



Section : Verbal Ability

QNo:- 1 ,Correct Answer:- A

Explanation:- The fourth paragraph is mainly talking about technology, law, and customs, and their similarities when these are regarded as institutions. Refer to lines: "*As an environment, technologieshuman nature.*"

QNo:- 2 ,Correct Answer:- C

Explanation:- Although the passage states that technologies, like laws and customs, shape their inhabitants by 'privileging certain dimensions of their human nature', it does not state that technologies do so 'at a high cost to live nature'. Option 3 cannot be inferred.

QNo:- 3 ,Correct Answer:- A

Explanation:- The passage's main idea is that, as an environment, technology shapes its inhabitants. It is rephrased in Option 1.

We eliminate option 2 based on the passage's final line.

The fourth paragraph makes it apparent that laws and customs reflect certain dimensions of people's inherent nature. Option 4 is thus eliminated.

Option 3 is false since it says that nature "decides" the point at which society loses its capacity to control history. However, according to the 2nd line of the last para, "nature is what lies at the limit of history".

QNo:- 4 ,Correct Answer:- B

Explanation:- The second paragraph argues that "the same pattern prevails" wherever masses are organised, whether in Foucault's prisons or Habermas's public sphere. The trend being discussed here is that even as human rights issues gain in importance, the social order gradually becomes more authoritarian. Option 3, which contends that Habermas' public sphere and Foucault's prisons set the patterns for how crowds are organised, is false.

QNo:- 5 ,Correct Answer:- A

Explanation:- Refer to the last para, "Additionally the Stoic idea.....Islam..." Hence, option 1 is true.



According to the 2nd para, the Epicureans believed in real relationships rather than unreal emotions. So, option 4 is incorrect.

Option 3 cannot be considered as true based on the passage. Option 1 is the exact opposite of what the passage says about Stoics.

QNo:- 6 ,Correct Answer:- B

Explanation:- Refer to para 1 of the passage. The only accurate inference that can be made from the example of Marcus Aurelius is that he was one of the leaders of the Roman army.

QNo:- 7 ,Correct Answer:- D

Explanation:- It is not implied by the given line that meditation allows "out-of-body" experiences.

On the other hand, it claims that by distancing oneself from emotions, one can determine what is valuable and what is not. Option 3 can thus be implied.

The passage also states that one's next action in relation to emotion is called a "second movement." This implies option 2.

The quoted line also states that one can observe emotions without reacting to them by engaging in meditation and adopting the proper attitude. Thus, experiences can be received in a passive manner. This implies that option 1.

So, only option 4 can't be implied from the quoted lines.

QNo:- 8 ,Correct Answer:- A

Explanation:- The question is tricky because it employs the use of a double-negative situation. Simplifying the question statement: A statement which, if false, contradicts the arguments of the passage is the one which, if true, supports the given arguments.

The passage's arguments are supported by Option 1. Refer to para 2, line 4. Hence, if option 1 were to be false, it would contradict the arguments in the passage.

QNo:- 9 ,Correct Answer:- E

Explanation:- According to the given line, the Undead are perceived as abnormal and given attributes that were unusual. The right answer is, therefore, Option 1.

QNo:- 10 ,Correct Answer:- B

Explanation:- The question is tricky. Let's rephrase it, "Except for one, all of the following statements, if true, do not agree with the passage."

Option 2, if true, is in accordance with the passage. In other words, if false, it is not in accordance with the passage. Refer to the line, "*From the Middle Ages and into the Age of Enlightenment, theories of the Undead continued to grow and develop.*"

QNo:- 11 ,Correct Answer:- C

Explanation:- We can conclude from the quoted line that in the earliest years of mankind, there was a belief that eerie creatures existed, which were neither quite alive nor dead. Option 3 is the correct answer.

QNo:- 12 ,Correct Answer:- D

Explanation:- The passage is talking about the evolution of the stories of the Undead from ill-defined eerie creatures of Mankind's earliest years to more definitely shaped and even supernatural/magical creatures as mankind became more sophisticated. Hence, the correct answer is option 4.

QNo:- 13 ,Correct Answer:- D

Explanation:- According to the passage, interventions were made in artworks that had been discovered in the West during the 17th century. Option 3 is therefore supported by the passage's reasoning. Option 4, though also about interventions in excavated artworks, implies that whether or not interventions were made was dependent on the Christian worldview of the artist. The passage does not mention this. So, option 4 does not follow from the given arguments. Based on the last paragraph, options 1 and 2 can be inferred.

QNo:- 14 ,Correct Answer:- D

Explanation:- An "unassailable original" means that the original is untouchable. Therefore, it is evident that the emphasis that the contemporary West places on an "unassailable original" deters them from making any interventions in ancient art. Additionally, since copies of paintings aren't thought to have any worth, it deters them from simultaneously displaying multiple copies. (refer to the 1st paragraph). It can also be deduced from the example of the cathedral of Freiburg Minster that the notion of an "unassailable original" gives those who repair the original, constant work. Options 1, 2, and 3 are therefore derived from the Western concept of an unassailable original. Whereas, option 4 does not follow from the concept.

QNo:- 15 ,Correct Answer:- C

Explanation:- According to the passage, Fuzhipin, or perfect replicas of the original, are just as valuable to the Chinese as the original. Only option 3 accurately replicates the original out of the available choices. An exact replica cannot be made from a photograph or miniature.

QNo:- 16 ,Correct Answer:- B

Explanation:- According to the passage, the Ise Shrine, unlike the Freiburg Minster, is not continually undergoing restoration, but is completely rebuilt from scratch every 20 years. Refer to the 2nd para.

