2 SOLUTIONS

IIFT 2013

1. The absolute increase in the given sectors is:
Services Sector: 2.6
Construction Development : 2.9
Automobile Industry : 3
Power : 1.9
Therefore, it is the highest for the Automobile Industry.
Hence, **option 3.**

2. Since the average share for each sector is to be calculated over the same period, the sector with the highest FDI inflow over the given period will also have the highest average. The actual average need not be found.
The share of total FDI inflows from the period 2007 to 2012 for the given sectors is:
Chemicals (other than Fertilizers): 25.1
Automobile Industry: 23.7
Metallurgical Industries: 25.3
Hotel and Tourism: 25.0
But, for Drugs and Pharmaceuticals, the share of total FDI inflows over the given period was 15.7. Thus, the share has been SECOND LOWEST for the Automobile Industry.
Hence, **option 2.**

3. It can be verified from the table that options 1, 2 and 3 are true.
Option 4 is false. The percentage share of FDI inflow from 2007 to 2010 in Chemicals (other than Fertilizers) does not show a continuous increase.
Hence, **option 4.**

4. Statements (i) and (ii) are true.
In 2012, the Drugs and Pharmaceuticals sector was ranked 3rd lowest from the bottom in terms of percentage of FDI inflow in the country.
Hence, statement (iii) is false.
Hence, **option 2.**

5. Increase in FDI inflow percentage share for different sectors is as follows :
Telecommunications between 2007 and 2008: 2.8
Computer Software and Hardware between 2009 and 2010: 2.2
Automobile between 2011 and 2012: 2.4
Power between 2007 and 2008: 2.6
The highest figure is 2.8.
Hence, **option 1.**

6. Find the individual absolute decline for the given region – period combinations.
ASEAN (05-06 to 06-07) = 10.10 – 9.98 = 0.12
South Asian (04-05 to 05-06) = 5.51 – 5.38 = 0.13
West Asia (GCC)(08-09 to 09-10) = 17.21 – 17.06 = 0.15
North Africa (09-10 to 10-11) = 1.75 – 1.59 = 0.16
Hence, **option 4.**

7. It can be verified from the table that export shares have decreased 7 times for North America and 6 times each for the other three regions.
Hence, **option 3.**

8. For all four given regions, growth is negative for the given period. Hence, the annual growth rate is lowest for the region with the greatest magnitude of growth rate.
The annual growth for the given regions is:

$$\text{North Africa} = \frac{1.59 - 1.75}{1.75} \times 100 = -9.14\%$$

$$\text{North East Asia} = \frac{14.83 - 16.12}{16.12} \times 100 = -8\%$$

$$\text{North America} = \frac{10.98 - 11.89}{11.89} \times 100 = -7.65\%$$

$$\text{EU countries} = \frac{18.33 - 20.16}{20.16} \times 100 = -9.07\%$$

Hence, **option 1.**

9. In all the options, the simple average export share is calculated over the same time period. So, there is no need to calculate the average. Just find the highest total share for each region given in the options.
North Africa (2008-09 & 2009-10) =1.84 + 1.75 = 3.59
East Africa (2004-05 & 2007-08) = 1.37 + 2.58 = 3.95
Latin America (2002-03 & 2004-05) = 2.06 + 2.15 = 4.21
West Africa (2007-08 & 2010-11) = 2.13 + 1.71 = 3.84
Hence, **option 3.**

10. More calculations are required to verify option 4 compared to the other three. So, it is faster to check options 1, 2 and 3 before moving on to option 4 (if required).
Option 1 is true as South Asia is ranked 6th.
Option 2 is true as North Africa has the lowest export share for 7 years, while East Africa has the lowest export share for only 3 years.
Option 3 is true as Latin America (2.15) has the fourth lowest export share in 2004-05 with East Africa (1.37), North Africa (1.62) and West Africa (1.98) below it.
As options 1, 2 & 3 are true, option 4 has to be false.
Hence, **option 4.**

11.

Industry	Total Managerial Wage Bill	Total Managerial Staff	Average Managerial Wage
3	2773	1174	2.36
5	3484	1580	2.205
6	2967	938	3.16
7	8087	3489	2.317

Thus, the average managerial wage is highest for industry 6
Hence, **option 2.**

Alternatively,
Once the total managerial wage bill and the total managerial staff have been calculated, observe that the managerial wage bill is more than thrice the managerial staff for industry 6. It is less than 3 for the remaining industries. Since the highest value is required, industry 6 can be directly marked as the answer.
Hence, **option 2.**

12.

Industry	Profit(P)	Net value added(N)	(P/N)
4	3990	5831	0.68
5	34943	71739	0.49
6	31219	42434	0.74
7	45392	72290	0.63

Thus, the profit expressed as a ratio of net value added is highest for Industry 6.
Hence, **option 1.**

13.

Industry	Gross Value	Gross Value/Worker
1	3219	0.355
2	2433	2.774
3	30307	5.358
4	6875	6.256
5	97413	12.975
6	45949	13.768
7	83536	5.331

The difference required in each option is :
Option 1: 8.41
Option 2: 4.976
Option 3: 10.201
Option 4: 7.512
Thus, the difference is highest for option 3.
Hence, **option 3.**

14.

