27. Option 1 is incorrect as it is clearly stated in the passage, "From 2006 to 2011, they finished...sixteenth...in the salary league...". Option 2 is correct, as the passage states that "With wage bills four, two...times Wigan's £40 million, Manchester United, Aston Villa...".

Option 3 is incorrect, since the passage merely states that "It might not be the case that the team with the highest wage bill finishes top each and every season...".

Option 4 is incorrect, as the passage mentions Opta Sports and not ESPN Sports.

Hence, the correct answer is **option 2.**

28. The passage clearly states that "Their average shooting distance was some twenty-six yards".

Hence, the correct answer is **option 3.**

29. Hugo Rodallega is a player of Wigan Athletic.

Ramzi Ben Said is a student at Cornell University.

Roberto Martinez is the manager of Wigan Athletic.

Albert Larcada is an analyst at ESPN.

The above four combinations can be found in the passage.

Therefore, the correct answer is **option 4.**

30. The key to the solution for this question lies in the term 'counter-attack'. As it has been clearly stated in the passage that "He had his team...punish them on the counter-attack.", the correct option is 3.

The other options are not characteristics of 'guerrilla football', as given in the passage.

Therefore, the correct answer is **option 3.**

31. Statement A is incorrect, because it is stated in the passage that "...when we examined *twenty* years of club finances with the help of data from Deloitte...", while the statement mentions a decade.

Statement B is correct as it is stated in the passage, "...they earned £50.5 million ...but *half* what the average Premium League team took". This works out to £101 million.

Statement C is correct, as it is stated in the passage, "Wigan's average attendance was just 17,000...".

Statement D is correct, as it is stated in the passage, "...they scored almost four times as many goals from free kicks.".

Hence, the correct **option 1.**

32. Option 1 can be affirmed from the "5.30 pm" extract of the passage.

The second sentence of the passage, "How he relished his power over the classes that had kept his family pinned under their heels for centuries – like the stenographer who was a brahmin" provides sufficient information to infer that the judge was not a brahmin.

The lines from the "2.00 pm" extract of the passage, "...although his own command of Hindi and Urdu was tenuous..." state explicitly that the judge did not have a proper understanding of these languages.

The key lies in the meaning of the word "tenuous", which means 'lacking a sound basis, unsubstantiated'.

Through the last sentence of the "8.30 am" extract of the passage, "...nobody knew that Jemubhai (the judge) himself was noosed..." it can be inferred that he owed money.

Hence, the correct answer is **option 3.**

33. The passage states that the countryside was "full of game that emitted sounds with movement"; this contradicts option 1.

The last sentence from the "5.30 pm" extract of the passage, which provides details of the judge's countryside adventure, states explicitly that "One thing was always missing....(the judge) returned with - *Nothing!*". This makes option 2 obvious.

The data mentioned in option 3 is a misinterpretation of the data in the passage.

Option 4 contradicts the data mentioned

in the passage.

Hence, the correct answer is **option 2.**

34. The "8.30 am" extract of the passage states "Farms were growing less...was in debt to the bania.", which helps in zeroing-in on option 1.

The data mentioned in option 2 is logically inconsistent.

The data mentioned in options 3 and 4 do not find a mention in the passage, nor can they be inferred.

Hence, the correct answer is **option 1.**

35. "Lariat" means 'a long noosed rope used to catch animals and livestock'.

"Brood" means 'a breed, species, group or kind.'

"Flock" means 'a large group'.

"Flight" means 'a group of flying birds'.

All the options except option 1 are collective nouns.

Hence, the correct answer is **option 1.**

36. Statement A is incorrect, because it says that Garibaldi's relationship with King Charles Albert "greatly improved" after 1849. The passage does not support this, as it is mentioned that "...the King appeared to dislike him (Garibaldi) instantly." Eliminate this option.

Statement B can be eliminated, as it mentions "*Spanish* flotilla", whereas the passage contradicts this with its mention of an "Austrian flotilla".

Statement C can be eliminated, as the passage states that "...(Garibaldi) faced some 17,000 Austrians and Tuscans in the north, 30,000 Neapolitans and Spanish in the south, and 40,000 French in the west". This adds up to 87,000 soldiers, as opposed to 80,000 foreign soldiers mentioned in this statement.

Statement D is the correct statement, as it is mentioned in the third-last paragraph of the passage.

Hence, the correct answer is **option 4.**

37. Statement A is incorrect, because it mentions that the King of Naples bombed Milan and was hence, given the name 'King Bomba'. According to the passage, he was given this name after the bombing of Messina.

Statement B is incorrect, because according to the passage Garibaldi positioned his army near Janiculum Hill during the defence of Rome from French troops. This option mentions Austrian troops and can therefore, be eliminated.

Statement C is correct, as it is mentioned verbatim in the last paragraph of the passage.

Statement D is incorrect, because according to the passage Giuseppe Mazzini was the leader of the republicans and not the moderates.

Hence, the correct answer is **option 3.**

38. Charles Albert was the King of Piedmont.

Ferdinand II was the King of Naples.

Louis Philippe was the King of France.

Grand Duke belonged to Tuscany.

Hence, the correct answer is **option 1.**

39. The passage states that Garibaldi "...and his faithful companion Leggero escaped...towards Ravenna".

Hence, the correct answer is **option 2.**

40. Statement A is incorrect, because the passage mentions that the Pope had taken refuge with the King of Naples, not Piedmont.

Statement B is correct, since the third paragraph of the passage mentions that Mazzini and the republicans suspected that Garibaldi may have had "...a deal with the monarchy."

Statement C is correct, since the passage states that "Garibaldi boldly wanted to carry the fight down into the Kingdom of Naples, but Mazzini...ordered him back to the capital...". The paragraph preceding this chronicles the fighting at Castelli Romani.

Statement D is correct, since the passage mentions that "...Prince Louis Napoleon of France despatched an army...under General Oudinot to the port of Civitavecchia...". The previous paragraph mentions that Rome had just been declared a Republic.