QNo:- 17 ,Correct Answer:- D

Explanation:- The passage goes on to say why petitioning is an "expeditious" democratic tradition, noting that, unlike elections, which are episodic, petitions may guarantee that citizens' voices are heard and constantly incorporated into democratic government. The most complete of the provided summaries, Option 4, contains all the essential concepts.

QNo:- 18 ,Correct Answer:- 2431

Explanation:- The opening sentence will be 2, as it introduces the subject of the paragraph, i.e. "collagen". The next sentence will be 4, as this sentence uses the pronoun 'its', the antecedent of which can be linked to sentence 2, i.e. collagen. Also, 2 talks about the 'skin regeneration' property of collagen, which can be linked well to sentence 4, which mentions different types of animal collagen proteins. The following sentence will be 3, as 4-3 form the perfect cohesive pair, where 4 talks about problems faced in application of pig and cow collagen proteins, and 3 addresses the same problem with the use of fish collagen. The last sentence is 1, as there is further discussion on the properties of fish collagen, mentioned earlier in sentence 3.

Hence, the correct order will be: 2431

QNo:- 19 ,Correct Answer:- A

Explanation:- According to the given para, when we enter the world of quantum mechanics and discover that arbitrary distinctions between animate and inanimate simply cannot be created, we might grasp how limited our understanding of the universe is. All the major points are covered in Option 1.

QNo:- 20 ,Correct Answer:- 3214

Explanation:- The ideal opening statement is number 3, as it is a general rather than a specific sentence. 3-2 is a pair. According to sentences 3 and 2, the creative element is growing more quickly than the global economy. If the creative element of other sectors were also taken into account, the value of global industry would be larger still. Sentence 1 advances the notion from sentence 3 by describing how the creative element of product design may provide a competitive advantage. The paragraph is concluded in sentence 4, which explains why intellectual property is the main focus of today's trade issues.

Hence, the correct arrangement is 3214.

QNo:- 21 ,Correct Answer:- 2143

Explanation:- Sentences 1 and 2 have a clear connection because they both discuss the benefits of shorter commutes on employee performance. 4-3 is another example of a pair: sentence 4 states that some people believe that working commute-free is important for increasing productivity; sentence 3 explains why this isn't always the case. Another pair is clauses 1 and 4: 'Some' is used as the first pronoun in sentence 4. This obviously refers to some company leaders, who are the subject of sentence 1. Therefore, 4 comes just after 1. These connections show that the most logical order is 2143.

QNo:- 22 ,Correct Answer:- D

Explanation:- Finding the spot where the transition of ideas from one phrase to the next appears to be sudden is the ideal technique for inserting the missing sentence into the paragraph.

Given that the paragraph itself discusses how the Internet has proven to be both a blessing and a curse, the missing line would be the best fit as the paragraph's final sentence.

QNo:- 23 ,Correct Answer:- D

Explanation:- According to the passage provided, while historians have typically portrayed medieval Ethiopia as helpless and looking to Europe for protection, the "true story," which has been "buried in plain sight," is that the medieval world was richly connected, with the kings of Ethiopia sponsoring their own missions of diplomacy, faith, and commerce. The best answer keeping the essence of the para in mind is option 4.

QNo:- 24 ,Correct Answer:- B

Explanation:- The missing line gives the reason for couples wanting to marry in secret. If you choose option 2, this sentence seamlessly ties into the thought in the preceding line and



smoothly flows into the following one, adding another justification for secret marriages. Moreover, the 'anxiety' referred to here relates to couples 'feeling the pinch', mentioned in the previous sentence.

Section : DI & Reasoning

QNo:- 25 ,Correct Answer:- A

Explanation:-

Matches	1	2	3	4	5	6	7	8
Goals	4	1	1	1	2	1	1	1
Amla (A)-1/2	x			x		x	x	x
Bimla (B) -4	1	x	x	x	1	1	1	x
Harita (H) -5	3	x	x	1	x	x	x	1
Sarita (S)- 2/1	x			x			x	x

First, we have to figure out the highest number of goals scored by whom.
 As we have to make total 12 goals.
 Harita score minimum of total 5 goals as she scored more than Bimla. So, Bimla scores a total of 4 goals.
 Therefore, Amla and Sarita scores either 1,2 or 2,1 goals.
 Now, we have total 12 goals
 We have two options for the same
 3 1 2 1 1 1 2 1... (1st case)
 Or
 4 1 1 1 2 1 1 1... (2nd case)
 Now, it is not possible that there are total 3 goals in the first match so 1st case is cancelled
 In match 7 only 1 goal is scored :Option 1

QNo:- 26 ,Correct Answer:- D

Explanation:-

Matches	1	2	3	4	5	6	7	8
Goals	4	1	1	1	2	1	1	1
Amla (A)-1/2	x			x		x	x	x
Bimla (B) -4	1	x	x	x	1	1	1	x
Harita (H) -5	3	x	x	1	x	x	x	1
Sarita (S)- 2/1	x			x			x	x

First, we have to figure out the highest number of goals scored by whom.
 As we have to make total 12 goals.
 Harita score minimum of total 5 goals as she scored more than Bimla. So, Bimla scores a total of 4 goals.



Therefore, Amla and Sarita scores either 1,2 or 2,1 goals.

Now, we have total 12 goals

We have two options for the same

3 1 2 1 1 1 2 1...(1st case)

Or

4 1 1 1 2 1 1 1...(2nd case)

Correct sequence of goals is 4,1,2,1 : Option 4

QNo:- 27 ,Correct Answer:- C

Explanation:- Statement 1 : Total 3 vacant spaces are available where a total of 3 goals are to be scored. Now, the combination of Amla and Sarita goals is 2 or 1. Therefore, if Amla scores a goal then Sarita cannot score a goal and if Sarita scores a goal then Amla cannot. So, this is true.