Industry	Fuel Consumption(F)	Input Cost(IC)	$(F/I) \times 100$
2	762	5990	12.72
3	10817	80238	13.48
6	6461	138780	4.65
7	32178	171246	18.79

The fuel consumption as a percentage of input cost is highest for industry 7.
Hence, **option 2.**

15. In each option, a certain ratio has to be found and its rank for a specific industry is to be verified.
Option 1: Number of workers per factory

Industry	No. of workers	No. of factories	Ratio	Rank
1	9066	65	139.47	2
2	877	110	7.97	7
3	5656	32	176.75	1
4	1099	30	36.63	6
5	7508	78	96.25	3
6	3333	39	85.46	4
7	15670	300	52.53	5

Thus, the statement in option 1 is false.
Option 2: Expense on material consumption as a % of input cost

Industry	Materials Consumed	Input Cost	Percentage	Rank
1	2519	3256	77.36	4
2	4135	5990	69.03	6
3	57275	80238	71.38	5
4	34027	41037	82.92	3
5	327400	371605	88.1	2
6	123275	138780	88.83	1
7	106233	171246	62.04	7

Thus, the statement in option 2 is false.
Option 3: Profit earned as a % of emolument

Industry	Profit Earned	Emolument	Percentage	Rank
1	816	2059	39.63	7
2	913	747	122.22	6
3	9356	6479	144.41	5
4	3990	1024	389.65	2
5	34943	9284	376.38	3
6	31219	6084	513.13	1
7	45392	15053	301.55	4

Thus, the statement in option 3 is false.
Hence, **option 4.**

Note: Since the first three options are proved to be false, the last has to be true. There is no need to calculate it, but it can be verified using a similar table, as shown above.

16. The countries are ranked according to the number of days required to start a new business.
Hence, the top 3 countries, in ascending order, are Paraguay, United Kingdom, and Chile.
Among these, Paraguay has the least ratio of cost to per capita income (2.6).
Hence, **option 3.**

17. The ratio of export to import for each of the given countries is:

$\text{UK} = \frac{13}{17} = 0.765$

$\text{UAE} = \frac{11}{14} = 0.786$

$\text{Chile} = \frac{23}{25} = 0.92$

$\text{Georgia} = \frac{22}{23} = 0.957$

Thus, the least ratio is for UK.
Hence, **option 1.**

18. Check the statements in options 1, 3 and 4 first as they require a comparison of only two quantities. The statement in option 1 is false as the number of days required for exporting in Tanzania (8) is more than the number of days required for importing (6). The statement in option 3 is false as the number of days required to start a business in Paraguay (8) is less than the number of days required for importing (9). The statement in option 4 is true as the number of days required for exporting in Georgia (22) is less than the number of days required for importing (23).
Hence, **option 4.**

Note: There is no need to check option 2 once option 4 is proved to be true.

19. It can be verified from the graph that the statements in options 1, 2 and 4 are true. The statement in option 3 is false as the number of days required for importing in Georgia (23) is less than the number of days required for exporting in Niger (25).
Hence, **option 3.**

20. Denote the professors by their institution names.

From (j) : Mercury, Pluto, and Mars stay in 201, 203 ,205 or 202, 204, 206.
From (i) Mercury stays in an odd numbered room. Thus Mercury, Pluto, and Mars stay in 201, 203 and 205 respectively.
From (d) and (k), Neptune stays in 206.
From (g) Pluto published 12 journals and donated to 8 institutions.
From (e), Jupiter published 8 journals less than Pluto and donated to 10 more institutions. Therefore, Jupiter published 4 journals and donated to 18 institutions.
From(c) the professor from room 202 published 24 journals. Hence, he cannot be Jupiter. Therefore, Uranus stays in room 202 and Jupiter in 204.
From (d), Uranus and Neptune put together published 40 journals. So Neptune published 16 journals.
From (h), Neptune donated to 24 institutions.
From (i) Mars published 8 journals.
Thus, all the data can be shown as given in the table below.

Room Number	Institution	Number of journals	Number of donations
201	Mercury		
202	Uranus	24	
203	Pluto	12	8
204	Jupiter	4	18
205	Mars	8	Mercury – 2
206	Neptune	14	24

Mars stays in room number 205
Hence, **option 3.**

21. Consider the solution to the first question Jupiter donated to 18 institutions.
Hence, **option 3.**

22. Consider the solution to the first question. The professor from Neptune is staying in room number 206.
Hence, **option 4.**

23. Consider the solution to the first question. The professor from Neptune donated to 24 institutions
Hence, **option 4.**

24. Consider the solution to the first question. The professor from Uranus published maximum number of journals.
Hence, **option 2.**

25. Consider the solution to the first question. The professor from Jupiter published in 4 journals.
Hence, **option 2.**

26. Since the first letter is a consonant (N) and the last letter is a vowel (A), both N and A will be coded as 0.
Thus, NFRSCA is coded as 053%20.
Hence, **option 4.**

