Directions of Test

Test Name	Actual CAT 2020 Slot I	Total Questions	76	Total Time	120 Mins

Section Name	No. of Questions	Time limit	Marks per Question	Negative Marking
Verbal Ability	26	0:40(h:m)	3	1/3
DI & Reasoning	24	0:40(h:m)	3	1/3
Quantitative Ability	26	0:40(h:m)	3	1/3

Section : Verbal Ability

QNo:- 1 ,Correct Answer:- *D*

Explanation:-
*Option A is supported by lines "In the late 1960s, while studying the northern-elephant-seal population along the coasts of Mexico and California, Burney Le Boeuf and his colleagues couldn't help but notice that the threat calls of males at some sites sounded different from those of males at other sites. . . . **That was the first time dialects were documented in a nonhuman mammal. . . .***

***All the northern elephant seals that exist today are descendants of the small herd that survived on Isla Guadalupe [after the near extinction of the species in the nineteenth century].** As that tiny population grew, northern elephant seals started to recolonize former breeding locations. **It was precisely on the more recently colonized islands where Le Boeuf found that the tempos of the male vocal displays showed stronger differences** to the ones from Isla Guadalupe, the founder colony."*
*Had the seals not become nearly extinct and had the descendants of the surviving herd at Isla Guadalpue not spread out and gotten isolated in the first place, the seals wouldn't have exhibited dialects.. Also the options takes this as a possible cause by use of words 'might' "male northern elephant seals **might** not have exhibited dialects had they not become nearly extinct in the nineteenth century."*

*OPtion B is supported by lines "But the average pulse rate was changing. Immigration could have been responsible for this increase, as in the early 1970s, **43 percent of the males on Año Nuevo had come from southern rookeries that had a faster pulse rate.** This led Le Boeuf and his collaborator, Lewis Petrinovich, to deduce that the dialects were, perhaps, a result of isolation over time, after the breeding sites had been recolonized. For instance, **the first settlers of Año Nuevo could have had, by chance, calls with low pulse rates**. ..... As the population continued to expand and the islands kept on receiving immigrants from the original population, **the calls in all locations would have eventually regressed to the average pulse rate of the founder colon**y." (The last part - regression of calls in all locations -implies disappearance of dialects)*

Option C is supported by 1st lines of para 4 "At the individual level, the pulse of the calls stayed the same: A male would maintain his vocal signature throughout his lifetime."
*Option D contradicts the lines "As the population continued to expand and the islands kept on receiving immigrants from the original population, t**he calls in all locations would have eventually regressed to the average pulse rate of the founder colony.**"*

QNo:- 2 ,Correct Answer:- *B*

Explanation:-
Refer lines "As the population continued to expand and the islands kept on receiving immigrants from the original population, the calls in all locations would have eventually regressed to the average pulse rate of the founder colony" Option 2 talks about situation where immigrants tempo changed to become that of resident males which would have allowed the distinctive tempo of island to continue and not become extinct
Option 4 talks about opposite of option 2 hence is incorrect
Option 1 is incorrect as migration still happened from other islands even if didn't happen from one island so no migration from the other island has no effect here

QNo:- 3 ,Correct Answer:- *A*

Explanation:-
Option 1 is correct and 2 and 3 incorrect
Refer last lines of passage "Yet there are other differences between the males from the late 1960s and their great-great-grandsons: Modern males exhibit more individual diversity, and their calls are more complex. While 50 years ago the drumming pattern was quite simple and the dialects denoted just a change in tempo, Casey explained, the calls recorded today have more complex structures, sometimes featuring doublets or triplets…"
Option 4 is incorrect as it doesn't answer the Q i.e. sum up the overall history

QNo:- 4 ,Correct Answer:- *C*

Explanation:-
Option 3 Refer following lines of penultimate para "This led Le Boeuf and his collaborator, Lewis Petrinovich, to deduce that the dialects were, perhaps, a result of isolation over time, after the breeding sites had been recolonized. For instance, the first settlers of Año Nuevo could have had, by chance, calls with low pulse rates . At other sites, where the scientists found faster pulse rates, the opposite would have happened—seals with faster rates would have happened to arrive first."
Option 1 though factually correct doesn't answer the Q – why the call pulse rate of male northern elephant seals in the southern rookeries was faster

QNo:- 5 ,Correct Answer:- *D*

Explanation:-
Q is which if false supports arguments in the passage.
Option 4 is opposite of what's stated in the passage Hence is the best option here Refer lines
Of first para "Nouns and verbs are the two indispensable parts of writing."
And of last para "Take any noun, put it with any verb, and you have a sentence. It never fails."
Option 2 neither supports nor goes against the passage as women writers weren't talked about in passage.
Option 3 is true hence incorrect option here. Refer lines of para 3 ""It is an old observation," he writes, "that the best writers sometimes disregard the rules of rhetoric."

QNo:- 6 ,Correct Answer:- *B*

Explanation:- *Answer would be an option which is similar. Hence the answer clearly is 2*
Take any noun, put it with any verb, and you have a sentence.
Take any vegetable, put some spices in it, and you have a dish.
Options 1,3,4 are incorrect as nothing was added unlike in original stt

QNo:- 7 ,Correct Answer:- *A*

Explanation:- *2 and 4 are incorrect as author is not against grammar rules "Unless he is certain of doing well, [the writer] will probably do best to follow the rules.""*
3 is incorrect as author isn't against rhetoric

QNo:- 8 ,Correct Answer:- *D*

Explanation:-
Options 1 and 2 are supported by lines "Must you write complete sentences each time, every time? Perish the thought. If your work consists only of fragments and floating clauses, the Grammar Police aren't going to come and take you away. Even William Strunk, that Mussolini of rhetoric, recognized the delicious pliability of language. "It is an old observation," he writes, "that the best writers sometimes disregard the rules of rhetoric."
Option 3 is supported by line "since a sentence is, by definition, a group of words containing a subject (noun) and a predicate (verb);"

QNo:- 9 ,Correct Answer:- *C*

Explanation:- *Main focus of the passage is grammar Hence 3rd is the best option*

QNo:- 10 ,Correct Answer:- *D*

Explanation:-
Option 4 Throughout the passage and in lines of penultimate para "It differs from state socialism in opposing the concept of any central authority." And Refer line 1 "The word 'anarchy' comes from the Greek anarkhia, meaning contrary to authority or without a ruler,"
Option 2 is incorrect refer lines of last para "There are, unsurprisingly, several traditions of individualist anarchism, one of them deriving from the 'conscious egoism' of the German writer Max Stirner (1806–56), and another from a remarkable series of 19th-century American figures"