Statement 2 : Harita's goals have already been scored as she is the highest goal scorer and the places where Harita is not scoring goal are the places where Sarita would score the goal. Hence, this statement is also true.

Therefore both the statements are true : Option 3

QNo:- 28 ,Correct Answer:- B

Explanation:- Statement 1 : In first match, 4 goals are scored i.e 3 by Harita and 1 by Bimla. If Amla scores in 2nd match then Sarita scores in 3rd match. In the 4th match Harita is scoring the goal. In 5th, 6th & 7th match, Bimla scored a goal each. In 8th match Harita scores a goal. So, in every match atleast one player scored a goal.

Statement 2 : Amla scores either 1 or 2. Bimla scores 4. Harita scores 3. Sarita scores 2. Hence, no two players scored goals in the same number of matches.

Therefore, none of the statements is false.

QNo:- 29 ,Correct Answer:- C

Explanation:- Statement 1 : If Harita scored in 3 matches then Sarita scores 2. Therefore, Amla scores 1. Then Bimla scores in 4 matches. Now, Amla may or may not score goal in consecutive matches.

Statement 2 : If Harita scored in 3 matches then Sarita scores 2. Therefore, Amla scores 1. Then Bimla scores in 4 matches. Now, Bimla may or may not score goals in consecutive matches.

Therefore, none of the statements is true.

QNo:- 30 ,Correct Answer:- 2



Explanation:- On the basis of the statements given following table can be made :
As it is given that from the face values funding is given which is a multiplying factor of 1000. So, we won't write 1000 with the values just to save the time.

		Bithi/Chhaya	Fathima	Bithi/Chhaya	Dhanavi	Esther	Adhara
Candidates	Funds	2	3	5	7	11	13
Pragnyaa	390	√	√	√	×	×	√
Rasheeda	210	√	√	√	√	×	×
Smera/Tantra	165	×	√	√	×	√	×
Qahira	77	×	×	×	√	√	×
Tantra/Smera	66	√	√	×	×	√	×

As observed Qahira receive 2 tokens

QNo:- 31 ,Correct Answer:- B

Explanation:- On the basis of the statements given following table can be made :
As it is given that from the face values funding is given which is a multiplying factor of 1000. So, we won't write 1000 with the values just to save the time.

		Bithi/Chhaya	Fathima	Bithi/Chhaya	Dhanavi	Esther	Adhara
Candidates	Funds	2	3	5	7	11	13
Pragnyaa	390	√	√	√	×	×	√
Rasheeda	210	√	√	√	√	×	×
Smera/Tantra	165	×	√	√	×	√	×
Qahira	77	×	×	×	√	√	×
Tantra/Smera	66	√	√	×	×	√	×

As observed above Pragnyaa received a token from Bithi but not from Dhanvi : Option 2

QNo:- 32 ,Correct Answer:- 3

Explanation:- On the basis of the statements given following table can be made :
As it is given that from the face values funding is given which is a multiplying factor of 1000. So, we won't write 1000 with the values just to save the time.

		Bithi/Chhaya	Fathima	Bithi/Chhaya	Dhanavi	Esther	Adhara
Candidates	Funds	2	3	5	7	11	13
Pragnyaa	390	√	√	√	×	×	√
Rasheeda	210	√	√	√	√	×	×
Smera/Tantra	165	×	√	√	×	√	×
Qahira	77	×	×	×	√	√	×
Tantra/Smera	66	√	√	×	×	√	×

From the table above we can say that Chhaya awarded 3 tokens with Bithi

QNo:- 33 ,Correct Answer:- 3

Explanation:- On the basis of the statements given following table can be made :
As it is given that from the face values funding is given which is a multiplying factor of 1000. So, we won't write 1000 with the values just to save the time.

		Bithi/Chhaya	Fathima	Bithi/Chhaya	Dhanavi	Esther	Adhara
Candidates	Funds	2	3	5	7	11	13
Pragnyaa	390	√	√	√	×	×	√
Rasheeda	210	√	√	√	√	×	×
Smera/Tantra	165	×	√	√	×	√	×
Qahira	77	×	×	×	√	√	×
Tantra/Smera	66	√	√	×	×	√	×

From the table above we can say that Smera has received 3 tokens

QNo:- 34 ,Correct Answer:- D

Explanation:- On the basis of the statements given following table can be made :
As it is given that from the face values funding is given which is a multiplying factor of 1000. So, we won't write 1000 with the values just to save the time.

		Bithi/Chhaya	Fathima	Bithi/Chhaya	Dhanavi	Esther	Adhara
Candidates	Funds	2	3	5	7	11	13
Pragnyaa	390	√	√	√	×	×	√
Rasheeda	210	√	√	√	√	×	×
Smera/Tantra	165	×	√	√	×	√	×
Qahira	77	×	×	×	√	√	×
Tantra/Smera	66	√	√	×	×	√	×

From the table above we can say that Smera has received 3 tokens

QNo:- 35 ,Correct Answer:- 50

Explanation:- From the information available we can make the following table

	Boys (40)		Girls (15)	
	Singers	Dancers	Singers	Dancers
1				4
2	0			0



3	4	2	0	0
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	Boys	Girls	Total
Singers	4	2	6
Dancers	6	4	10
Neither dancers nor singers	b	9	b + 9
	b + 10	15	b + 25

Using more information, we can have the following table :

	Boys (b = 40)	Girls	
1	$0.8b + 8 = 40$	15	
2	$0.6b + 6 = 30$	10/5	< 15
3	$4 + 2 = 6$	0	

$$0.7(0.6b + 6) = b - x$$

$$0.42b + 4.2 = b - x$$

$$0.58b = 4.2 + x$$

b has to be a natural number if 4.2 is in the table of 48.