Hence, the correct answer is **option 1.**

41. The question stem requires a correct statement.

Option 2 is contrary to the data provided in the passage. Risk level goes up as credit ratings go down - as is stated in the concluding lines of paragraph 9.

Bank of Baroda shrank its loan book by 1.97% and not less than 1% as stated in option 3.

PNB in last year same quarter grew in its loan book and did not decline as the comparison suggests in option 4.

Option 1 is substantiated by data provided in option 3 & 4.

Hence, the correct answer is **option 1.**

42. The question stems asks for what 'cannot be concluded'

Option 1 has been stated in the opening lines of paragraph 1- "...in the first quarter, loan demand is not quite robust.".

Option 2 has been stated verbatim in paragraph 9.

Option 4 has been stated verbatim in the opening lines of paragraph 6.

Option 3 is contradicted by the statement made by SBI chief Mr Bhattacharya "...we actually did not get good fresh proposals in the quarter" in the concluding lines of paragraph 5.

Hence, the correct answer is **option 3.**

43. All the 3 options have been mentioned verbatim in paragraphs 9, 10, 11 of the passage.

Hence, the correct answer is **option 4.**

44. $10 billion in statement III connects with "Big as that is, it's considerably less than $15 billion..." in statement II.

Statement I connects with cratered business of Microsoft with "But Milner's enthusiasm..." in statement IV.

These links are found only in option 3.

Hence, the correct answer is **option 3.**

45. "I have not played Shubert..." in IV connects with "My violin misses him..." in II.

"...we enter my soundproof cell" in II connects with "No light, no sound comes in..." in I.

The paragraph ends with statement III.

Hence, the correct answer is **option 4.**

46. "Decrepit" is the correct spelling.

Hence, the correct answer is **option 1.**

47. "Perceive", "Believe" have been spelled correctly.

Hence, the correct answer is **option 2.**

48. "Chivalry' is formal and courteous behaviour. "Solicitude" is 'having concern or care'. In the given context, solicitude fits better.

The correct spelling is the one given in option 3.

Hence, the correct answer is **option 3.**

49. The doctor dodged the patient's question and hence "prevarication" meaning 'avoidance; moving away from the whole truth', fits in the sentence.

"Insinuation" is 'an indirect suggestion or hint'.

"Perambulation" is 'to walk or travel about'.

"Abrogation" is 'to abolish, annul, repeal'.

Hence, the correct answer is **option 1.**

50. Options 1 and 2 can be eliminated, since they use the preposition "for". The workers 'hope *to* exchange...' would be correct construction.

Option 3 is incorrect, because it contains a redundancy: "...*new* assignments that will be *new*...".

Option 4 is correct, since it contains the correct preposition "to" and has no redundancies.

Hence, the correct answer is **option 4.**

51. Option 1 is incorrect, since it has an error in parallelism: "Face Wash *did*" ends in a verb while "Anti-Ageing cream *sales*" ends in a noun.

Option 2 is incorrect, since it has an error in parallelism: "Face Wash *sold*" ends in a verb while "Anti-Ageing cream *sales*" ends in a noun. Also, it is missing the possessive pronoun "their" before Anti-Ageing cream sales.

Option 3 is correct, since the two parts of the sentence are parallel (both nouns).

Option 4 is incorrect, since it is missing the possessive pronoun "their" before Anti-Ageing cream sales were.

Hence, the correct answer is **option 3.**

52. A "mumble" is 'something that is said indistinctly and quietly'. Similarly, a

"scribble" is 'something that is written or drawn illegibly'.

None of the other options show the same relationship. All display an antonymous relationship.

Hence, the correct answer is **option 3.**

53. We can "ruffle" a person's "equanimity", meaning to 'disorder or disarrange' his 'calmness and composure'. Similarly, we can "disturb" the "balance" of something, meaning to 'interfere' with the 'equilibrium and stability' of something.

The other options do not display the same relationship.

Hence, the correct answer is **option 2.**

54. We can immediately eliminate option 3, since sentence fragment i cannot logically follow sentence 1.

Option 1 has the thread iv-ii-v which reads as 'you squandered more than half of your capital in seed financing'. This is illogical, because we do not say that a person "squanders" (meaning to waste in a reckless and foolish manner) money in a business. Eliminate this option.

Option 2 does not contain the crucial link of iv-ii: 'you squandered more than half your capital'. Therefore, it can be eliminated.

Option 4 reads as 'Having started with just $5.8 million in seed financing you squandered more than half of your capital in less time than it takes to soft boil an egg'. This is logical.

Hence, the correct answer is **option 4.**

55. Three crucial links can be identified: iv-ii which reads as 'you would get extra fun and be reinstated in the same position' (since we say that a person is 'reinstated in a certain position'), ii-v which reads as 'in the same position as the one who had done nothing', and v-i which reads as 'as the one who had done nothing who now had both to suffer the crime'.

The only option containing these three links is option 4. The other options make illogical sentences.

Hence, the correct answer is **option 4.**

56. Statement A is incorrect because of a tense error. The correct sentence should be 'I forgot that they *were* coming today.'

Statement B is correct. When the subordinate clause starts with the conjunction "than", any tense can be used in the subordinate clause- even if the principal clause uses the past tense.

Statement C is incorrect because of an error in parallelism. The adjective "challenging" should be balanced with an adjective 'inspiring' or the noun "inspiration" should be balanced with the noun 'challenge'.

Statement D is incorrect because of a prepositional error. The preposition "to" is erroneously used in this sentence. The correct sentence should be 'She is confident of speaking in English within six months' / 'She is confident of being able to speak in English within six months'.

Hence, the correct answer is **option 2.**

57. Statement A is incorrect because of tense error. The correct construction should be '...believed to have fled the country.'

Statement B is incorrect due to error in parallelism. All the nouns should be preceded by the preposition 'by'.