QNo:- 11 ,Correct Answer:- *D*

Explanation:- *Options 1 and 3 are easily eliminated as they leave out anarchism*
Option 2 is eliminated because of word Betrayal which can't be as easily related as 'individual' in 4

QNo:- 12 ,Correct Answer:- *A*

Explanation:- *Refer last para*

QNo:- 13 ,Correct Answer:- *C*

Explanation:-
Option 3
Option 4 is supported by last lines of para 3
Option 2 is supported by last para
*Option 1 can be inferred from lines "**anarchism arose** not only as an explanation of the gulf between the rich and the poor in any community, and of the reason why the poor have been obliged to fight for their share of a common inheritance, but **as a radical answer to the question 'What went wrong?' that followed the ultimate outcome of the French Revolution**"*

QNo:- 14 ,Correct Answer:- *B*

Explanation:- *Option 2 can be inferred from para 2 and 3*

QNo:- 15 ,Correct Answer:- *B*

Explanation:- *Refer line 1 of last para "In actuality, our own currency system today has some* ***similarities even as it is changing in front of our eyes****"*

QNo:- 16 ,Correct Answer:- *C*

Explanation:-
Refer to following lines of paras 3 and 4
"But textiles had some advantages over coins. For a start, textile production was widespread and there were ***fewer problems with the supply of textiles****. For large transactions, textiles weighed less than their equivalent in coins since a string of coins . . . could weigh as much as 4 kg. Furthermore, the* ***dimensions of a bolt of silk held remarkably steady*** *from the third to the tenth century: 56 cm wide and 12 m long . . .* ***The values of different textiles were also more stable*** *than the fluctuating values of coins. . . .*
The government also required the use of textiles for large transactions. Coins, on the other hand, were better suited for smaller transactions, and possibly, given the costs of transporting coins, for a more local usage. Grain, because it rotted easily, was not used nearly as much as coins and textiles, but taxpayers were required to pay grain to the government as a share of their annual tax obligations, and official salaries were expressed in weights of grain. . . ."

QNo:- 17 ,Correct Answer:- *A*

Explanation:-
Refer lines "Stained, faded and torn bolts of textiles had less value than a brand new bolt. Furthermore, a full bolt had a particular value. If consumers cut textiles into smaller pieces to buy or sell something worth less than a full bolt, that, too, greatly lessened the value of the textiles".

QNo:- 18 ,Correct Answer:- *D*

Explanation:-
Refer following line of last para "In actuality, our own currency system today has some similarities"
Option 2 is incorrect as grains, though they rotted easily, were used as currency
Option 3 is incorrect Refer following line of penultimate para 'The government also required the use of textiles for large transactions.'

QNo:- 19 ,Correct Answer:- *3*

Explanation:- *SR 1542*
1-5 are linked by 'more specifically'
*5-4 this realization' in 4 refers to "****the literary canon is androcentric****" in 5*
2 closes the para by giving an example
3 though looks related doesn't fit into the para

QNo:- 20 ,Correct Answer:- *A*

Explanation:-
Option 2 takes a positive tone while para calls the expectations from forensic phonetics unrealistic
Option 3 is incorrect as it leaves out that the expectations from forensic phonetics unrealistic
Option 4 leaves out the part where judges have unrealistic expectations because of movies and TV series

QNo:- 21 ,Correct Answer:- *3124*

Explanation:- *3 is the most generic stt so comes first.*
*3-12 'Tensions and sometimes conflict **remain an issue'** in 1 exemplifies 'continuity in 3'*
And 'China's rise' exemplifies 'profound changes' in 3
1-4 States from outside take interest because of "China's rise" in 1

QNo:- 22 ,Correct Answer:- *1432*

Explanation:-
1 is the most generic stt so comes first
1-4 4 explains how significance can be understood - by probing beneath the narrative
of verbatim
4-3 when tales are probed by method stated in 4, Selected tales reveal that they deal with a form of spiritual conflict
3-2 are linked by Shamans introduced in 3

QNo:- 23 ,Correct Answer:- *C*

Explanation:- *Option 1 captures only 1st lines of the para*
Option 2 talks about immutable but leaves out heredity
Option 4 is factually incorrect as biologists aren't questioning "ways in which that is inherited."

QNo:- 24 ,Correct Answer:- *A*

Explanation:- *Option 2 talks only of politics leaves out economics*
*Option 3 is more generic as compared to option 1. Option 1 correctly captures "lower political and economic heterogeneity" instead of just **changing** internal structure and "emerging multi-polar world" instead of "**changing** world order" in 3*
*Option 4 is too generic esp when compared to option 1. Option 1 talks of "emerging multi-polar world" instead of "**changing** world order" in option 4. Also, "a united Europe" gives an impression that complete Europe has united which is an inference not warranted by the para*

QNo:- 25 ,Correct Answer:- *3*

Explanation:- *3 talks about spirit world which isn't talked about in any other stt*
4215
4-2 2 exemplifies how even in the most extreme circumstances slaves couldn't be muted
1-5 1 gives reason why slave owners obsessed over slave talk because Talk was the most common way for enslaved men and women to subvert the rules of their bondage, to gain more agency than they were supposed to have.

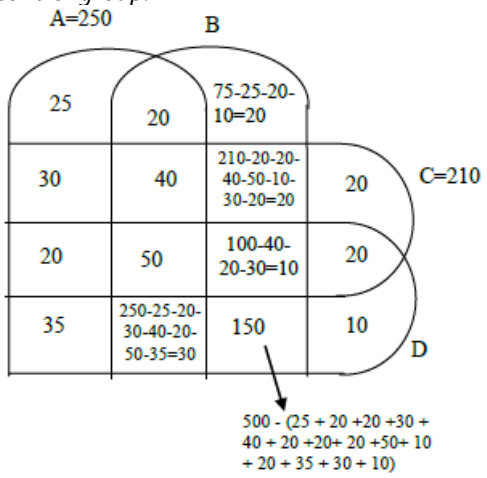
QNo:- 26 ,Correct Answer:- *1324*

Explanation:- *1324*
The stts are arranged chronologically
1 has 'dawn of civilization' as the time frame
1 is also the most generic stt and also introduces topic under discussion – poison/biological weapons
3-2 'these dangers' in 2 is referring to stt 3
2-4 2 and 4 are linked as both talk about nations working together through declarations in 2 and 4 talks about treaties