Multiplying it by 100

$$58b = 420 + 100x$$

For 'b' to be a natural number $x = 19, b = 40$

Which means $b = 40$

$$0.6g = 9 - y$$

Therefore g can be 10 or 5 and y can be 6 or 3

Now making the complete table again with this information

$$\text{No of boys} = b + 10 = 40 + 10 = 50$$

QNo:- 36 ,Correct Answer:- D

	Boys (40)		Girls (15)	
	Singers	Dancers	Singers	Dancers
1				4
2	0			0
3	4	2	0	0

Explanation:-

As observed from the table above we don't know what values can be given to 2-day event for boys dancers and 1-day event for boys dancers what we only know is that the sum of the two is 4. Therefore statement I cannot be determined.

The number of female dancers who are interested in attending a 1-day event are 4 as no female dancer is interested for 3-day event and 60% of the girls i.e 9 who are interested in



attending a 2-day event are neither singers nor dancers. As we know total girl dancers are 4 so they must attend 1-day event only. Therefore, Only II can be determined

QNo:- 37 ,Correct Answer:- A

Explanation:- From the information given above, we can make the following :

	Boys (b = 40)	Girls	
1	$0.8b + 8 = 40$	15	
2	$0.6b + 6 = 30$	10/5	< 15
3	$4 + 2 = 6$	0	

If we take the girls for 2 day event be 10 then number of singers and dancers in the 2-day event will become more than the last statement. Therefore, the number of girls for 2 day event has to be taken as 5 and we already know the number of boys as 30

Therefore, the required fraction = $\frac{35}{65} = \frac{7}{13}$:Option 1

QNo:- 38 ,Correct Answer:- D

Explanation:- Using the table below, we have

	Boys (40)		Girls(50)	
	Singers	Dancers	Singers	Dancers
1	0	4-3		4
2	0	0-1		0
3	4	2	0	0

If we take 2nd option 4 or 6 then total dancers in boys = 2 + 0 + 4 = 6
2 + 1 + 3 = 6 but it is violating the condition 4 which says the number of singers attending a 2-day event is more than the number of dancers interested in attending a 2-day event. Hence 2nd option is false.

If we take 4th option then no of male dancers who are interested in attending a 1 –day event are 5 or 6 then we can have the table below

Event	Boys		Girls	
	Singers	Dancers	Singers	Dancers
1-day	0	5-6		2
2-day	0	0-1	1-2	0
3-day	4	0	0	2

This is not violating any of the conditions given above therefore answer is option 4

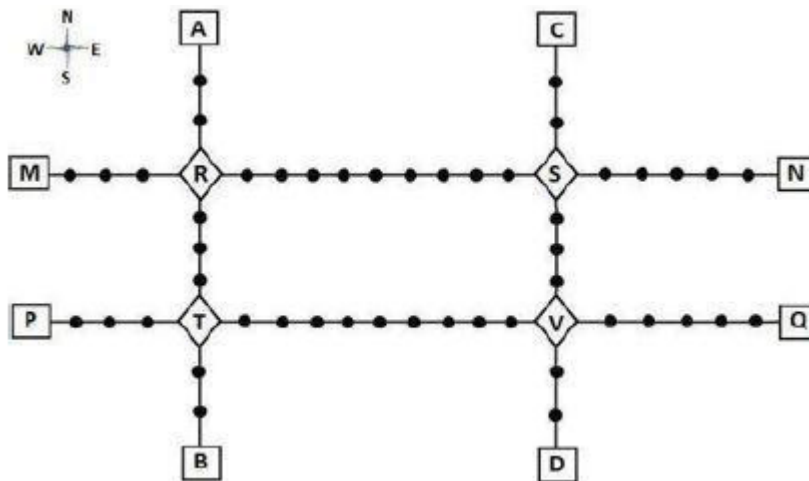
QNo:- 39 ,Correct Answer:- C

Explanation:-

Event	Boys		Girls	
	Singers	Dancers	Singers	Dancers
1-day	0	5-6		2
2-day	0	0-1	1-2	0
3-day	4	0	0	2

This we already know female dancers are interested in attending a 2-day event are 0 : Option 3

QNo:- 40 ,Correct Answer:- C



Explanation:-

First we need to find the time taken from all terminals to all junctions through stations

$$M \rightarrow R = 2 + 2 + 2 + 2 (3 \text{ stations gap is } 4) + 3 (\text{every station stop}) = 11 \text{ min}$$

$$P \rightarrow T = 2 + 2 + 2 + 2 + 3 (\text{same as above}) = 11 \text{ min}$$

$$R \rightarrow S = 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 (9 \text{ stations so gap is } 10) + 9 (9 \text{ stations}) = 20 \text{ min} + 9 \text{ min} = 29 \text{ min}$$

$$T \rightarrow V = \text{symmetrical as } R \rightarrow S = 20 + 9 = 29 \text{ min}$$

$$S \rightarrow N = 2 + 2 + 2 + 2 + 2 + 2 + 5 = 12 + 5 = 17 \text{ min}$$

$$V \rightarrow Q = 12 + 5 = 17 \text{ min}$$

$$A \rightarrow R = 3 + 3 + 3 + 2 = 11 \text{ min}$$

$$C \rightarrow S = 3 + 3 + 3 + 2 = 11 \text{ min}$$

$$R \rightarrow T = 3 + 3 + 3 + 3 + 3 = 15 \text{ min}$$

$$S \rightarrow V = 3 + 3 + 3 + 3 + 3 = 15 \text{ min}$$

$$T \rightarrow B = 3 + 3 + 3 (\text{for north south direction train takes } 3 \text{ minutes}) + 2 = 11 \text{ min}$$

$$V \rightarrow D = 3 + 3 + 3 + 2 = 11 \text{ min}$$

Hari is ready to board at 8:05 am from station M to N. As he has to reach at the earliest so he has to go straight from M → N via R and S.