27. Since the first and last letters are both vowels (A and E), they are coded as %.
Thus, ARFTHE is coded as %358#%.
Hence, **option 1.**

28. Option 1:
M is the brother of N, who is the sister of L So, M is also the brother of L. L is the wife of C who is the father of T. Thus, M cannot be the grandfather of T.
Option 2:
M and T are at the same position in option 2 as in 1. Also, since the symbols and their position in option 2 is the same as that in option 1, the relation between the two is also the same.
Option 3
M is the father of F who is the sister of L. L is the brother of Z. Thus, M is the father of F, L and Z. Z is the wife of T. Thus M cannot be the grandfather of T.
Thus, none of the given options means M is the grandfather of T.
Hence, **option 4.**

Alternatively,
Except for the '–' sign, all the other signs convey a relationship in the same generation. For M to be the grandfather of T, there should be two '–' signs. This is not present in any of the options.
Hence, **option 4.**

29. T is to the left of R and to the right of P
P T R
P is to the right of Q and Q is to the right of S.
S Q P T R
Thus, P is in the middle.
Hence, **option 1.**

30. Option 1 is incorrect as the passage clearly mentions that the fruit of the tree is poisonous not Purol.
According to the passage, Purol only has anti-depressant properties. This eliminates option 2.
According to the passage, Purol is a "promising new drug". This indicates that drugs treating depression existed prior to the discovery of Purol. This eliminates option 4.
Option 3 is necessarily true as according to the passage, "The Asatra Vriksha has a fleshy, poisonous fruit".
Hence, the correct answer is **option 3.**

31. *agnoscrenia* means poisonous spider and *agnosdeery* means brown spider. Thus, the common term between them is *agnos,* which means spider.
Thus, options 1 and 4 are eliminated.
Agnoscrenia means poisonous spider and *delanocrenia* means poisonous snake. Thus, the common term between them is *crenia,* meaning poisonous. Therefore, *delano* means snake.
Hence option 3 is also eliminated.
Therefore, black widow spider can mean *agnosvitriblunin.*
Hence, **option 2.**

32. The passage is a comparison between the raw data resulting from a study. There were as many unemployed educated youth as unemployed uneducated youth. The conclusion being that education provided no guarantee in securing employment.
Option 1 is incorrect because these numbers are not really comparable as this data would not be able to either support or disqualify the findings of the study as option 1 does not pertain to youths.
Option 2 is incorrect as just this information would not suffice to prove the study findings.
Option 4 is incorrect because it only considers the increased number of educated youth. This is not complete information to support the study findings.
Option 3 is correct because the percentage figures would provide comparative data to validate the conclusion mentioned in the passage.
Hence, the correct answer is **option 3.**

33. P and S are unmarried females. There is one couple and T is the husband. Also, Q is the brother of R. Thus, R has to be the wife of T. Neither among the options 1, 2, & 3 is a group of ladies.
Hence, **option 4.**

34. Consider the solution to the first question. P and S are ladies and they don't play any game. No lady is either a chess player or a badminton player. Since R is the third lady, she is the tennis player.
Hence, **option 2.**

35. Consider the solution to the first question. R is the wife of T.
Hence, **option 4.**

36. Angle between 2 & 4 at the centre is 60^0. In 20 minutes, the hour hand moves 10^0. Thus, angle between the two hands at 2 hrs. 20 minutes would be $60 - 10 = 50^0$.
Hence, **option 2.**

37. Substitute the options into the blanks and try to find whether a sequence is formed. The sequence *'cabbac'* repeats itself.
Hence, **option 4.**

38. The subscript in the terms follows the pattern: 2 _ 4 _ 6.
Hence, the subscript in the missing terms is 3 and 5 respectively.

Also, the position of the subscript follows the pattern B _ D _ C. Hence, it should be with the letters C and B respectively in the missing terms.
Hence, **option 1.**

39. There is a gap of two letters between the given letters. Thus, the letter to be filled in the blank space would be 'J'. Second difference between the numbers is common. Therefore, the number would be 8 + 7 = 15.
Hence, **option 4.**

68. The meanings of the words are as follows:
Note: Although the question paper says "anthromorphous", the correct term is 'anthropomorphous'
Anthropomorphous - resembling or made to resemble a human form
Anachronistic - an error in chronology in which a person, object, event, etc., is assigned a date or period other than the correct one.
Anthology - a book or other collection of selected writings by various authors.
Ascension - to move, climb, or go upward.
Hence, the correct answer is **option 3.**

69. The correct combinations are as follows:
Cacology – Poor diction or poor choice of words
Ethology – Study of human character
Misology – Hatred of reasoning
Cryology – Study of snow and ice
Hence, the correct answer is **option 2.**

70. All of the statements are in the future tense. Only "envisages" which means 'to contemplate; visualize' fits in all the blanks grammatically and logically. "Seeks" does not fit into the fourth blank. Eliminate option 1.
The verb "hopes" needs to be used in combination with the preposition "for" in order for the statements to be grammatically correct. Eliminate option 3.
The verb "demands" needs to be used in combination with an article in order for the statements to be grammatically correct. Eliminate option 4.
Hence, the correct answer is **option 2.**