Section : DI & Reasoning

QNo:- 27 ,Correct Answer:- *340*

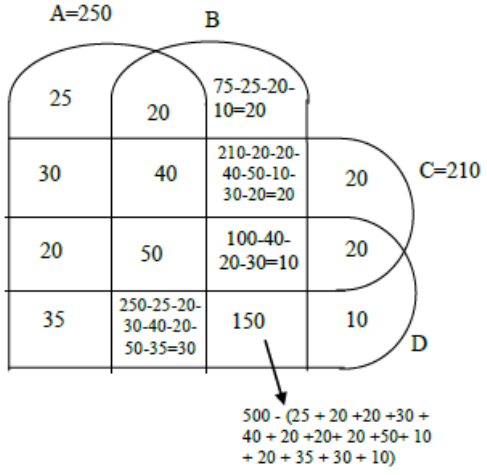
Explanation:- *From instruction we can say that these are 500 patients in treatment group and 500 patients in control group.*



20 + 20 + 40 + 20 + 50 + 10 + 30 + 150 = 340

QNo:- 28 ,Correct Answer:- *10*

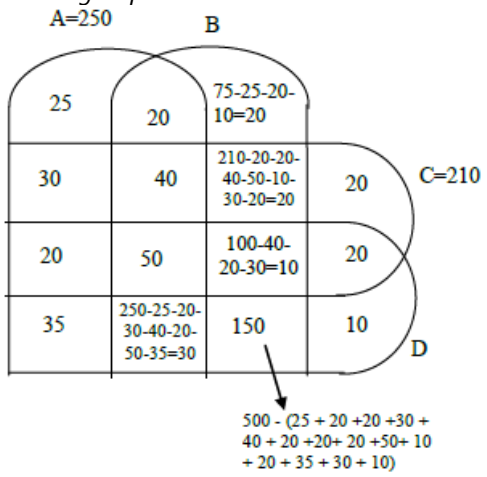
Explanation:- *From instruction we can say that these are 500 patients in treatment group and 500 patients in control group.*



10

QNo:- 29 ,Correct Answer:- *150*

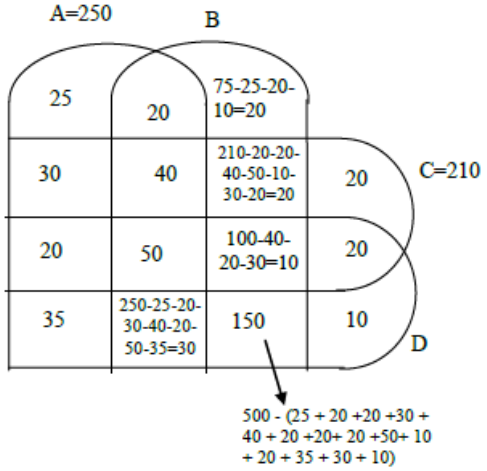
Explanation:- *From instruction we can say that these are 500 patients in treatment group and 500 patients in control group.*



150

QNo:- 30 ,Correct Answer:- *325*

Explanation:- *From instruction we can say that these are 500 patients in treatment group and 500 patients in control group.*



20 + 50 + 10 + 20 + 35 + 30 + 150 + 10 = 325

QNo:- 31 ,Correct Answer:- *A*

Explanation:- *Given that each institute have contract with two vendors*
From I, II, and III facts given, we have

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Z	Z	Z	Z	Z	Z	Z	Z	Z	Z
X	X	X	X	X	X				
Y									Y
		W							
		W							

From the IV fact, we can say in 2012 there are five contracts. This means out of Z and X, one must be double.

If Z is double then the contract can be split into 3 years and 8 years which is not possible as given contract can be 7 years contract, 4 years contract, 3 years contract or one year contract.
∴ From 2012 to 2015, x will have a four year contract with D, as D did not have any contract in 2010.
C did not have a contract in 2011
∴ A will have contract with C from 2010 to 2012 and C must from contract with Z from 2017 to 2019 and initial 7 years contract of B with Z.

Since B and D have only one contract in 2012, ∴ W will have contract with A and C in 2012.
A and C already made contract with 2 vendors, we are left with B & D for single year contract. D didn't have contract in 2010.
∴ D will have contract in 2019 with Y and B will have contract with Y in 2010.
Therefore the final table,

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
BZ	BZ	BZ	BZ	BZ	BZ	BZ	CZ	CZ	CZ
AX	AX	AX							
		DX	DX	DX	DX				
BY		CW							DY
		AW							

2015 (BZ and DX)

QNo:- 32 ,Correct Answer:- *A*

Explanation:- *Given that each institute have contract with two vendors*
From I, II, and III facts given, we have

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Z	Z	Z	Z	Z	Z	Z	Z	Z	Z
X	X	X	X	X	X				
Y									Y
		W							
		W							

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A and C already made contract with 2 vendors, we are left with B & D for single year contract. D didn't have contract in 2010.
∴ D will have contract in 2019 with Y and B will have contract with Y in 2010.
Therefore the final table,

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
BZ	BZ	BZ	BZ	BZ	BZ	BZ	CZ	CZ	CZ
AX	AX	AX							
		DX	DX	DX	DX				
BY		CW							DY
		AW							

D had a contract with Y in 2019

QNo:- 33 ,Correct Answer:- *A*

Explanation:- *Given that each institute have contract with two vendors*
From I, II, and III facts given, we have

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Z	Z	Z	Z	Z	Z	Z	Z	Z	Z
X	X	X	X	X	X				
Y									Y
		W							
		W							

From the IV fact, we can say in 2012 there are five contracts. This means out of Z and X, one must be double.

If Z is double then the contract can be split into 3 years and 8 years which is not possible as given contract can be 7 years contract, 4 years contract, 3 years contract or one year contract.
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C did not have a contract in 2011
∴ A will have contract with C from 2010 to 2012 and C must from contract with Z from 2017 to 2019 and initial 7 years contract of B with Z.

Since B and D have only one contract in 2012, ∴ W will have contract with A and C in 2012.
A and C already made contract with 2 vendors, we are left with B & D for single year contract. D didn't have contract in 2010.
∴ D will have contract in 2019 with Y and B will have contract with Y in 2010.
Therefore the final table,

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
BZ	BZ	BZ	BZ	BZ	BZ	BZ	CZ	CZ	CZ
AX	AX	AX							
		DX	DX	DX	DX				
BY		CW							DY
		AW							

3 (2016, 2017, 2018)

QNo:- 34 ,Correct Answer:- *C*

Explanation:- *Given that each institute have contract with two vendors*
From I, II, and III facts given, we have

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Z	Z	Z	Z	Z	Z	Z	Z	Z	Z
X	X	X	X	X	X				
Y									Y
		W							
		W							

From the IV fact, we can say in 2012 there are five contracts. This means out of Z and X, one must be double.

