by 11 except $\frac{13!}{11}$.

$$\text{Now, } \text{Rem} \frac{13!}{11} = \text{Rem} \left(\frac{10! \times 12 \times 13}{11} \right)$$

$$= (-1) \times 1 \times 2 = -2 \left(\because \text{Rem} \left(\frac{(N-1)!}{N} \right) = -1 \right)$$

Hence, the remainder obtained when x is divided by 11 is $(11 - 2) = 9$.

73. D The cross-sectional view of the swimming pool can be shown as:



For every 2.6 m that one walks up the inclined base of the pool, one gains an elevation of 1 m.

$$\therefore \sin p = \frac{1}{2.6}$$

$$\Rightarrow \sin p = \frac{5}{13}$$

$$\Rightarrow \tan p = \frac{5}{12}$$

Also, as shown in the figure,

$$\tan p = \frac{y}{48} = \frac{5}{12}$$

$$\Rightarrow \frac{y}{48} = \frac{5}{12}$$

$$\Rightarrow y = 20$$

Volume of the pool = Area of the cross section \times Width of the pool

$$= \left(\frac{1}{2} \times 48 \times 20 + 48 \times 1 \right) \times 20 = 10560 \text{ cubic meters.}$$

74. C $\sum_{i=2}^{100} \frac{1}{\log_i 100!} = \sum_{i=2}^{100} \log_{100!} i$

$$= [\log_{100!} 2 + \log_{100!} 3 + \log_{100!} 4 + \dots + \log_{100!} 100]$$

$$= \log_{100!} (2 \times 3 \times 4 \times 5 \times \dots \times 98 \times 99 \times 100)$$

$$= \log_{100!} (100!)$$

$$= 1.$$

75. D From the given graphs, it is clear that Scandinavia is the most democratic region for poor followed by North America. Also, C and E Europe is the least democratic region for the poor. Hence, the correct order is: C and E Europe, Africa, South America, Western Europe, Scandinavia.

76. B C and E Europe has the maximum disparity (approximately 16 points) of democratic participation between rich and poor.

77. E The maximum GDP of African region is approximately 0.2 points more than the GDP of South American region. Thus, the required value = $10^{0.2} \approx 1.58$. Hence, option (5) is the correct answer.

78. C The percentage increase in the number of Indians going abroad was greater than the percentage increase in the number of domestic tourists in only two years, viz. 2005 and 2007.

Year	Percentage increase in the number of Indians going abroad	Percentage increase in the number of domestic tourists
2005	$\frac{7.18 - 6.21}{6.21} \times 100 = 15.62$	$\frac{3.92 - 3.46}{3.46} \times 100 = 13.30$
2007	$\frac{9.78 - 8.34}{8.34} \times 100 = 17.27$	$\frac{5.08 - 4.45}{4.45} \times 100 = 14.16$

79. B The value of rupee with respect to dollar was the cheapest in 2002 and it was Rs. $\left(\frac{150640}{3103} \right)$ /dollar i.e. Rs.48.55/ dollar.

80. C The value of R for different years can be calculated as:

Year	Foreign exchange earnings from tourism in India(in US million dollar)	Foreign tourist arrivals in India(in million)	R
1997	2889	2.37	1218.99
1998	2948	2.36	1249.15
1999	3009	2.48	1213.31
2000	3460	2.65	1305.66
2001	3198	2.54	1259.05
2002	3103	2.38	1307.78
2003	4463	2.73	1634.78
2004	6170	3.46	1783.23
2005	7493	3.92	1911.48
2006	8634	4.45	1940.22
2007	10729	5.08	2112.01
2008	11832	5.28	2240.91
2009	11136	5.17	2153.96
2010	14193	5.78	2455.54
2011	16564	6.29	2633.39
Total	—	—	26419.46

The value of R is the maximum for 2011. Hence, it will subtend an angle of $\left(\frac{2633.39}{26419.46} \times 360 \right) = 35.88 \approx 36^\circ$.

81. C From the bar graphs, it can be seen that after United States, India had the highest spending on military as a % of GDP in the period 2000-2010.

82. D Among the given options, it can be observed that Malaysia witnessed the maximum year-to-year decline in "Industry as a % of GDP" in 2008-09.

83. B The maximum increase in "services, value added as a % of GDP" from year 2000 to year 2010 was witnessed by India.

84. E 85. B 86. D 87. C 88. B 89. D 90. C

91. B 92. D 93. A 94. A 95. D 96. B 97. A

98. E 99. B 100. C 101. A 102. C 103. E