71. Only "provided" fits into all of the blanks contextually and logically.
Hence, the correct answer is **option 4.**

72. The statements discuss the innovative style adopted by Gauhar with regard to her singing.
Statements (i) uses the pronoun "she". Hence, it cannot begin the order of the statements. Eliminate option 1.
Between statements (ii) and (iv), statement (ii) makes for a better introductory statement as it sets context for the others. Moreover, "defy the norms" in statement (iv) attributes to "innovation" in statement (i) for context. Eliminate option 4.
Statement (iii) logically concludes the order.
Thus, the correct order is ii, i, iv, iii.
Hence, the correct answer is **option 3.**

73. "Afternoon" is followed by "dusk" and "twilight". Only option 2 beginning with statement (iii) follows this chronological order.
Statement (iii) describes the weather in the afternoon followed by statement (i) which explains what the author did at "dusk".
Since the author "allowed Adele to put away...run downstairs", it logically follows that s/he was "left alone". Hence, statement (iv) follows.
Statement (ii) describes the scenario during "twilight" and lends a conclusive tone to the statements.
Thus, the correct order is iii, i, iv, ii.
Hence, the correct answer is **option 2.**

74. The relationship between the first two words is antonymous. "Alleviate" means 'to make easier to endure; lessen; mitigate' while "aggravate" means 'to make worse or more severe'.
"Rigid" is antonymous to "elastic".
"Flexible" and "malleable" are synonymous to "elastic", while "strong" has nothing to do with "elastic".
Hence, the correct answer is **option 1.**

75. "Benevolent" and "kind" are synonymous to each other.
"Muddy" is synonymous to "unclear".
"Luminous" meaning 'radiating or reflecting light; shining; bright' is not associated with "unclear".
Hence, the correct answer is **option 4.**

76. A "person who knows or speak many languages" is called a "polyglot".
"Potable" means 'fit or suitable for drinking'.
"Plebiscite" means 'a direct vote of the qualified voters of a state in regard to some important public question'.
"Paramour" means 'an illicit lover, especially of a married person'.
Hence, the correct answer is **option 1.**

77. "Deserving blame for an offence or crime" is the meaning of the adjective "culpable".
"Hedonist" refers to 'a person whose life is devoted to the pursuit of pleasure and self-gratification'.
"Misanthrope" refers to 'a hater of humankind'.
"Regicide" refers to 'the killing of a king'.
Hence, the correct answer is **option 2.**

78. "To have a jaundiced eye" means 'to have a prejudiced view of something'. This eliminates options 2, 3 and 4.
Hence, the correct answer is **option 1.**

79. "To lose one's bearings" means 'to become bewildered, to be confused'. This is similar in meaning to option 4 which states 'to be uncertain of one's position'. This eliminates options 1, 2 and 3.
Hence, the correct answer is **option 4.**

80. Options 1, 2 and 3 do not contain grammatical errors. Option 4 alone is incorrect in its usage of "neither/nor" which should be followed by a singular or plural verb depending on the element closest to it. In option 4, the correct phrase would be 'neither Priya nor Shikha is a good dancer'.
Hence, the correct answer is **option 4.**

81. The usage of "each" is followed by the singular form of the verb following it. This eliminates options 1 and 2. Between options 3 and 4, option 3 is more appropriate since the past perfect tense will be used for the action that took place earlier. Therefore, since the each of the girls "had been ill-treated" and was then" abandoned", the correct sentence is put forth by option 3.
Hence, the correct answer is **option 3.**

82. "As busy as a bee" indicates a comparison where being busy has been compared to the activities of a bee which are just as hectic. This figure of speech is a "simile" which means 'something involving the comparison of one thing with another thing of a different kind, used to make a description more emphatic or vivid'.
A "metaphor" is also a form of comparison but 'a figure of speech in which a word or phrase is applied to an object or action to which it is not literally applicable'. In the given phrase, the comparison is explicit and not applied. This eliminates option 2.
An "oxymoron" is 'a figure of speech in which apparently contradictory terms appear in conjunction' and an "adage" is 'a proverb or short statement expressing a general truth'. Eliminate options 1 and 3.
Hence, the correct answer is **option 4.**

83. The correct spelling of "Ammelioration" is 'amelioration'. All the other spellings are correct.
Hence, the correct answer is **option 4.**

84. The correct spelling of "Gazzette" is 'gazette'. All the other spellings are correct.
Hence, the correct answer is **option 1.**

85. "Apocryphal" means 'of doubtful authenticity, although widely circulated as being true' which is antonymous to "authentic" which means 'of undisputed origin and not a copy; genuine'.
"Audacious" meaning 'showing a willingness to take surprisingly bold risks' and "blasphemous" meaning 'sacrilegious against God or sacred things; profane' are not opposite in meaning to "apocryphal". Eliminate options 2 and 3.
Hence, the correct answer is **option 1.**