If Z is double then the contract can be split into 3 years and 8 years which is not possible as given contract can be 7 years contract, 4 years contract, 3 years contract or one year contract.
∴ From 2012 to 2015, x will have a four year contract with D, as D did not have any contract in 2010.
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∴ D will have contract in 2019 with Y and B will have contract with Y in 2010.
Therefore the final table,

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
BZ	BZ	BZ	BZ	BZ	BZ	BZ	CZ	CZ	CZ
AX	AX	AX							
		DX	DX	DX	DX				
BY		CW							DY
		AW							

Exactly 3

QNo:- 35 ,Correct Answer:- *B*

Explanation:- *Given that each institute have contract with two vendors*
From I, II, and III facts given, we have

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Z	Z	Z	Z	Z	Z	Z	Z	Z	Z
X	X	X	X	X	X				
Y									Y
		W							
		W							

From the IV fact, we can say in 2012 there are five contracts. This means out of Z and X, one must be double.

If Z is double then the contract can be split into 3 years and 8 years which is not possible as given contract can be 7 years contract, 4 years contract, 3 years contract or one year contract.
∴ From 2012 to 2015, x will have a four year contract with D, as D did not have any contract in 2010.
C did not have a contract in 2011
∴ A will have contract with C from 2010 to 2012 and C must from contract with Z from 2017 to 2019 and initial 7 years contract of B with Z.

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∴ D will have contract in 2019 with Y and B will have contract with Y in 2010.
Therefore the final table,

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
BZ	BZ	BZ	BZ	BZ	BZ	BZ	CZ	CZ	CZ
AX	AX	AX							
		DX	DX	DX	DX				
BY		CW							DY
		AW							

A and B only (In 2010 ⇒ BZ and BY, In 2012 ⇒ AX and AW)

QNo:- 36 ,Correct Answer:- *A*

Explanation:- *Given that each institute have contract with two vendors*
From I, II, and III facts given, we have

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Z	Z	Z	Z	Z	Z	Z	Z	Z	Z
X	X	X	X	X	X				
Y									Y
		W							
		W							

From the IV fact, we can say in 2012 there are five contracts. This means out of Z and X, one must be double.

If Z is double then the contract can be split into 3 years and 8 years which is not possible as given contract can be 7 years contract, 4 years contract, 3 years contract or one year contract.
∴ From 2012 to 2015, x will have a four year contract with D, as D did not have any contract in 2010.
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A and C already made contract with 2 vendors, we are left with B & D for single year contract. D didn't have contract in 2010.
∴ D will have contract in 2019 with Y and B will have contract with Y in 2010.
Therefore the final table,

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
BZ	BZ	BZ	BZ	BZ	BZ	BZ	CZ	CZ	CZ
AX	AX	AX							
		DX	DX	DX	DX				
BY		CW							DY
		AW							

A, B, W and X

QNo:- 37 ,Correct Answer:- *A*

Explanation:- *Average cannot be maximum or minimum.*
Given that the student who missed mathematics exam didn't miss any other exam.
∴ If Alva miss mathematics then Alva's average = $\frac{80+75+75}{3}$ *that's not equal to 70*
∴ Alva eliminated, if Foni miss Mathematics, then Foni average (of best 3) = $\frac{88+83+83}{3}$
Which is not equal to 78. ∴ Foni is eliminated.
We can see that Esha got maximum marks in mathematics (which is not possible if she misses mathmatics, as the missed exam is the average of remaining subjects).
∴ Carl will be the right answer as, Carl average = $\frac{100+90+80}{3}=90$
Which is equal to mathematics score.

QNo:- 38 ,Correct Answer:- *B*

Explanation:-
As the marks in the missing exam in the average of the remaining marks (according to different condition) and we know average can neither be least nor maximum. ∴ Alva Bithi, Carl and Deep are eliminated. ∴ Answer will be Esha and Foni

QNo:- 39 ,Correct Answer:- *B*

Explanation:- *Let's check for Esha only, by checking for Esha only we can eliminate all the wrong options.*
There are two cases with the Hindi;
Case I ⇒ only miss Hindi exam ∴ score for Hindi for Esha = $\frac{95+80+60}{3} = 78.33$
∴ Not equal to 85. Not satisfied
Case II ⇒ miss Hindi and Science both. Not possible as score isdiffernt for Hindi and Science. ∴ Alva and Deep will be the answer

QNo:- 40 ,Correct Answer:- *D*

Explanation:- *From the table, we can see Bithi missed the Science paper definitely but we are not sure of Alva and Deep. One out of Alva and Deep will definitely miss the Science exam*

QNo:- 41 ,Correct Answer:- *3,4*

Explanation:- *We can see that Esha, Carl and one out of Alva or Deep missed one examination.*

QNo:- 42 ,Correct Answer:- *4*

Explanation:- *We are definite about Bithi, Carl, Esha and Foni*

QNo:- 43 ,Correct Answer:- *A*

Explanation:- *We have to maximize the rating of Damodaran, taking care that he did not get the bonus.*
∴ Damodaran = 5 +5 + 3 +4+ 1 = 18 ∴ Rating = 18/5 = 3.6

QNo:- 44 ,Correct Answer:- *C*

Explanation:- *We have to minimize the rating of Eman, taking care that Eman will get bonus.*
∴ Eman = 5 + 3 + 3 + 2 + 2 = 15 ∴ Rating = 15/5 = 3.0