Statement D is incorrect because of the missing preposition 'for'. The correct construction should be '...but not for my neighbour.'

Hence, the correct answer is **option 3.**

58. "Expiate" means 'make amends or reparation for (guilt or wrongdoing)'.

"Banish" means 'send (someone) away from a country or place as an official punishment.'

"Exile" means 'expel and bar (someone) from their native country, typically for political or punitive reasons'.

"Expatriate" means 'to send a person abroad or outside their native country'.

Therefore, the correct answer is **option 1.**

59. "Conciseness" means 'expressing or covering much in few words '.

"Succinctness" means 'briefly and clearly expressed'

"Brevity" means 'concise and exact use of words in writing or speech'.

Therefore, all the three words mean 'using few words for expression'.

"Circumlocution" means 'the use of many

words where fewer would do '.
Therefore, the correct answer is **option 2.**

60. Using the adverb 'great' to describe a fall would make the sentence illogical. Option 1 can be eliminated on that basis.

An apt adverb to describe a "fall" from among the given options would be option 2 'hard', as it describes the impact of the fall.

Options 3 and 4 can be eliminated on the basis that an adverb/adjective of the comparative degree is required to maintain parallelism in the sentence.

Hence, the correct answer is **option 2.**

61. Option 4 "out of" helps in completing the idiom 'to frighten the life out of someone', which means 'to make someone very frightened'.

The rest of the options do not help in completing the idioms and can be eliminated on that basis.

Hence, the correct answer is **option 4.**

62. The possible words that can be made taking into consideration the conditions and the letters provided above are :
"Late"
"Tale"
"Teal" which is 'a medium to dark greenish colour'.
"Teat" means 'the milk ducts of a mammal'.
"Teel" which means 'a sesame plant'.
Thus, it can be said that "at least 5" words can be formed.
Hence, the correct answer is **option 2.**

63. The possible words that can be made taking into consideration the conditions and the letters provided above are :
"Hate"
"Neat"
"Heat"
"Than"
"Heathen" which means 'an irreligious person'.
"Ethane" is a type of a gas.
"Heath" which means 'an open or uncultivated portion of land'.
"Ante" means 'an amount of money paid in advance'.
Hence, the correct answer is **option 3.**

64. The Sarangsh's 25th birthday was on January 26, 2008. Hence, his age on August 31, 2014 was 31.
Since, 25 ≤ Candidate's Age ≤ 30, Sarangsh cannot be selected.
Hence, **option 2.**

65. Nalin's age is 28, which is acceptable. Hence, I is satisfied.
Since he scored 61% in graduation, II is satisfied.
He worked at an NGO for 2 years, which is not relevant experience.
He completed his PG diploma in Journalism with 59% marks. Hence, III is satisfied.
He then worked for *Ahmadabad Weekly* magazine for more than 3 years till August 2014. However, even this experience is not relevant as he was supposed to work for a newspaper and not a magazine.
It can be seen that he satisfied only 2 conditions from II – V.
He has not cleared V, nor does he have 5 years of experience in a news agency.
Hence, Nalin cannot be selected.
Hence, **option 2.**

66. Geetika celebrated her 24th birthday while she was studying at Allahabad i.e. between the years 2010 to 2012.
Her birthday can at most be in December 2012. If she celebrates her birthday in December 2012, her age in August 2014 is 25, which is acceptable.
Her birthday must be celebrated earliest by January 2010. Hence, her age in August 2014 will be 28, which is acceptable.
Hence, I is satisfied.
She scored 58% in graduation. Hence, II is not satisfied.
She scored 82% in PG diploma. Hence, III is satisfied.
She worked at an English news daily *The New Dawn* from September 2012. Hence, her work experience is 1 month short of the required 2 years of experience. Hence, IV is not satisfied.
Since she received a state-level award for her series of articles, V is satisfied.
2 out of (II-V) conditions are satisfied.

Since II is not satisfied, but she has 82% in PG Diploma in journalism, her case will be referred to the Chairman.

Hence, **option 3.**

67. Manjeet was born on September 5, 1988. His age in August 2014 is 25. Hence, I is satisfied.

He scored 68% in graduation. Hence, II is satisfied.

He scored 10 percentage points less than what he scored in graduation in PG diploma i.e. 58%. Hence, III is satisfied.

Manjeet worked at a data analytics firm from July 2010 till January 2012.

Hence, from January 2012 to August 2014 i.e. for more than 2 years, he worked for an English daily *Financial Standard*.

Hence, IV is also satisfied.

Since 3 conditions other than I are satisfied.

Manjeet can be selected.

Hence, **option 1.**

68. The 2nd and 4th alphabets are constant.

For 1st letter: E + 2 = G, G + 2 = I, I + 2 = K, K + 2 = M

Similarly, 3rd letter: F + 2 = H, H + 2 = J, J + 2 = L, L + 2 = N

Hence, **option 4.**

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69. From (ii), (viii) and (x), it can be observed that Ravi studies Computer Science and is the student-in-charge of the Mess activity. He is the only student to stay at Satpura.

From (ix), it can be seen that two students stay at the Aravalli hostel. Hence, two students must also stay at the Vindhya hostel.

From (i) and (ix), it can be seen that students from Nagpur and Patna stay in Aravalli hostels. The student from Nagpur must study Mechanical Engineering.

From (xiii), the student from Kochi stays at Vindhya and the student-in charge of Placement must stay at Vindhya.

From (iv) and (vi), the students who are in-charge of Sports and Cultural activities stay at the Aravalli hostels. Also, the student from Allahabad does not stay with the student-in charge of the Cultural Activity. Hence, he must stay with the student who stays in Vindhya. From (xi), it is known that there is a General Secretary of the Student Body. The General Secretary must stay in the Vindhya hostel. From (xiii), it can be seen that the General Secretary is from Kochi.