86. "Capricious" means 'given to sudden and unaccountable changes of mood or behaviour' which is dissimilar to "consistent" meaning 'acting or done in the same way over time, especially so as to be fair or accurate'.
"Erratic" means 'not even or regular in pattern or movement; unpredictable', "crafty" means 'clever at achieving one's aims by indirect or deceitful methods' and "obvious" means 'easily perceived or understood; clear, self-evident, or apparent'. All the other options are not suitable antonyms of "capricious". Eliminate options 1, 2 and 3.
Hence, the correct answer is **option 4.**

87. Options 1 and 2 are ruled out as the word "out" is missing from both the options.
Option 2 is parallel in tense with the active voice which is past continuous.
Option 3 is incorrect as the statement is past perfect.
Hence, the correct answer is **option 2.**

88. The passage speculates on why Bernie Madoff's wife and sons did not flee the country but does not come to a definite conclusion. Option 1 can be ruled out from the lines " … the public outcry against Ruth Madoff and her sons began almost from the instant of Madoff's arrest and did not cease By the time he pleaded guilty, it was deafening." We can thus, infer from the passage that Madoff's family could have fled between the time he was arrested and before he pleaded guilty. This eliminates option 1.
Option 2 can be eliminated from " … his two sons, if they were guilty, had the opportunity, the means and the motive to flee."
Option 3 can be ruled out from " … they could turn him in and deflect … if the sons were actually guilty."
Thus, none of the options is suitable.
Hence, the correct answer is **option 4.**

89. Option 3 is vindicated from the lines " All that fierce, smug certainty about their guilt- unsupported by any cited facts-effectively drove Madoff's immediate family into exile."

Options 1, 2 and 4 have not been mentioned in the passage.
Hence, the correct answer is **option 3.**

90. Though the use of hypermedia is mentioned in the passage, Bernie Madoff's arrest has not been attributed to it. This eliminates option 1.
The media's treatment of Madoff's family has been spoken of in the passage but this is not sufficient reason to infer that the media runs parallel trials. This eliminates option 3.
The passage reiterates the fact that Madoff's family has not been proven guilty. This eliminates option 4.
Option 2 is supported by "The treatment over the years of organized-crime defendants is instructive."
Hence, the correct answer is **option 2.**

91. Option 1 can be eliminated from the lines "…his wife and sons were guilty too… "
Option 3 can be ruled out from "Despite the widespread fascination.. crime-family "capos" …"
Option 4 can be inferred from "… attacks on the Madoff family were a sharp departure from the typical public reactions to cases of white collar crime…"
Option 2 is incorrect, according to the passage, "… the public outcry against Ruth Madoff and her sons began almost from the instant of Madoff's arrest and did not cease. By the time he pleaded guilty, it was deafening." We can thus, infer from the passage that Madoff was arrested and he pleaded guilty only later.
Hence, the correct answer is **option 2.**

92. Option 3 can be inferred from "Then one day...discovered something remarkable...only about one in a hundred has that kind of conversion rate. Grey Poupon was magic".
While options 1, 2 and 4 are facts about Grey Pupon, they do not provide sufficient reasoning for why the author termed Grey Pupon as "magic".
Hence, the correct answer is **option 3.**

93. Option 3 can be determined from the following statement in paragraph 1 - "In the early seventies, Grey Pupon was no more than a hundred-thousand-dollar-a-year business" and the following statement in paragraph 3 - "By the end of the 1980's Grey Poupon was the most powerful brand in mustard". On the basis of these statements, one can calculate that it took more than 10 and less than 20 years for Grey Poupon "to grow from a hundred-thousand dollar a year brand to the most powerful brand in mustard".
This eliminates options 1, 2 and 4.
Hence, the correct answer is **option 3.**

94. According to paragraph 2, Grey Poupon "ran tasteful print ads in upscale food magazines". The television commercial showcased owners of Rolls Royce consuming the product. From the data given in paragraphs 2 and 3, it can be inferred that Grey Poupon was reaching out to "rich and sophisticated customers".
Although the passage mentions Grey Poupon being distributed in flights, it does not mention "frequent fliers". Eliminate option 1.
There is no data in the passage to support options 2 and 3.
Hence, the correct answer is **option 4.**

95. Option 3 can be inferred from, "The ratio of tomato solids to liquid in World's Best is much higher than in Heinz..."
Option 1 is ruled out as according to the passage, "He pours his ketchup...and sells it for three times the price of Heinz".
Option 2 is ruled out as "you're doomed to eat Heinz for the rest of your life" is not at all similar to being "doomed if they tried Heinz Ketchup".
The passage mentions the people who looked perplexed as walking away and not picking up the jar. Eliminate option 4.
Hence, the correct answer is **option 3.**

96. Option 1 includes "ahimsa" which is contrary to data provided in the passage.
Option 3 states "pro-market" instead of "pro-capitalism".
Option 2 has been implied in the opening lines of the passage
Hence, the correct answer is **option 2.**

97. The meaning of the word "conundrum" is 'confusion' or 'enigma'.
Hence, the correct answer is **option 1.**

98. Option 2 has been stated verbatim in the concluding lines of paragraph 7.
Options 1 and 3 are contrary to the data provided in the passage.
Hence, the correct answer is **option 2.**

99. If the government's policies are pro-market, then it would entail reducing or removing "Crony capitalism". This is contrary to option 2. All the other options find an affirmation in the passage.
Hence, the correct answer is **option 2.**

100. Last sentence of second-last paragraph makes option 1 true.
Last sentence of second-last paragraph makes option 2 true.