QNo:- 45 ,Correct Answer:- *A*

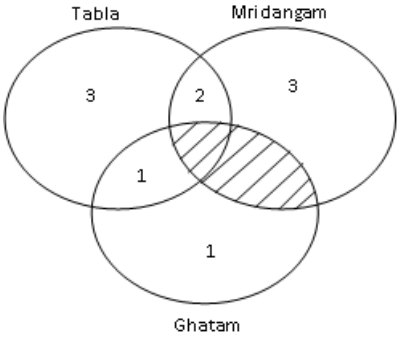
Explanation:- *As, we have to find the minimum possible value of monthly payment is mean we need to find the payment of ill the drivers, keeping their rating minimum and all drivers will get the bonus.*
Arun = 5 + 2 + 2 + 4 3 + = 16
Arun Rating = 16/5 = 3.2
∴ Arun payment = 1000 + 3.2 × 250 = 1800
Barun = 3 + 5 + 2 + 2 + 3 = 15
Barun Rating = 15/5 = 3.0
∴ Barun payment = 1200 + 200 × 3 = 1800
Chandan = 5 + 5 + 2 + 2 +3 = 17
Chandan Rating = 17/5 = 3.4
Chandan Payment = 1400+ 3.4 × 100 = 1740
Damodaran = 5 + 3 + 3 + 2 + 2
Damodaran Rating = 15/5 = 3.0
∴ Damodaran payment = 1300 + 150× 3 = 1750
Eman = 5 + 3 + 3 + 2 +2 = 15
Eman Rating = 15/5 = 3.0
∴ Eman Payment = 1100+ 200×3 = 1700
∴ Eman payment will be minimum i.e. 1700

QNo:- 46 ,Correct Answer:- *A*

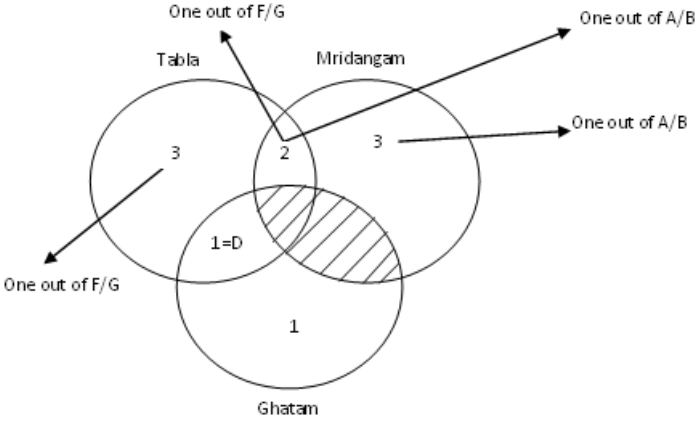
Explanation:- *Now we have to maximize the rating of all five drivers*
Arun = 5 + 4 + 3 + 4 + 3 = 19. Rating = 19/5 = 3.80
∴ Arun Payment = 1000 + 3.8 × 250 = 1950
Barun = 3 + 5 + 4 + 4 + 3. Rating = 19/5 = 3.80
∴ Barun Payment = 1200 + 200 × 3.80 = 1960
Chandan = 5 + 5 + 2 + 4 + 4 = 20. Rating = 20/5 = 4.0
∴ Chandan Payment = 1400 + 100 × 4 = 1800
Damodaran = 5 + 3 5 + 4 + 4 = 21
Rating = 21/5 = 4.2
∴ Damodaran Payment = 1300 + 150 × 4.2 = 1930
Eamn = 5 + 5 + 4 + 4 +2 = 20. Rating = 20/5 = 4.0
∴ Eman payment = 100 + 200 × 4 = 1900
∴ Barun's payment is maximum i.e. 1960

QNo:- 47 ,Correct Answer:- *C*

Explanation:- *After Reading the passage*



After reading instruction point 1, 2, 3



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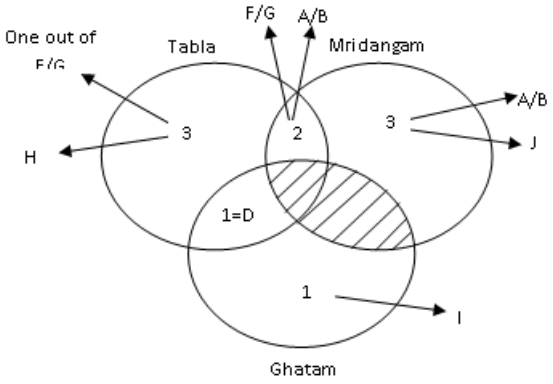
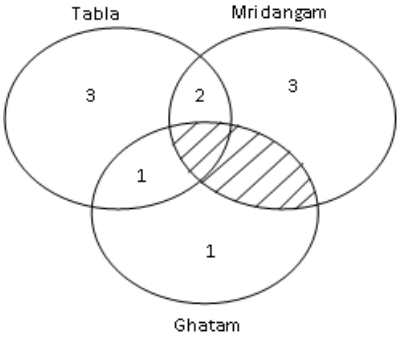


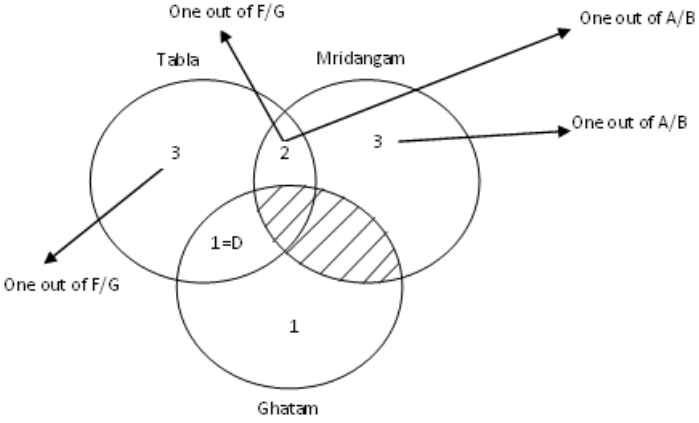
H

QNo:- 48 ,Correct Answer:- *C*

Explanation:- *After Reading the passage*



After reading instruction point 1, 2, 3



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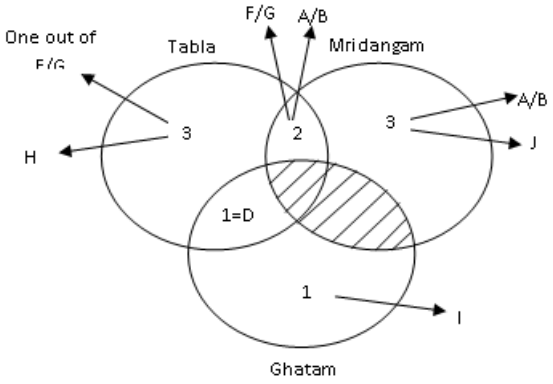
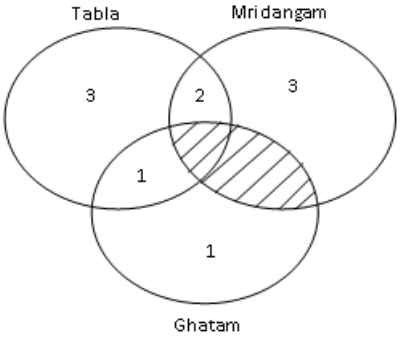