Now we know a train would leave at 6 am then 6:10 as a train leaves after every 10 minutes in the east west direction and so on. We have to find which train will he board close to 8:05 am.

So, he will board a train which will leave at 8:10 as the train at 8:00 am would have already left. Therefore, he has to wait for 5 minutes

$$M \rightarrow N = 5 \text{ min (he waited)} + (M \rightarrow R) + (R \rightarrow S) + (S \rightarrow N) = 5 + 11 + 29 + 17 = 66 \text{ min}$$

$$8:05 + 66 \text{ min} = 9:11 \text{ am} : \text{Option 3}$$

QNo:- 41 ,Correct Answer:- A

Explanation:- If Priya is ready to board at 10:25 from station T, we need to check whether there is a train from P or B around 10:25 am. As BT path has less number of stations which is 2 so we will take BT path.

If a train leaves at 10:00 from B it will take 11 minutes to reach T i.e 10:11 and it would leave at 10:13 so Priya won't be able to catch this train.

If train leaves at 10:10 from B it will reach T at 10:21 and would leave at 10:23 so again she won't be able to catch this train also.

If train leaves at 10:20 from B it will reach at 10:31 and leave at 10:33 which means Priya had to wait for 8 minutes and board this train.

$$8 \text{ min} + (T \rightarrow R) + (R \rightarrow S) = 8 \text{ min} + 15 \text{ min} + 29 \text{ min} = 52 \text{ min which means she would reach S at } 10:33 + 52 \text{ min} = 11:25 \text{ am which is not in option.}$$

So, we will check the other option

As we know for every north-south direction the train can leave after every 15 minutes also.

If the train leaves from B at 10:15 then it will reach T at 10:26. It would leave at 10:28 from station T. So, Priya had waited for 3 minutes.

$$3 \text{ min} + (T \rightarrow R) + (R \rightarrow S) = 3 + 15 + 29 = 47 \text{ minutes which means she would reach station S at } 10:25 + 47 \text{ min} = 10:25 + 35 \text{ min} + 12 \text{ min} = 11:12 \text{ min which is option 1}$$

QNo:- 42 ,Correct Answer:- A

Explanation:- Haripriya has to reach station S late via station R if she must reach station B before 1 am

Using option 1 : 11:39

We have to find when the train would have left N. Suppose the train would have left around 11:20 then it would reach S at 11:37. It would leave station S at 11:39. So, she will board the train at 11:39 from S

$$(S \rightarrow R) + 2 + (R \rightarrow T) + 2 + (T \rightarrow B) = 11:39 + 29 + 2 + 17 + 2 + 11 = 11:39 + 61 = 11:39 + 21 + 40 = 12:40 \text{ pm which is the latest time by which she would reach station S}$$

If we take option 4 i.e 11 : 35, then the train would have left N at 11:10 then it will take 17 min to reach S which is at 11:27 which will be left at 11:29. So, it is impossible for Haripriya to catch this train at 11:35.

Similarly if we taken option 2 i.e 11:43 then train would have left N at 11:30 minimum which will reach S at 11:47 so it is impossible for Haripriya to catch this train .Because if the train left N at 11:20 then it will reach 11:37 which will leave at 11:39 which is again impossible to catch

again.

Therefore latest time to reach before 1 am is 12:41 am

QNo:- 43 ,Correct Answer:- 8

Explanation:- For minimum number of trains we need to check that by the time first train reach at the other terminal, we keep on sending the trains.

For AB line total time taken = $A \rightarrow R \rightarrow T \rightarrow B = 11 + 2 + 15 + 2 + 11 + 15 = 56$ min

For BA line total time taken $B \rightarrow T \rightarrow R \rightarrow A = 15 + 11 + 2 + 15 + 2 + 11 = 56$ min

Total time for AB + BA = $56 + 56 = 112$ min

For north south direction we can send trains after every 15 mins

Total number of trains = $\frac{112}{15} = 7.4$ approx, which implies there are more than 7 gaps, so 8 trains can be sent. Therefore 8 trains is the answer

QNo:- 44 ,Correct Answer:- 48

Explanation:- Total number of trains that required to provide in the city can be calculated through total number of trains across all the roots

For east-west root trains leave after every 10 minutes and rest of 15 minutes is also given after reaching the last terminal

$M \rightarrow R \rightarrow S \rightarrow N = 11 + 2 + 29 + 2 + 17 = 61$ min

$P \rightarrow T \rightarrow V \rightarrow Q = 11 + 2 + 29 + 2 + 17 = 61$ min

For east west trains total time = $(61 + 61 + 15) = 76$ minutes each for MN and PQ

Total time = $76 \times 2 = 152$

Every train comes after 10 minutes, number of trains = $\frac{152}{10} = 15.2$ as gap is more than 15 so number of trains in east-west direction = $MN + PQ = 16 + 16 = 32$ trains

Similarly, for north-south direction trains leave after every 15 minute and rest of 15 minutes is same

$A \rightarrow R \rightarrow T \rightarrow B = C \rightarrow S \rightarrow V \rightarrow D = 11 + 2 + 15 + 2 + 11 + 15 = 56$ min + 56 min = 112 min

Number of trains = $\frac{112}{15} = 7.4$ approx implies more than 7 gaps are there so number of trains each side = 8

Total trains north-south direction = $8 + 8 = 16$

Therefore, total number of trains = trains in north-south direction + trains in east-west direction = $16 + 32 = 48$

Section : Quantitative Ability

QNo:- 45 ,Correct Answer:- 82

Explanation:- Let $A = 3^k + 4^k + 5^k$

3^k will always be odd as odd number to the power odd is always odd.