Last sentence of paragraph four makes option 3 true.
Hence, the correct answer is **option 4.**

101. Paragraph six directly supports option 1.
Hence, the correct answer is **option 1.**

102. Paragraph 6 supports option 1 as true.
Paragraph 1 supports option 2 as true.
The last paragraph supports option 3 as true.
Paragraph 7 directly supports option 4 as false.
Hence, the correct answer is **option 4.**

103. Options 1 and 4 are mentioned in last line of second last paragraph.
Option 2 is mentioned in the first paragraph.
Hence, the correct answer is **option 3.**

104. Each bag has $a^2 - 6a + 10$ balls.
Bags 1, 2, 3 and 4 contain 1, 3, 5 and 7 black balls respectively.
Probability of selecting a black ball from a specific bag is

$$\frac{n}{a^2 - 6a + 9}$$

where n is the number of black balls in that bag.
A bag is selected at random.

$\therefore$ Probability of selecting a particular bag $= \frac{1}{4}$

$\therefore$ Probability that the ball selected from that randomly chosen bag is black

$$= \frac{1}{4}\left(\frac{1}{a^2 - 6a + 10}\right) + \frac{1}{4}\left(\frac{3}{a^2 - 6a + 10}\right)$$
$$+ \frac{1}{4}\left(\frac{5}{a^2 - 6a + 10}\right) + \frac{1}{4}\left(\frac{7}{a^2 - 6a + 10}\right)$$
$$= \frac{1}{4}\left(\frac{16}{a^2 - 6a + 10}\right) = \left(\frac{4}{a^2 - 6a + 10}\right)$$

Hence, **option 4.**

105. $3094 = 2 \times 7 \times 13 \times 17 = a \times b \times c \times d$
As $1 < a < b < c < d$
$a = 2, b = 7, c = 13, d = 17$
$\therefore b \times c = 7 \times 13 = 91$
Hence, **option 2.**

106. Let the number of strawberry and chocolate flavoured candies be a and b respectively.
$\therefore 3.3a + 2.9b = 249$
Since there is only one equation with two unknowns, substitute the given options into the equations.
By substitution, $a = 57$ and $b = 21$ satisfy the given equation.
Hence, **option 2.**

107. BC = 397
Let AB = a^3 and AC = 3^n
Also
AC = 3 $\times$ AB
$\therefore 3^n = 3 \times a^3$
$\therefore 3^{(n-1)} = a^3$
Now, let the perimeter be equal to p
p = BC + AC + AB
$= 397 + 3^n + 3^{(n-1)}$
$(p - 397) = 3^{(n-1)} \times (3 + 1)$
$= 3^{(n-1)} \times 4$
Thus the LHS of the above equation should be a multiple of 3 and 4. Substitute the value of perimeter given in the options and verify this. Among the options, only (3313 - 397) is divisible by 3 and 4..
Hence, **option 4.**

108. Out of 8 consonants, 4 consonants can be selected in ${}^8C_4 = 70$ ways.

Out of 5 vowels, 3 vowels can be selected in ${}^5C_3$ = 10 ways.
These 7 selected letters can be arranged among themselves in 7! ways.
Thus total number of ways = $70 \times 10 \times 7! = 3528000$
Hence, **option 3.**

109. $x^2 + 3x - 10$ has 2 factors 2 and −5
$x^2 + 3x - 10$ is a factor of $3x^4 + 2x^3 - ax^2 + bx - a + b - 4$
Therefore 2 and −5 are also the factors of this expression.
Substitute 2 and −5, to get 2 equations
For $x = 2$,
$48 + 16 - 4a + 2b - a + b - 4 = 0$
$\therefore 5a - 3b = 60$..... (I)
For $x = -5$,
$1875 - 250 - 25a - 5b - a + b - 4 = 0$
$26a + 4b = 1621$..... (II)
Solving (I) and (II)
$a = 52$ and $b = 67$
Hence, **option 3.**

110. As all the numbers are positive integers their sum cannot be negative. Thus option 1 is not possible.
Also, as all the numbers are positive integers their sum cannot be a fraction. Thus option 3 is not possible.
Hence, **option 4.**