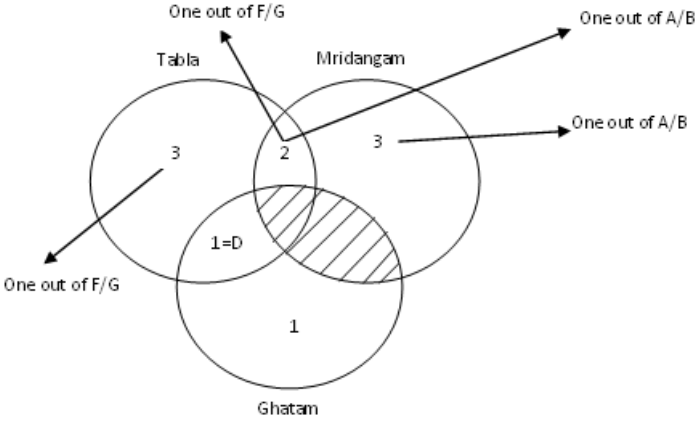
J

QNo:- 49 ,Correct Answer:- *C*

Explanation:- *After Reading the passage*



After reading instruction point 1, 2, 3



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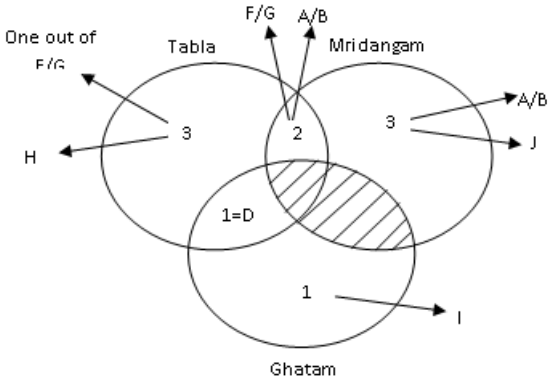
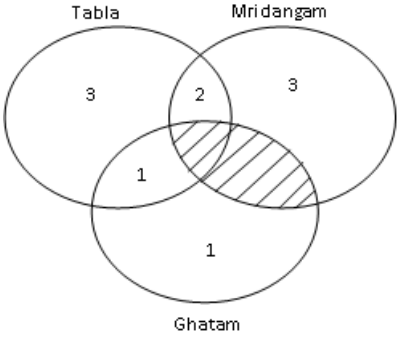


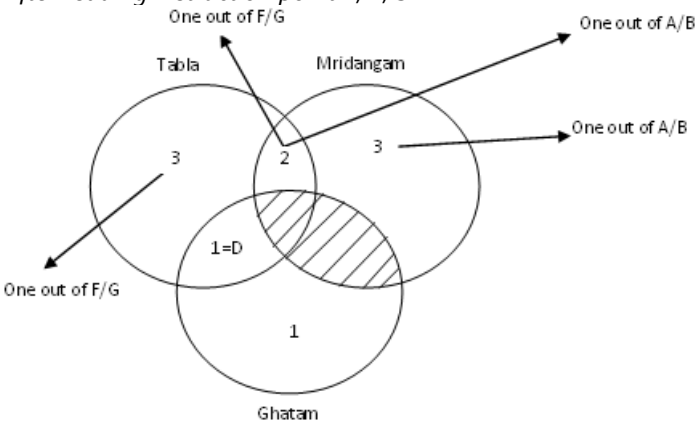
It can only be from A/B, F/G
∴ C and F is the correct options

QNo:- 50 ,Correct Answer:- *A*

Explanation:- *After Reading the passage*



After reading instruction point 1, 2, 3



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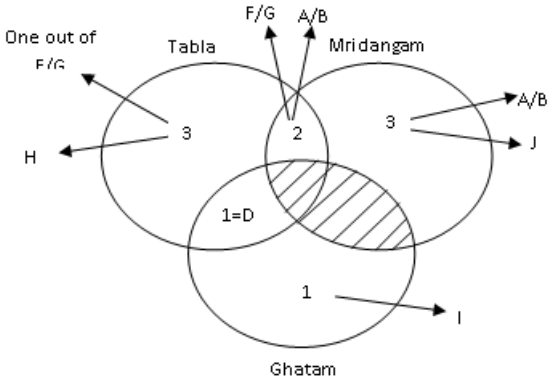
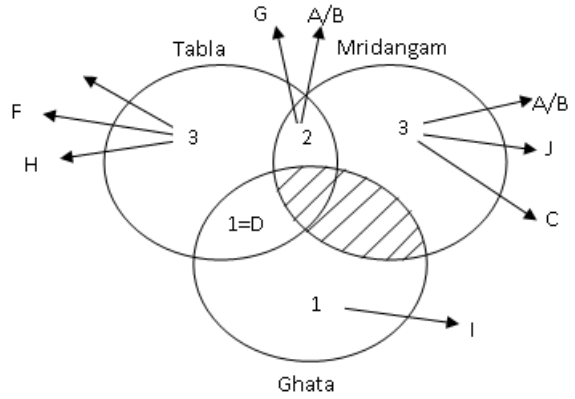




∴ E, F & H are expert in Tabla only

Section : Quantitative Ability

QNo:- 51 ,Correct Answer:- B

Explanation:- We want the least value of the maximum function, which is possible when the values inside the brackets are as close as possible. As number of students must be integer, therefore values of x_1, x_2.....x_{12} can be 8 or 9 (i.e 8,8,8,8,8,8,8,8,9,9,9,9).
Therefore max value of x_0 is 9.