The following table summarizes the above points,

Hostel	Student	Hometown	Branch	Activity
Aravalli		Nagpur	Mechanical Engineering	Sports/Cultural
Satpura	Ravi	Jodhpur	Computer Science	Mess
Aravalli		Patna		Sports/Cultural
Vindhya		Allahabad		Placement
Vindhya		Kochi		General Secretary

Consider the student from Nagpur.

From (i), (iii) and (xi), Abhishek, Hemant and Hardeep do not stay at Nagpur.

It is known that Abhishek does not stay at Aravalli (From (i)). From (xi), Hemant studies Chemical Engineering. Hence, it cannot be Hemant. From (iii), Hardeep does not study Mechanical Engineering. Hence, it cannot be Hardeep as well.

Hence, only Sanjoy is from Nagpur.

From (vii), Sanjoy is not the in-charge of Cultural activity. Hence, he must be in charge of the Sports activity. From (v), Sanjoy stays with the student who studies Metallurgy. Hence, the student from Patna studies Metallurgy.

From (xi), Hemant is not from Kochi and studies Chemical Engineering. Hence, Hemant is the in-charge of the Placements. From (i), Abhishek is from Kochi and studies Civil Engineering.

Hence, Hardeep must study Metallurgy.

The final arrangement can be shown as follows,

Hostel	Student	Hometown	Branch	Activity
Aravalli	Sanjoy	Nagpur	Mechanical Engineering	Sports
Satpura	Ravi	Jodhpur	Computer Science	Mess
Aravalli	Hardeep	Patna	Metallurgy	Cultural
Vindhya	Hemant	Allahabad	Chemical Engineering	Placement
Vindhya	Abhishek	Kochi	Civil Engineering	General Secretary

From the above arrangement, it can be seen that statements I, II, III are incorrect.
Hence, **option 2.**

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70. From the above arrangement, it can be seen that only statement III is correct.
Hence, **option 3.**

71. The student from Allahabad is studying Chemical Engineering.
Hence, **option 4.**

72. The General Secretary belongs to Kochi.
Hence, **option 3.**

73. Considering the options,
On Monday, windows W1 and W4 were open at 9:45 AM.
On Wednesday, windows W1, W2 and W5 were open at 9:45 AM.
On Thursday, windows W1 and W2 were open at 9:45 AM.
On Friday, only W2 was open at 9:45 AM.
Hence, **option 2.**

74. From the solution to the previous question, it can be seen that multiple windows were open at 9:45 on Monday and Wednesday. Hence, options 1 and 2 are eliminated.
On Friday, W1 is open between 3:00 PM and 5:00 PM and W5 is open between 3:30 PM and 5:30 PM. Hence, option 3 is eliminated.
Hence, **option 4.**

Note: Once the first three options have been eliminated, there is no need to check whether multiple windows are open on Saturday. However, it can be independently verified.

75. Considering the options,
On Wednesday,
W1 is open between 9:30 AM to 2:30 PM.
W2 is open between 8:30 AM to 11:30 AM.
Hence, there is at least one window open between 8:30 AM to 2:30 PM.
W3 is open between 10:00 AM and 12:30 PM. W4 is open between 3:30 PM to 5:30 PM.
W5 is open between 8:00 AM and 10:00 AM.
Hence, a gap of one hour exists between 2:30 PM and 3:30 PM.
Hence, **option 1.**

Note: Once the answer has been determined as Wednesday, it is not required to verify the remaining options as well.

76. The order in which the (CEOs, MDs) combinations spoke can be given as
1 - (Mr. D'Souza, Mr. Arora), 2 - (Mr. Puri, Mr. Karare), 3 - (Mr. Sethi, Mr. Tandon) and 4 - (Mr. Bisht, Mr. Reddy)
It can be seen that Mr. Puri spoke before Mr. Reddy.
Hence, **option 3.**

77. Mr. D'Souza was the first CEO to speak overall. Mr. Bisht was the second CEO to speak overall.

The order in which the (CEOs, MDs) combinations spoke can be given as
1 - (Mr. D'Souza, Mr. Arora),
2 - (Mr. Bisht, Mr. Reddy)
3 - (Mr. Sethi, Mr. Tandon) or (Mr. Puri, Mr. Karare)
4 - (Mr. Puri, Mr. Karare) or (Mr. Sethi, Mr. Tandon)
Thus, it is not possible to determine which CEO spoke last.
Hence, **option 4.**

78. Assumption I is not implicit, since it states that 7% GDP growth is not feasible while the passage mentions that it is "very much attainable".

Assumption II is implicit, since the passage does say that in order to attain a target GDP growth rate, there must be an increase in capital formation rate. Therefore, the two are directly related.

Assumption III is not implicit, since we cannot assume that there are no other indicators of a country's economic development besides the GDP growth rate. The passage provides no basis for such an assumption.

Since there is no option for 'Only II', we select option 4.

Hence, the correct answer is **option 4.**

79. Outcome I does not follow; just because mineral water will be sold at a cheaper rate by the city council, this does not mean that all private companies selling bottled mineral water will close down altogether.

Outcome II does not follow; since their increased sales will probably more than make up for any losses incurred due to lower prices.

Outcome III does not follow; it is ludicrous to assume that people will be willing to do away with normal tap water just because mineral water is being sold at a somewhat reasonable rate.

Hence, the correct answer is **option 1**.

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80. The following pattern can be observed:

Step 1: The first two words of the input are swapped with each other. The next two are swapped and so on.

Step 2: Considering the sequence obtained after Step 1, the resulting sequence will have the following pattern:
change **constant** change **constant constant** change **constant constant** change **constant**
Once the constants have been determined, the first two words from the remaining words can be chosen and swapped with each other and so on.

Step 3: Considering the sequence obtained after Step 2, the resulting sequence will have the following pattern:
constant change **constant** change **constant constant constant** change **constant** change
It can be seen that only four words are changing. The first two words must be chosen and the last two words must be chosen. Both the pairs must now be swapped with each other.