4^k will always be even as even number to the power even is always even

5^k will always be odd as odd number to the power odd is always odd

Therefore, A will always be even as $\text{odd} + \text{even} + \text{odd} = \text{even}$

So, it will be always divisible by 2

Therefore, larger positive integer that divides all the numbers of the form has to be 2

So $A = 2$

B be the largest positive integer that divides all numbers of the form

$$B = 4^k + 3(4^k) + 4^{k+2}$$

$$B = 4^k + 3 \cdot 4^k + 4^k \cdot 4^2 = 4^k (1 + 3 + 16) = 4^k \times 20$$

If we put $k = 1$, then $B = 4 \times 20 = 80$

Then $A + B = 2 + 80 = 82$

QNo:- 46 ,Correct Answer:- 34

Explanation:- $xy + yz = 19$, $y(x + z) = 19$

Now, we have two cases

$$y = 1, x + z = 19 \dots(1)$$

$y = 19, x + z = 1$ which is not possible as x and z are natural numbers so they cannot take value less than 1

$$yz + xz = 51$$

$$z(y+x) = 51$$

$$z = 3, y + x = 17 \dots(2)$$

$$\text{or } z = 17, y + x = 3 \dots(3)$$

Combining (1) and (2) together

$$y = 1, x = 16, z = 3 \text{ then } xyz = 16 \times 1 \times 3 = 48$$

Combining (1) and (3) together

$$z = 17, y = 1, x = 2 \text{ then } xyz = 2 \times 1 \times 17 = 34$$

Hence the minimum value of $xyz = 34$

QNo:- 47 ,Correct Answer:- D

Explanation:- Let the first part be x and second part be y

According to question

$$\frac{x \times 15 \times 4}{100} = \frac{y \times 12 \times 3}{100}$$

$$\Rightarrow 60x = 36y$$

$$\Rightarrow 5x = 3y$$

$$\Rightarrow \frac{x}{y} = \frac{3}{5}$$

$$\Rightarrow \text{total saving} = 8$$

$$\% \text{ saving in first part} = \frac{3}{8} \times 100 = 37.5\% : \text{Option 4}$$

QNo:- 48 ,Correct Answer:- 8

Explanation:- Given, $a^2 + ab + a = 14$ and $b^2 + ab + b = 28$
 $\Rightarrow a(a + b + 1) = 14$ and $b(b + a + 1) = 28$

Dividing both,
 $\Rightarrow a/b = 1/2$

Now, if $a = 1$ and $b = 2$, $a^2 + ab + a = 4$, not true

If $a = 2$ and $b = 4$, $a^2 + ab + a = 14$ and $b^2 + ab + b = 28$ satisfies
Hence, $2a + b = 8$

QNo:- 49 ,Correct Answer:- C

Explanation:-

Let a, b, c and d be the number of students who like none of the drinks, exactly one drink, exactly 2 drinks, and all three drinks, respectively.

Hence $a + b + c + d = 100 \dots (1)$. Also $b + 2c + 3d = 73 + 80 + 52$. So $b + 2c + 3d = 205 \dots (2)$

Subtracting (1) from (2) we get, $c + 2d - a = 105$. Maximum value d can take is 52 i.e. $d = 52, c = 1, a = 0$

The minimum value d can take is 5, i.e. $d = 5, c = 95$ and $a = 0$ (This also satisfies equation (1). Difference = $52 - 5 = 47$)

Hence, **the difference between the minimum and maximum number of people who like all the 3 drinks is 47.**

QNo:- 50 ,Correct Answer:- D

Explanation:- Let the lemon juice be 10 litre

Let the sugar juice be 10 litre

Total mixture = 20 liter

New mixture sugar added be in the ratio 1:3

20 liter mixture and 60 liter sugar syrup

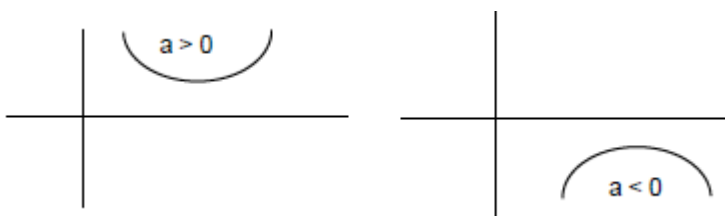
New lemon juice = 10 liter

New sugar syrup = $10 + 60 = 70$

Therefore, required ratio = $10 : 70 = 1 : 7$: Option 4

QNo:- 51 ,Correct Answer:- B

Explanation:- $b^2 < 4ac$ implies $D < 0$ which has imaginary roots
which gives 2 cases





Hence either $f(m) < 0$

Or $f(m) > 0$

So, all set of integers or empty set : Option 2

QNo:- 52 ,Correct Answer:- 160

Explanation:- Let cost price of syrup = Rs $80x$ /kg

Cost price of juice = Rs $100x$ / kg

Total cost = $80x \times 100 + 100x \times 120 = 20800x$

Selling price = $80x \times 1.1 \times 10 \text{ kg} + 100x \times 1.2 \times 20 \text{ kg} + 308.32 \times 200 \text{ kg}$
 $= 880x + 2400x + 61664 = 3280x + 61664$