QNo:- 52 ,Correct Answer:- 62

Explanation:- Let the number of toffees be x.
Toffees Given to first child = (x/2)+1
Toffees given to second child= (1/2) (x- (x/2) -1) + 1 = (x/4)+(1/2)
We find the symmetry in the pattern of toffees distribution,
Therefore toffees distribution done [(x/2)+1] ,[(x/4)+(1/2)] ,[(x/8)+(1/4)] ,[(x/16)+(1/8)] ,[(x/32)+(1/16)]
⇒ [(x/2)+1] + [(x/4)+(1/2)] + [(x/8)+(1/4)] + [(x/16)+(1/8)] + [(x/32)+(1/16)] = x
⇒ (62/32) = x – (31/32)x
⇒ x=62

QNo:- 53 ,Correct Answer:- 12

Explanation:- Let x be the number of year after which veeru amount will be equal to Joy amount.
So, (principle + Interest) for Veeru after x year = 10,000 + 10,000$\left(\frac{5x}{100}\right)$and (principle + Interest) for Joy after (x – 2) years = 8000 + 8000$\left(\frac{10(x-2}{100}\right)$
Accroding to given condtion,
$\Rightarrow 10000+10000\left(\frac{5x}{100}\right)=8000+8000\left(\frac{10(x-2}{100}\right)$
⇒ 10000 + 500x = 800 + 800x – 1600 ⇒ x = 12

QNo:- 54 ,Correct Answer:- D

Explanation:- $2^{y^2\log_3 5}=5^{\log_2 3}$
$\Rightarrow \log\left(2^{y^2\log_3 5}\right)=\log\left(5^{\log_2 3}\right)$
$\Rightarrow y^2\frac{\log 5}{\log 3}\times\log 2=\frac{\log 3}{\log 2}\times\log 5$
$\Rightarrow y^2=\left(\frac{\log 3}{\log 2}\right)^2\Rightarrow y=-\left(\frac{\log 3}{\log 2}\right)$ [$\because$ y is negative]
$y=-\log_2 3=\log_2\frac{1}{3}$

QNo:- 55 ,Correct Answer:- *12*

Explanation:- *As, distance covered is same with both the speed,*

$\therefore D = S \times T \Rightarrow \frac{8}{60} \times t = \frac{15}{60} \times (t - 35)$

(where, t is the time taken in minutes by Amal when his speed is 8km/hr)

$\Rightarrow t = 75 \text{ minutes} \therefore D = \frac{8}{60} \times 75$

This means, Amal started from his house at 9:00 AM and taken 75 minutes to reach office with the speed of 8 km/hr. Now, Amal starts at 9:10 Am and wanted to reach office at 10:00 AM, i.e. is 50 minutes.

$\text{We know, } S = \frac{Distance}{Time} = \frac{8 \times 60 \times 75}{50 \times 60} = 12 \text{ km/hr}$

QNo:- 56 ,Correct Answer:- *D*

Explanation:- *Let usual speed is x and time is t*

If speed becomes 1/3 time will become 3 times so, time taken is 3t

Given that 3t –t = 30. So t is 15 min.

On return journey, in 5 minutes, it will cover 1/3rd return journey, in 5 minutes, it will cover 1/3rd distance, Ti cover the remaining distance, it has 10 minutes at usual speed but as it stopped for 4 minutes, remaining time is 6 minutes.

Ratio of normal time to new time is 5:3.

Ratio of normal speed to new speed is 3:5.

So speed increased by 2/3 or 66.77%

QNo:- 57 ,Correct Answer:- *B*

Explanation:-

$2^x + 2^{-x} = 2 - (x-2)^2$

LHS equation will always be greater than or equal to 2, whereas RHS equation will always be less than or equal to 2. This means this can only be equal when LHS and RHS both are 2, which is not possible as they will be equal to 2 at two different values of x.

QNo:- 58 ,Correct Answer:- 8

Explanation:- Dye Water
40L ⇒ 2 : 3
⇒ 16 24

Now, water is added and ratio becomes 2:5 but dye volume in the solution is same
Let, x L ⇒ 2 : 5
⇒ 16 ?
$\therefore \frac{2}{7} \times x = 16 \Rightarrow x = 56$
⇒ 16 40
Now, one fourth of solution taken out
⇒ 12 30
Now, dye is added but water volume remain same and ratio become 2:3
Let y^2 ⇒ 2 : 3
? 30
$\Rightarrow \frac{3}{5} \times y = 30 \Rightarrow y = 50$
∴ 50L ⇒ 2 : 3
⇒ 20 30
This means 8L dye is added.

QNo:- 59 ,Correct Answer:- D

Explanation:- $A + \frac{B+C}{2} = 5 \Rightarrow 2A + B + C = 10 \ldots\ldots\ldots\ldots (1)$
$B + \frac{A+C}{2} = 7 \Rightarrow 2B + A + C = 14 \ldots\ldots\ldots\ldots (2)$
(2) – (1) ⇒ B – A = 4
This means sum of A and B must be greater than 4 and it should also be even because if the sum of A and B will be odd then value of A and B will not be integer.
Therefore, only one option ⇒ A + B = 6

QNo:- 60 ,Correct Answer:- 21

Explanation:- 113, 114, 115, 116, 122
$\frac{3!}{2!} = 3$ cases for each number. 123 ⇒ 3! = 6 cases for 123. ∴ Total = 15 + 6 = 21

QNo:- 61 ,Correct Answer:- C

Explanation:- Time taken to meet together will be the square root of the product of time taken to reach their destination after the meeting point.
i.e., $t = \sqrt{45 \times 20} = 30$ minutes
Distance = Speed × time
$\Rightarrow \frac{60}{60} \times (30 + 45) = \frac{S_2}{60} \times (30 + 20) \Rightarrow S_2 = \frac{60}{50} \times 75 \Rightarrow S_2 = 90$ km/hr

QNo:- 62 ,Correct Answer:- *36*

Explanation:- $\text{Log}_4 5 = (\log_4 y)(\log_6 \sqrt{5})$

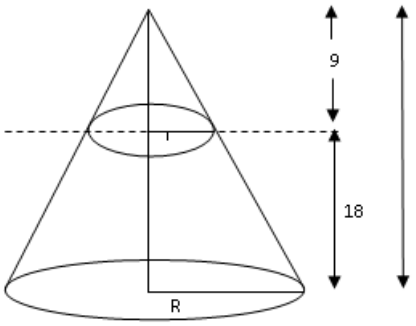
$\Rightarrow \frac{\log 5}{\log y} = \log_6 \sqrt{5}$

$\Rightarrow \log_y 5 = \log_6 \sqrt{5} \Rightarrow \log_y 5 = 2\log_6^2 \sqrt{5}$

$\Rightarrow \log_y 5 = \log_{36} 5$

$\Rightarrow y = 36$

QNo:- 63 ,Correct Answer:- *A*



Explanation:-

We know, $\frac{27}{R} = \frac{9}{r}$

$\Rightarrow r = \frac{R}{3}$. Given,

$\frac{1}{3}\pi\left[R^2 \times 27 - r^2 \times 9\right] - \frac{1}{3}\pi[r^2 \times 9] = 225$