Step 4: The first two words of the output from Step 3 are swapped with each other. The next two are swapped and so on.
Considering the input provided, the following output will be obtained:

Input	don't	cry	because	it's	over	smile	since	it	actually	happened
S1	cry	don't	it's	because	smile	over	it	since	happened	actually
S2	it's	don't	cry	because	smile	happened	it	since	over	actually
S3	it's	since	cry	actually	smile	happened	it	don't	over	because
S4	since	it's	actually	cry	happened	smile	don't	it	because	over

Hence, **option 3.**

81. Considering the pattern described in the previous solution, the following input can be obtained:

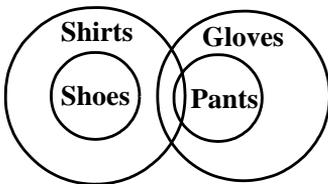| Input	flower	star	rock	sea	ball	moon	dog	home	school	ice
S1	star	flower	sea	rock	moon	ball	home	dog	ice	school
S2	sea	flower	star	rock	moon	ice	home	dog	ball	school
S3	sea	dog	star	school	moon	ice	home	flower	ball	rock
S4	dog	sea	school	star	ice	moon	flower	home	rock	ball

Hence, **option 1.**

82.
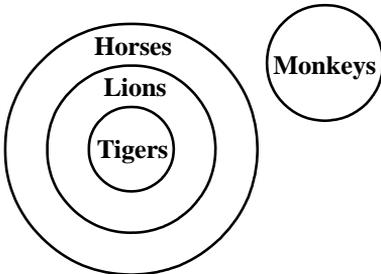
It can be seen from the diagram that all conclusions follow.
Hence, **option 1.**

83.

From the above diagram, conclusions I, IV do not follow.
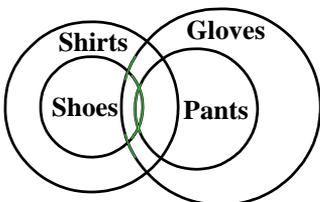
From the above diagram, III does not follow.
Hence, only II follows.
Hence, **option 1.**

84. Time taken to travel

$$= \frac{\text{Distance}}{\text{Speed of available mode of transport}}$$

Considering the options, we have the travel times for (Mumbai – Kanyakumari, Bhubaneshwar – Chennai, Chennai – Kochi, Mumbai – Chennai) as,

$$\frac{950}{40}, \frac{950}{30}, \frac{901}{30}, \frac{1000}{30}$$

It can be observed that $\left(\frac{950}{40}\right)$ has the least value.
Hence, **option 1.**

85. Cost of travel = Distance × Cost per KM of available mode of transport
Considering the cost of travel in each option.

Option 1: (701 × 2) + (798 × 5)
≈ 1400 + 4000 = 5400

Option 2: (1000 × 1.5) + (901 × 1.5)
≈ 1900×1.5 = 2850

Option 3: (950 × 2) + (1100 × 2.5)
= 1900 + 2750 > 2850

Option 4: (500 × 5) + (600 × 5) > 2850
Hence, **option 2.**

86. Observe that on a per-km basis, ship is the cheapest and airplane is the costliest. Hence, between the given cities, try to select the order of travel such that most of the journey is done by ship, followed by bus, then train and so on.

The overall route to be followed is:
Chennai – city 1 – city 2 - city 3 - Chennai
Chennai is connected to Kanyakumari and Vizag by train and to Bhubaneshwar by ship.
Among the three given cities, Kanyakumari is also the farthest from Chennai.
Hence, Chennai to Kanyakumari is always costlier than Chennai to the other two cities.
Hence, those two cities should be the first and last to be visited (in any order, due to the symmetry of the journey) while Kanyakumari should be visited between the two, as shown below.
Chennai → Vizag/Bhubaneshwar → Kanyakumari → Bhubaneshwar/ Vizag → Chennai

Now, find individual costs:
Chennai – Vizag: (300 × 2.5) = 750
Chennai – Bhubaneshwar: (950 × 1.5) = 1425
Vizag – Kanyakumari: (250 ×1.5) = 375
Kanyakumari – Bhubaneshwar: (700 ×2.5) = 1750
The total cost is Rs. 4300/-.
Hence, **option 1.**

87. Considering the options, we have the travel times as,

$$\frac{950}{40}, \frac{700}{25}, \frac{701}{40}, \frac{1002}{25}$$

It can be observed that $\left(\frac{701}{40}\right)$ has the least value.
Hence, **option 3.**

88. Considering the cost in each option.
Option 1: (600 × 5) = 3000
Option 2: (901 × 1.5) + (300 × 2.5) ≈ 2100
Option 3: (1100 × 2.5) + (250 × 1.5) > 2100
Option 4: (300 × 2.5) + (500 × 5) > 2100
Hence, **option 2.**

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89. The given question requires the proportion of 'mergers' to 'acquisitions' for the entire period. Hence, the acquisitions table must be constructed and the sum of the mergers and acquisitions must be calculated. It can be shown as follows,

Mergers and Acquisitions

Sectors	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	Total
Food and Beverages	113	77	77	74	63	61	465
Textile	57	59	59	64	77	55	371
Chemicals	134	98	112	99	79	62	584
Drugs and Pharma	64	60	44	50	60	72	350
Cement	11	7	8	22	0	0	48
IT and Telecom	153	114	84	80	109	103	643
Diversified	15	8	13	4	7	5	52
Financial Services	194	201	160	116	193	177	1041
Other Services	297	280	287	281	271	293	1709
Misc Manufacturing	31	36	31	35	35	24	192
Non-Metallic Mineral Products	32	24	27	27	47	34	191
						Total	5646

Mergers

Sectors	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	Total
Food and Beverages	17	23	10	19	20	8	97
Textile	7	7	8	11	21	23	77
Chemicals	27	15	12	23	24	15	116
Drugs and Pharma	6	17	14	10	15	12	74
Cement	0	2	1	3	0	0	6
IT and Telecom	19	19	13	16	17	12	96
Diversified	1	0	1	0	0	0	2
Financial Services	91	107	87	41	75	51	452
Other Services	90	92	105	81	61	83	512
Misc Manufacturing	3	13	0	4	11	3	34
Non-Metallic Mineral Products	3	5	1	5	8	11	33
Total	264	300	252	213	252	218	1499

It must be noted that the overall sum can be calculated by calculating the individual sums either year wise or sector wise for this question. There is no need to calculate both.