Selling price = cost price $\times 1.64 = 20800x \times 1.64 = 34112x$

Equating selling price = $34112x = 3280x + 61664$

$30832x = 61664$

$x = 2$

cost price of syrup = $80x = 160$

QNo:- 53 ,Correct Answer:- 43200

Explanation:- Let the number of males be $5k$

Let the number of females be $4k$

Let the number of literate males = $2x$

Let the number of literate females = $3x$

Let the number of illiterate males = $4y$

Let the number of illiterate females = $3y$

According to question

Literate males = $2x = 3600 \quad x = 1800$

Literate females = $3x = 31800 = 5400$

Now, total ratio of males and females

$$\Rightarrow \frac{2x+4y}{3x+3y} = \frac{5k}{4k} = \frac{5}{4}$$

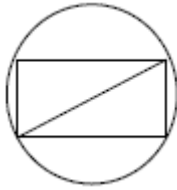
$$\Rightarrow 8x+16y = 15x+15y$$

$$\Rightarrow 7x = y$$

$$\Rightarrow \frac{x}{y} = \frac{1}{7}$$

Total number of females in the village = $3x + 3y = 3x + 3(7x) = 24x = 24(1800) = 43200$

QNo:- 54 ,Correct Answer:- C

**Explanation:-**

Let the radius of the circle be R

Diameter of the circle = 2R

Let the length of rectangle be 'l'

Let the breadth of rectangle be 'b'

Diagonal of the rectangle = diameter of the circle = $(2R)^2$

$$= (\sqrt{l^2 + b^2})^2$$

$$= l^2 + b^2$$

$$4R^2 = l^2 + b^2 \dots(1)$$

Let the perimeter of the rectangle be $P = 2(l+b) \dots(2)$

$$l + b = \frac{P}{2} \dots(3)$$

squaring both sides

$$l^2 + b^2 + 2lb = \frac{P^2}{4} \dots(4)$$

$$\Rightarrow 4R^2 + 2A = \frac{P^2}{4}$$

$$\Rightarrow 2A = \frac{P^2}{4} - 4R^2$$

$$\Rightarrow A = \frac{P^2}{8} - 2R^2 : \text{Option 3}$$

QNo:- 55 ,Correct Answer:- D

Explanation:- As we know diagonals of a parallelogram bisect each other.

Let the diagonals be AC and BD

A(1,1) B(3,4) C(-2,8) and D(x,y)

Using mid-point formula

AC = BD

$$\frac{1-2}{2} = \frac{3+x}{2} \Rightarrow -1 = 3+x \Rightarrow x = -4$$

$$\frac{1+8}{2} = \frac{4+y}{2} \Rightarrow 9 = 4+y \Rightarrow y = 5$$

C(-4,5) : Option 4

QNo:- 56 ,Correct Answer:- C

Explanation:- $|x + a| + |x - 1| = 2$

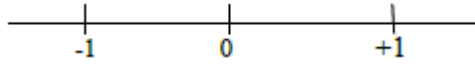
For infinite number of solutions the critical points value difference must be equal to the right hand side value.



Using option 1, $a = -1$, we get

$$|x - (-1)| + |x - 1| = 2$$

For the critical points -1 and 1 whose sum $= 1 - (-1) = 2 = \text{RHS}$



Therefore, we will get infinite number of solutions putting $a = -1$

QNo:- 57 ,Correct Answer:- 84

Explanation:- Let the four children be a, b, c and d

As per the condition

$$a + b + c + d = 20$$

Now as we know that each student will get even number of balloons

$$2x + 2y + 2z + 2p = 20$$

$$x + y + z + p = 10$$

as each child must get 1 balloon, so giving 1 balloon to each child

$$A + B + C + D = 10 - 4 = 6$$

Now finding total number of non negative integral solutions, we get

$${}^6P_3 = {}^9C_3 = \frac{9 \times 8 \times 7}{3 \times 2 \times 1} = 3 \times 4 \times 7 = 84$$

QNo:- 58 ,Correct Answer:- B

Explanation:- Sum of n terms of an arithmetic progression $S_n = n + 2n^2$

$$\text{Putting } n = 1, S_1 = 1 + 2(1)^2 = 1 + 2 = 3, a_1 = 3$$

$$\text{Putting } n = 2, S_2 = 2 + 2(2)^2 = 2 + 8 = 10, a_1 + a_2 = 10 \implies 3 + a_2 = 10 \implies a_2 = 7$$

$$\text{Putting } n = 3, S_3 = 3 + 2(3)^2 = 3 + 2 \times 9 = 21, a_1 + a_2 + a_3 = 21 \implies a_3 = 21 - 10 = 11$$

$$\text{Putting } n = 4, S_4 = 4 + 2(4)^2 = 4 + 2 \times 16 = 4 + 32 = 36, a_4 = 36 - (3 + 7 + 11) = 36 - 21 = 15$$

$$\text{Putting } n = 5, S_5 = 5 + 2(5)^2 = 5 + 2 \times 25 = 55, a_5 = 55 - (3 + 7 + 11 + 15) = 55 - 36 = 19$$

$$\text{Putting } n = 6, S_6 = 6 + 2(6)^2 = 6 + 2 \times 36 = 6 + 72 = 78, a_6 = 78 - 55 = 23$$

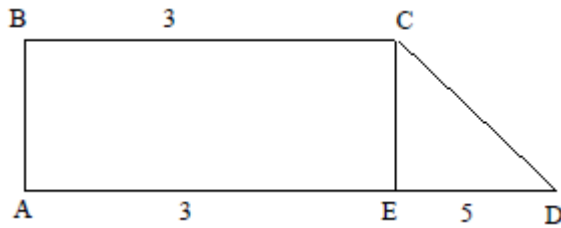
$$\text{Putting } n = 7, S_7 = 7 + 2(7)^2 = 7 + 2 \times 49 = 7 + 98 = 105, a_7 = 105 - 78 = 27$$