111. Initial distance travelled = 180 m
Distance travelled after 1st rebound

$$\text{Upward} = \frac{3}{5} \times 180 = 108 \text{ m}$$

Downward = 108 m
Total = 108 + 108 = 216 m
Distance travelled after 2nd rebound (upward and downward)

$$= \frac{3}{5} \times 108 \times 2 = \frac{3}{5} \times 216 \text{ m}$$

This gives an infinite G.P. with

$$a = 216 \text{ and } r = \frac{3}{5}.$$

For an infinite G.P. with $r < 1$

$$S = \frac{a}{1-r} = \frac{216}{1-\frac{3}{5}} = 540 \text{ m}$$

Since initial distance was 180 m,
Total distance = (180 + 540) m = 720 m
Hence, **option 3.**

112. Two men can be selected in ${}^{9}C_{2}$ ways.

After selecting two men, two women can be selected in ${}^{7}C_{2}$ ways from (9 – 2 = 7) women, so that no husband and wife play in the same set.
Also, these selected 4 people can be grouped in 2 ways.
∴ The total number of mixed double teams

$$= {}^{9}C_{2} \times {}^{7}C_{2} \times 2 = 1512$$

Hence, **option 1.**

113. Let P be the event that train P is late and Q be the event that train Q is late.

$$P(P) = \frac{7}{9}$$

$$P(Q) = \frac{11}{27}$$

$$P(Q/P) = \frac{P(P \cap Q)}{P(P)}$$

$$\therefore P(P \cap Q) = P(Q/P) \times P(P)$$

$$\therefore P(P \cap Q) = \frac{8}{9} \times \frac{7}{9} = \frac{56}{81}$$

$$P(P \cup Q) = P(P) + P(Q) - P(P \cap Q)$$

$$P(P \cup Q) = \frac{7}{9} + \frac{11}{27} - \frac{56}{81} = \frac{40}{81}$$

Probability that neither train will be late
$= 1 - P(P \cup Q)$

$$= 1 - \frac{40}{81} = \frac{41}{81}$$

Hence, **option 2.**

114. Suppose 100 MBA applicants were surveyed.
80 of them are good in logical reasoning and 20 are good in quantitative aptitude.
$0.87 \times 20 \approx 17$ are good in quantitative aptitude and in data interpretation as well.
$0.15 \times 80 = 12$ are good in logical reasoning and in data interpretation as well.
Thus, there are 17 + 12 = 29 MBA applicants those are strong in data interpretation.
Of the 29 MBA applicants 17 are strong in quantitative aptitude.
The required probability =

$$\frac{17}{29} = 0.58$$

Hence, **option 2.**

115. Let the base radius, height, slant height be r, h and l respectively.
$r = 14$ cm
$h = 26.5$ cm

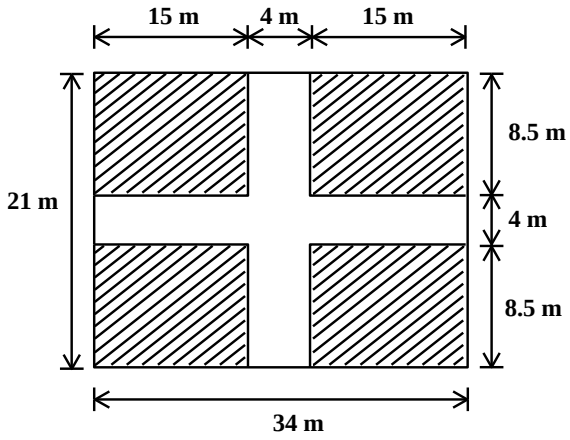
$$\because l = \sqrt{r^2 + h^2}$$

$\therefore l = 29.97 \text{ cm} \approx 30 \text{ cm}$
To make a conical cap from a sheet of paper, the curved surface area of cap must be calculated.
Curved surface area = $\pi \times r \times l$
To calculate the area of the sheet required to make 7 caps,

$$\text{total area} = 7 \times \pi \times r \times l = 7 \times \frac{22}{7} \times 14 \times 30$$

= 9240 sq.cm.
Hence, **option 4.**

116. The following diagram displays the garden along with the paths,



The shaded area represents the flower beds,
For each rectangular flower bed

$$\text{breadth} = \frac{21 - 4}{2} = 8.5 \text{ m}$$

$$\text{length} = \frac{34 - 4}{2} = 15 \text{ m}$$

There are 4 such flower beds
Therefore, total area = $4 \times 15 \times 8.5 = 510$ m^2
Hence, **option 3.**

117. $70 - \frac{x}{100} \times 70 = 60 + \frac{x}{100} \times 60$

$$\therefore 10 = \frac{70x}{100} + \frac{60x}{100}$$

$$\therefore x = \frac{100}{13}$$

Calculating x % of 50,

$$\frac{100}{13} \times \frac{1}{100} \times 50 = 3.84$$

Hence, **option 1.**

118. As the three portions of the rod correspond to 12, 18 and 32 equal parts, their length will be equal to LCM of 12, 18 and 32.
LCM of 12, 18 and 32 = 288
Since there are three equal parts of the rod, total length = $288 \times 3 = 864$
Hence, **option 2.**

119. $\log_{10} x - \log_{10} \sqrt[3]{x} = \frac{6}{\log_{10} x}$

$$\therefore \log_{10} x - \frac{1}{3}\log_{10} x = \frac{6}{\log_{10} x}$$

$\log_{10} x = a$

$$\therefore a^2 - \frac{1}{3}a^2 = 6$$

$\therefore a^2 = 9$
$\therefore a = \pm 3$
As log cannot be negative $a = 3$
$\therefore \log_{10} x = 3$
$\therefore x = 1000$
Hence, **option 4.**

120. Let the number of days required to complete the work by mother, elder son and younger son be m, e and y hours respectively.
Therefore, work done by mother; elder son and younger son in one day is $1/m$, $1/e$ and $1/n$ respectively.