Acquisitions

Sectors	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	
Food and Beverages	96	54	67	55	43	53	
Textile	50	52	51	53	56	32	
Chemicals	107	83	100	76	55	47	
Drugs and Pharma	58	43	30	40	45	60	
Cement	11	5	7	19	0	0	
IT and Telecom	134	95	71	64	92	91	
Diversified	14	8	12	4	7	5	
Financial Services	103	94	73	75	118	126	
Other Services	207	188	182	200	210	210	
Misc Manufacturing	28	23	31	31	24	21	
Non-Metallic Mineral Products	29	19	26	22	39	23	Total
Total	837	664	650	639	689	668	4147

$$\frac{\text{Total Mergers}}{\text{Total Acquisitions}} = \frac{1499}{4147} \times 100 = 36\%$$

Hence, **option 2.**

90. Considering the sector-wise sums of Mergers and Acquisitions and Mergers, the following relation must be considered.

$$\frac{\text{Total number of Mergers for the sector}}{\text{Total number of Merger and Acquisitions for the sector}} \geq 0.2$$

It can be expressed as,
5(Total number of Mergers for the sector) ≥ (Total number of Mergers and Acquisitions for the sector)

The above relation is satisfied for 5 sectors i.e. Food and Beverages, Textile, Drugs and Pharma, Financial Services and Other Services.
Hence, **option 4.**

Note: It can be seen that the acquisitions table was not required for this question. Hence, this question could have been attempted even without constructing the acquisitions table.

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91. This is completely an observation based question. The values for each sector from the first three columns and the last three columns of the 'Mergers' table only need to be considered. If the sum of the values of the first three columns is higher than that of the last columns, that sector showed greater merger activity in the first three years. If each individual value for a sector in a year is greater for the first three years than for the last three years, then the sums also need not be calculated.
It can be seen that the values increased for 5 sectors including Food and Beverages, IT and Telecom, Diversified, Financial Services and Other Services.
Hence, **option 4.**

92. Turbulence from 2001-02 to 2006-07 = |Number of mergers in 2001-02 – Number of acquisitions in 2001-02| + |Number of mergers in 2002-03 – Number of acquisitions in 2002-03| + … + |Number of mergers in 2006-07 – Number of acquisitions in 2006-07|
It can be seen that the overall sum of mergers and acquisitions can be calculated to find the required value of turbulence.
Turbulence from 2001-02 to 2006-07 = |Total Number of mergers in 2001-07 – Total Number of acquisitions in 2001-07|
Considering the values of Mergers for Other services, it can be seen that the number of acquisitions is 1197. The corresponding sum for mergers is 512. The difference between the two is 685.
On calculating the total number of acquisitions for the remaining options, it can be seen that the rest of the values are < 685, and will decrease further when the number of mergers is subtracted from each of them.
Hence, Other Services had the maximum turbulence.

Hence, **option 4.**

93. Observe the acquisitions table. It can be seen that maximum number of sectors exhibited higher number of acquisitions compared to the previous year in 2005 – 2006.
Hence, **option 3.**

94. Note that "nuclear energy" and "others" has not been imported.
From Chart 1, the consumption of coal, crude oil, natural gas and hydro electricity are 540, 290, 80 and 50 MTOE respectively.
From Chart 2, for the year 2010, the corresponding growth rates in consumption are 15%, 10%, 5% and 10% respectively.
And from Chart 3, for the year 2010, the corresponding percentages of imports are 25%, 50%, 50% and 5% respectively.
∴ The total import of energy in the year 2010 = 540×1.15×0.25 + 290 × 1.1 × 0.5 + 80 × 1.05 × 0.5 + 50 × 1.1 × 0.05
= 359.5 MTOE
Hence, **option 3.**

95. As seen in the previous question, the import of natural gas in the year 2010 = 80 × 1.05 × 0.5 = 42 MTOE.
From Chart 2, the consumption of natural gas in the year 2012
= 80 × 1.05 × 1.1 × 1.05 = 97.02 MTOE.
Using Chart 3, the import of natural gas in the year 2012 = 97.02 × 0.3 = 29.11 MTOE
Thus, the import of natural gas has reduced by approximately 13 MTOE.
Hence, **option 2.**

96. The total consumption of crude oil in 2011 = 290 × 1.1 × 1.1 = 350.09 MTOE
From Chart 3, we can see that crude oil imported was 45% of the total consumption in the year 2011.
∴ Domestic production = 55% of the total consumption
⇒ 350.09 × 0.55 = 192.55 MTOE

Hence, **option 2.**

97. The total consumption of energy in the year 2012 = 540 × 1.15 × 1.1 × 1.15 + 290 × 1.1 × 1.1 × 1.15 + 80 × 1.05 × 1.05 × 1.1 + 20 × 1.2 × 1.15 × 1.1 + 50 × 1.1 × 1.05 × 1.1 + 20 × 1.15 × 1.15 × 1.1
= 1409.1 MTOE

The consumption of coal in the year 2012 = 540 × 1.15 × 1.1 × 1.15 = 785.56 MTOE

The proportion of coal in the total domestic consumption

= 785.56/1409.1 × 100 = 55.75%

Hence, **option 4.**

98. The domestic production of nuclear energy in 2011 = 20 × 1.2 × 1.15
= 27.6 MTOE

The domestic production of hydro electricity in 2011 = 50 × 1.1 × 1.05 × 0.95
= 54.86 MTOE

∴ Sum of the approximate domestic production of nuclear energy and hydro electricity in 2011