Now as we have got the Arithmetic series as

3, 7, 11, 15, 19, 23, 27

We can see the smallest multiple of 9 is 27 which is a_7 so the value of $n = 7$: Option 2

QNo:- 59 ,Correct Answer:- 66



Explanation:-

As $\angle BAD = 90^\circ$ and $AD \parallel BC$

As ABCE is a rectangle so $BC = AE = 3$ cm

As $AD = 8$ hence, $ED = 8 - 3 = 5$

As $\angle BAD = 90^\circ$ and BA and CE are parallel so $\angle CED = 90^\circ$

So $BA = CE = x$ and $CD = y$

As $ED = 5$, we know the only pythagoras triplet is 5,12,13

Also perimeter of trapezium = $x + 3 + 8 + y = 36$

$$x + y = 36 - 11 = 25$$

so $x = 12$ and $y = 13$ as 5,12,13 make a pythagoras triplet

$$x + y = 25$$

$$\text{Area of a trapezium} = \frac{1}{2}(\text{sum of parallel sides}) \times \text{distance between them}$$

$$= \frac{1}{2}(3+8) \times 12 = 66 \text{ cm}^2$$

QNo:- 60 ,Correct Answer:- A

Explanation:- Using option 2, $a = 25$

$$|x-25| + |x-100| + |x-25-50| = |x-25| + |x-100| + |x-75|$$

Critical points are 25,75,100

Putting these in the equations, we get maximum value = 125 when $a = 25$

$A = 50$

$$|x-50| + |x-100| + |x-50-50| = |x-25| + |x-100| + |x-150|$$

put $x = 50$

We get maximum value of $f(x) = 100$

QNo:- 61 ,Correct Answer:- B

Explanation:- Sum of 3 integers = 133 = 39

When a natural number n is included

$$\text{Average of 4 integers} = \frac{39+n}{4} = \text{odd no.}$$

$$\text{Putting } n = 5, \frac{39+5}{4} = \frac{44}{4} = 11 \text{ which is an odd no.}$$

So, answer is option 2



QNo:- 62 ,Correct Answer:- 44

$$\sum_{n=1}^N \left[\frac{1}{5} + \frac{n}{25} \right] = 25$$

For n = 20, $\left[\frac{1}{5} + \frac{20}{25} \right] = 1$

For n = 21, $\left[\frac{1}{5} + \frac{21}{25} \right] = 1$

For n = 22, $\left[\frac{1}{5} + \frac{22}{25} \right] = 1$

Explanation:-

For n = 23, $\left[\frac{1}{5} + \frac{23}{25} \right] = 1$

For n = 24, $\left[\frac{1}{5} + \frac{24}{25} \right] = 1$

For n = 25, $\left[\frac{1}{5} + \frac{25}{25} \right] = 1$

For n = 26, $\left[\frac{1}{5} + \frac{26}{25} \right] = 1$

For n = 44, $\left[\frac{1}{5} + \frac{44}{25} \right] = 1$

Sum of terms from n = 20 to 44 , is 1 + 1 +.....1 = 25
For n = 20,21,22,23.....44, therefore, N = 44

QNo:- 63 ,Correct Answer:- B

Explanation:- Let the 1kg price of cashews = C, 1kg price of peanuts = P, 1 kg price of almonds = A

7C = 30P = 9A = 630x

C = 90x × 4 = 360x

P = 21x × 14 = 294x

A = 70x × 6 = 420x

Total cost price = 360x + 294x + 420x = 1074x

Let the selling price be y Rs/ kg

4y + 20y = 1752.....(1)

4y + 16y = 744.....(2)

Subtract (2) – (1)

4y = 1008

24y = 6048

Total cost = 6048 – 1752 = 1074x

1074x = 4296



$x = 4$

Price of almonds = $420x = 420(4) = 1680$: Option 2

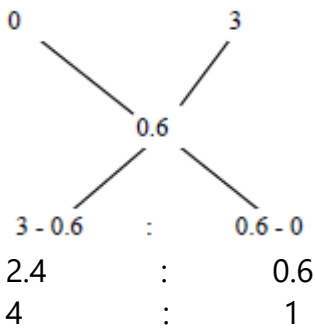
QNo:- 64 ,Correct Answer:- C

Explanation:- Let the original average be 0

The new average = $0 + 3 = 3$

Overall change in average = 0.6

Using alligation method



QNo:- 65 ,Correct Answer:- 111

Explanation:- Let the total number of persons ahead = $3x$

Let the total number of persons behind = $5x$

Total number of persons = $3x + 5x + 1 < 300$

$8x < 300 - 1 < 299$

$x < 37.3$

so $x = 37$ (integral value = 37)

No of persons ahead = $3x = 3(37) = 111$

QNo:- 66 ,Correct Answer:- D

Explanation:- Let suppose train B take 't' time to reach at the meeting point

So train A should also take 't' time to reach at the meeting point

As train A takes total 10 minutes in reaching station Y. Therefore, time taken by Train A after meeting train B has to be '10 - t'

Time taken by train B to reach station X = 9 minutes

We know the formula for time taken after meeting = time of meeting = geometric means of time taken by both trains to reach their respective destinations after meeting

$t = \sqrt{t_1 t_2} = \sqrt{9(10-t)}$

putting $t = 6$ we get LHS = RHS = 6

therefore the total time taken by train B to reach station X is $9 + 6 = 15$ minutes

: Option 4