Also $m = e - 1$ ($\because$ Mother take one hour less than the elder son)
Based on the conditions given,

$$\frac{1}{m} + \frac{1}{e} + \frac{1}{y} = 1 \qquad \ldots(1)$$

$$\frac{1}{e} + \frac{1}{y} + \frac{3}{y} = 1 \qquad \ldots(2)$$

$$\frac{1}{y} = \frac{e - 1}{4e}$$

Also $m = e - 1$
Substituting values of $(1/m)$ and $(1/y)$ in (1)

$$\frac{1}{e-1} + \frac{1}{e} + \frac{e-1}{4e} = 1$$

Solving,
$e = 3$
Therefore, $m = 2$ and work done in 1 hour = 50%
Hence, **option 2.**

121. Let the distance between the doctor's chamber and Rohit's house be x km.
Total time spent = 5 hours
Time spent at the doctor's chamber

$$= \frac{48}{60} = \frac{4}{5}$$

From the given conditions,

$$\frac{x}{20} + \frac{x}{12} + \frac{4}{5} = 5$$

$\therefore x = 36$
Hence, **option 3.**

122. Let weight of the cut-off piece = X kg
Let percentage of aluminium in 8 kg and 16 kg alloy be a and b respectively.

$$\therefore \frac{(8 - X)a + Xb}{8 \times 100} = \frac{(16 - X)b + Xa}{16 \times 100}$$

$\therefore 16a - 2Xa + 2Xb = 16b - Xb + Xa$
$\therefore 16 - 2X = X$ and $2X = 16 - X$

$$\therefore X = \frac{16}{3} = 5.33 \text{ kg}$$

Hence, **option 3.**

123. Principal put in bank deposit
= 1,00,00,000 - 40,00,000 - 20,00,000 - 10,00,000
= Rs. 30,00,000
Amount after three years
= $3000000 \times (1.12)^3$ = Rs. 42,14,784
Total gain after 3 years is 5%.

Total value = 10000000 × 1.05 = Rs. 1,05,00,000
10500000 – 4214784 = 6285216
Let x be the percentage at which he sold off the three items.

$$\therefore \frac{x \times 7000000}{100} = 6285216$$

Solving this, $x \approx 90\%$
Hence, **option 3.**

124. $\log_{13}\log_{21}\{\sqrt{x+21} + \sqrt{x}\} = 0$

$$\therefore \log_{21}\{\sqrt{x+21} + \sqrt{x}\} = 13^0 = 1$$

$$\therefore \{\sqrt{x+21} + \sqrt{x}\} = 21^1 = 21$$

$$\therefore \sqrt{x+21} = 21 - \sqrt{x}$$

Squaring both sides,

$$x + 21 = 441 + x - 42\sqrt{x}$$

$$\therefore 42\sqrt{x} = 420$$

$\therefore x = 100$
Hence, **option 4.**

125. The minimum value of expression $ax^2 + bx + c$

$$= \frac{-(4ac - b^2)}{4a} = \frac{84 - 16}{12} = \frac{17}{3}$$

Hence, **option 4.**

126. Since the question mention 7 consecutive natural numbers, the first 7 natural numbers can also be considered.
The first 7 natural numbers are (1, 2, 3, 4, 5, 6, 7) and their average is 4.
When the next 3 numbers i.e. 8, 9 and 10 are added, the new average is 5.5.
∴ Average increases by (5.5 – 4) = 1.5
Hence, **option 3.**

127. $T = \frac{K \times D \times C}{\sqrt{A}}$

Where T is the time taken, D is the distance, C is the number of carriages, A is the diesel used per km and K is the proportionality constant.
Based on the data given:

$$45 = \frac{K \times 70 \times 15}{\sqrt{\frac{1}{7}}}$$

$$K = \frac{3}{70\sqrt{7}}$$

$$T' = \frac{3 \times D' \times C'}{70\sqrt{7} \times \sqrt{A'}}$$

$$30 = \frac{3 \times 50 \times 18}{70\sqrt{7} \times \sqrt{A'}}$$

Solving, A' = 11.8 liters
Hence, **option 2.**

128. Tap X does a units of work in 1 hour.
∴ Tap Y does $1.6a$ units of work in 1 hour.
∴ In 1 hour Tap X and Y together do $2.6a$ units of work.
∴ Work done by Tap X and Y in 40 hours = $2.6a \times 40$
∴ Time taken by Tap Y alone to do this work

$$= \frac{2.6a \times 40}{1.6a} = 65 \text{ hours}$$

Hence, **option 2.**