= 27.6 + 54.86 = 82.46 MTOE

Hence, **option 2.**

99. Radius of $P_1 = r \Rightarrow A(P_1) = \pi r^2$

Diameter = $d = 2r$

Side of $Q_1 = \dfrac{2r}{\sqrt{2}} = r\sqrt{2} \Rightarrow A(Q_1) = 2r^2$

Radius of $P_2 = \dfrac{r\sqrt{2}}{2} = \dfrac{r}{\sqrt{2}} \Rightarrow A(P_2) = \dfrac{\pi r^2}{2}$

Side of $Q_2 = (r/\sqrt{2}) \times \sqrt{2} = r \Rightarrow A(Q_2) = r^2$

… and so on.

i. e., Areas of circles are in G. P. with

common ratio $= \dfrac{1}{2}$

Also, areas of squares are in G. P. with

common ratio $= \dfrac{1}{2}$

$S_N = Q_1 - P_2 + Q_2 - P_3 + Q_3 - P_4 + ...$

$= (Q_1 + Q_2 + Q_3 + ...) - (P_2 + P_3 + P_4 + ...)$

$= 2r^2\left(1 + \dfrac{1}{2} + \dfrac{1}{4} + ...\right)$

$\quad - \dfrac{\pi r^2}{2\left(1 + \dfrac{1}{2} + \dfrac{1}{4} + ...\right)}$

$= \left(1 + \dfrac{1}{2} + \dfrac{1}{4} + ...\right)\left(2r^2 - \dfrac{\pi r^2}{2}\right)$

$= r^2 \times \left[\dfrac{1}{1 - \frac{1}{2}}\right] \times \dfrac{4 - \pi}{2}$

$= (4 - \pi)r^2$

$S_N : A(Q_1) = (4 - \pi)r^2 : 2r^2 = (4 - \pi)/2$

Hence, **option 1.**

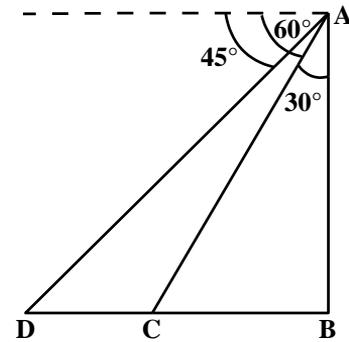100. $(1 + 2 + 3 + ... + n) - x = 1200$

Where, x is the roll number of the student who got twice as many as compared to his entitlement.

$n(n + 1)/2 = 1200 - x \Rightarrow n(n + 1) = 2400 - 2x$

Substituting values of x from options, only for $x = 24$, the RHS can be expressed as a product of two natural numbers.

Hence, **option 2.**

101.

When the boat was at C, the angle of depression = 60° ⇒ m∠ BAC = 30°

When the boat was at D, the angle of depression = 45° ⇒ m∠DAB = 45° ⇒ BD = AB = 210 m

In ΔABC, by theorem of 30° – 60° – 90°,
BC = $70\sqrt{3} \approx 121.1$

DC ≈ 210 – 121.2 = 88.8 m

Speed of the boat = 3 km/ hr = 50 m/min

Time taken = 88.8/ 50 = 1.776 minutes

Hence, **option 4.**

102. Zinc in alloy Z $= 40 \times \dfrac{6}{15} + 60 \times \dfrac{7}{18}$

$= \dfrac{118}{3}$

Copper in alloy Z $= 40 \times \dfrac{9}{15} + 60 \times \dfrac{11}{18}$

$= \dfrac{182}{3}$

Ratio of Zinc and Copper in Z = 118 : 182 = 59 : 91

Hence, **option 2.**

103. Let the length of each side of the hexagon be y.

Area of the hexagon $= \dfrac{3\sqrt{3}}{2} y^2$

Area of the triangle $= \dfrac{\sqrt{3}}{16} y^2$

Area of the shaded region $= \dfrac{23\sqrt{3}}{16} y^2 = X$

$y^2 = \dfrac{16}{23\sqrt{3}} X$

Area of the circle $= \pi y^2$

Thus, area of the circle in terms of X

$= \dfrac{16\pi}{23\sqrt{3}} X$

Hence, **option 1.**

104. Let the present age of Ravindra and Rekha be R_v and R_e respectively.

$\dfrac{R_v - 10}{R_e - 10} = \dfrac{5}{4}$

$R_v = (1 + 1/6)R_e$

Solving these equations, we get $R_v = 35$ and $R_e = 30$

Maximum age of a child = 9 years (10 year after marriage)

To maximize the age of family,

Age of triplets = 9 years, twins = 6 years and sixth child = 3 years

Age of the family = 35 + 30 + (9 × 3) + (6 × 2) + 3 = 107

Hence, **option 4.**

105. Selecting a girl from section A and section B is 1/4 and 4/9 respectively.

Selecting a boy from section A and section B is 3/4 and 5/9 respectively.

Case 1: A girl from section A and a boy from section B.

$P_1 = (1/4) \times (5/9) = 5/36$

Case 2: A boy from section A and a girl from section B.

$P_2 = (3/4) \times (4/9) = 12/36$

Required probability $= P_1 + P_2 = 17/36$

Hence, **option 4.**

106. Total volume, V = 40 litres

Volume replaced, v = 10 litres

Number of replacements = 4

Pure milk in the mixture after 4 replacements $= [(40 - 10)/ 40]^4$

Pure milk in 10 litres of the mixture

$= 10 \times (3/4)^4 = 405/128$

Hence, **option 4.**

107. It will take 4.5 hours to enter 45 more gallons into the ferry.

Now, the distance yet to be travelled is 70 km towards the rock and 100 km back to Kanyakumari.

We can check that only values of option 3 gives the speed at which the driver should drive the ferry so that it can reach Kanyakumari just in time before the ferry sinks.

Hence, **option 3.**

108. The given sum is

$1 - \dfrac{1}{6} + \dfrac{1}{6} \times \dfrac{1}{4} - \dfrac{1}{6} \times \dfrac{1}{4} \times \dfrac{5}{18} \dots \dots$

$1 - \dfrac{1}{6} = \dfrac{5}{6}$

Observe that the sum of further terms will be positive.

Hence, the sum will be greater than 5/6 i.e. 0.833.

Also, if we add the 2nd and 3rd term, 3rd and 4th term, and so on, we can see that each of these terms are negative.

∴ The sum is less than 1.

The only option that satisfies this is $\dfrac{\sqrt{3}}{2}$.

Hence, **option 4.**

109. $\log_7 \log_7 \sqrt{7(\sqrt{(7\sqrt{7}\,)}\,)} = \log_7 \log_7 7^{\frac{7}{8}}$

$= \log_7 \dfrac{7}{8} = 1 - 3\log_7 2$

Hence, **option 4.**

110. The length of the ladder is 13 metres.

Thus, for the cases given in the question, the height is given as 8 metres and 12 metres and the hypotenuse will be 13 metres for both cases.

Thus, by Pythagoras theorem, the width of the street $= 5 + \sqrt{105} = 15.2$ metres

Hence, **option 3.**

111. The total number of 8-digit landline telephone numbers that can be formed having at least one of their digits repeated = The total number of 8-digit landline numbers − The number of 8-digit landline numbers in which no digit is repeated.

The total number of 8-digit landline numbers = 10^8

The number of 8-digit landline numbers in which no digit is repeated = 10!/2

∴ Number of required landline numbers = 98185600

Hence, **option 1.**

112. Using the data we can have following Venn diagram.
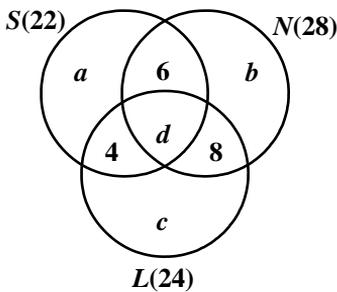
From the given data, we can form the following equations:

$a + b + c + d = 42 – 18 = 24$

$\Rightarrow a + b + c + d = 24$ ... (i)

$a + b + c + 2(18) + 3d = 22 + 28 + 24 = 74$

$\Rightarrow a + b + c + 3d = 42$ ... (ii)

Solving (i) and (ii), $d = 7$

∴ $6 + 7 + 8 + b = 28 \Rightarrow b = 7$

Hence, **option 4.**

113. Investment doubles in 72/6 = 12 years

So, in 48(= 12 × 4) years, the investment becomes 2^4 times.

∴ The approximate total value of the investment (in INR)

= 16 × 3000000 = 4,80,00,000

Hence, **option 3.**

114. Volume of the cylinder = π × 6² × 24

= 864π cu. units

Diameter of the cylinder = 2 × 6 = 12 units

Side of the square base $= \dfrac{12}{\sqrt{2}} = 6\sqrt{2}$ units

Volume of the rectangular solid

$= \left(6\sqrt{2}\right)^2 \times 20 = 1440$ cu. units

∴ Volume of the cylinder = 844π – 1440

= 288(3π – 5) cu. units

Hence, **option 3.**

115. Let engineering student collects fund of Rs. X on one day.

Number of students collecting funds on:

First day = 1

Second Day = 1 + 2

...

Twentieth day = 1 + 2 + 3 + 4 ... + 20

Total collection = [1 + (1 + 2) + (1 + 2 + 3) + ... + (1 + 2 + 3 + ... + 20)] X

$= \sum_{i=1}^{20} \dfrac{n(n+1)}{2} = \dfrac{1}{2}\left\{\sum_{i=1}^{20} n^2 + \sum_{i=1}^{20} n\right\}$ ... (i)

$\sum n^2 = \dfrac{n(n+1)(2n+1)}{6}$ and

$\sum n = \dfrac{n(n+1)}{2}$

Thus, from equation (i),

Total collection

$= \dfrac{1}{2}\left\{\dfrac{20(20+1)(2\times20+1)}{6} + \dfrac{20(20+1)}{2}\right\}$

= 1540X

An MBA student collects 2X on a single day.

∴ Number of days required for 11 MBA students to complete the activity

= 1540X / 11 × 2X = 70

Hence, **option 1.**

116. 600 strips were given free to doctors.

Of 5400 strips, (4/5) × 5400 = 4320 strips were sold at 25% discount.

Revenue generated from these strips

= 250 × 0.75 × 4320 = Rs. 8,10,000

Revenue generated from (5400 – 4320 =) 1080 strips = 250 × 1080 = Rs. 2,70,000

Total revenue = Rs. 10,80,000

Vendor's discount = 30% of the total revenue.

∴ Total earning = 70% of 1080000

= Rs. 7,56,000

Loss = Rs. 44,000

% loss = 5.5

Hence, **option 3.**

117. Distance covered when the ball hits the ground the first time = 32 m

The ball covers 16 + 16 = 32 m more when it hits the ground 2nd time.

The ball covers $8 + 8 = 16$ m more when it hits the ground 3rd time.

And so on i.e., at the nth hit, the ball covers $32/2^{(n-2)}$ more distance.

Thus, at the 11th hit, the ball covers $32/2^9$ m more.

Thus, the total distance the ball covers when it hits the ground 11th time

$= 32 + 32(1 + ½ + ¼ + \dots 1/2^9)$

$= 32 + 32(1-1/2^{10})/(1-1/2) \approx 32 + 64$

$= 96$ m

Hence, **option 2.**

118. Selecting 3 males from 8 and 4 females from 7 can be done in $^8C_3 \times {}^7C_4 = 56 \times 35 = 1960$

Raj and Rani together cannot be in the committee.

Selection of both Raj and Rani can happen in $^7C_2 \times {}^6C_3 = 21 \times 20 = 420$

Required number of ways $= 1960 – 420 = 1540$

Hence, **option 3.**