$\Rightarrow \frac{1}{3}\pi R^2[25] = 225$

$\Rightarrow \frac{1}{3}\pi R^2 \times 27 = \frac{225}{25} \times 27$

$\Rightarrow$ *Volume of cone = 243*

QNo:- 64 ,Correct Answer:- *D*

Explanation:- *Time taken* *Relative speed*

Length of train → 90 *→ S - 2*

Length of train → 100 *→ S - 4*

Length of train → ? *→ S*

$\therefore \frac{S-2}{S-4} = \frac{100}{90}$

$\Rightarrow$ *9S - 18 = 10S - 40*

$\Rightarrow$ *S = 22*

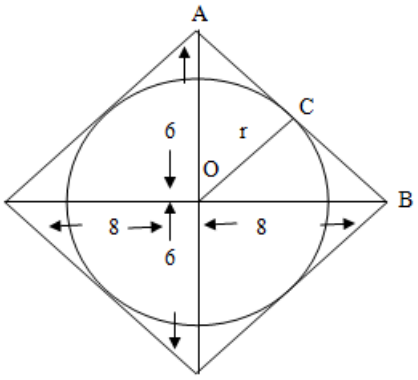
$\therefore$ time taken $= \frac{\text{Distance}}{\text{Speed}}$

$= \frac{90 \times 20}{22}$

$= 81.81$

≈ 82

QNo:- 65 ,Correct Answer:- *C*



Explanation:-
By Pythagoras, AB will be = 10 cm
Now, area of Δ AOB = ½ × 6 / 8
Also ΔAOB = ½ × 10 × OC
⇒ ½ × 6 × 8 = ½ × 10 × OC
⇒ 4.8cm = r .

$$\frac{\text{Area of circle}}{\text{Area of Rhombus}} = \frac{\pi(4.8)^2}{\frac{1}{2}\times 12\times 16} = \frac{6}{25}\pi$$

QNo:- 66 ,Correct Answer:- *D*

Explanation:- *f(5 + x) = f(5- x)*
x → x - 5
⇒ f(5 + x - 5) = f(5- x + 5)
⇒ f (x) = f (10 - x)
Given, f (x) = 0
∴ Also, f (10 - x) = 0
Given that these are four distinct solutions
⇒ f (α) = 0, f (β) = 0
⇒ f (10 - α) = 0, f (10 - β) = 0
Sum of these roots = α + β + 10 - α + 10 - β = 20

QNo:- 67 ,Correct Answer:- *C*

Explanation:- $x = (4096)^{7+4\sqrt{2}}$

$\Rightarrow x = (2^6)^{2(7+4\sqrt{3})}$

$\Rightarrow x = (64)^{14+8\sqrt{3}}$

$\Rightarrow (x)^{\frac{1}{14+8\sqrt{3}}} = 64$

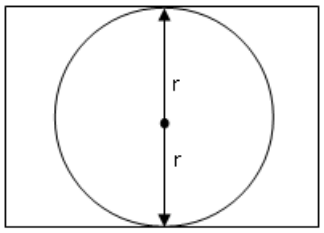
$\Rightarrow (x)^{\frac{14-8\sqrt{3}}{4}} = 64$

$\Rightarrow x^{\left(\frac{7}{2}-2\sqrt{3}\right)} = 64$

$\Rightarrow \frac{x^{\frac{7}{2}}}{x^{2\sqrt{3}}} = 64$

QNo:- 68 ,Correct Answer:- *A*

Explanation:-



Let the area of circle be x

$\Rightarrow x+\frac{2}{3}x=135$

$\Rightarrow x=\frac{135\times 3}{5} \Rightarrow x=81 \Rightarrow \pi r^2=81$ (where, r is radius of circle)

$\Rightarrow r=\frac{9}{\sqrt{\pi}}$

$\Rightarrow 2r=\frac{18}{\sqrt{\pi}} \Rightarrow (2r)$. (other side of rectangle $=135$

(let, ℓ be the other side of rectangle)

$\ell=\frac{135}{18}\sqrt{\pi}$

$\ell=\frac{15\sqrt{\pi}}{2}$

Perimeter = 2 (ℓ + b)

$=2\left(\frac{15}{2}\sqrt{\pi}+\frac{18}{\sqrt{\pi}}\right)$

$=3\pi\left(5+\frac{12}{\pi}\right)$

QNo:- 69 ,Correct Answer:- *1*

Explanation:- Let, $x+\frac{1}{x}=y$

$\Rightarrow y^2-3y+2=0$

$\Rightarrow y=\frac{3\pm\sqrt{9-4.1.2}}{2}$

$= 2, 1$

$\therefore x+\frac{1}{x}=2$ $\qquad$ $x+\frac{1}{x}=1$

$\Rightarrow x^2+1-2x=0$ $\qquad$ $\Rightarrow x^2+1-x=0$

$\Rightarrow x=\frac{2\pm\sqrt{4-4.1.1}}{2}$ $\qquad$ $\Rightarrow x=\frac{1\pm\sqrt{1-4.1.1}}{2}$

$= 1$ $\qquad$ *Imaginary root*

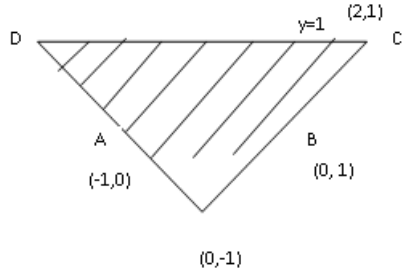
$\therefore x = 1$. *Only one real root*

QNo:- 70 ,Correct Answer:- *D*

Explanation:- *Case I ⇒ when C = 8*
⇒ bc = 96 ⇒ b = 12
∴ ab = 432
⇒ a = 36
⇒ a + b + c = 8 + 12 + 36 = 56
Case II ⇒ when C = 7
⇒ bc = 96 ⇒ b will not be integer
∴ c = 7 not possible
Case III ⇒ when C = 6
⇒ bc = 96 ⇒ b = 16
∴ ab = 432
⇒ a = 432/16 = 27
⇒ a + b + c = 49
Case IV ⇒ C = 5 (not possible) because b will not be integer
Case V ⇒ C = 4
∴ bc = 96 ⇒ b = 24
∴ ab = 432 ⇒ a = 432/24 = 18
∴ a + b + c = 46
No, need to check further, of 46 is the least option given

QNo:- 71 ,Correct Answer:- *3*

Explanation:- *x| - y ≤ 1, y ≥ 0, y ≤ 1*
If x > 0 ⇒ x – y = 1 ..... (1)
And x < 0 ⇒ x – y = 1
Or x + y = -1 ..... (2)
Put x = 0 in (1), y = -1
Put y = 0 in (1) x = 1
Put y = 1 in (1), x = 2
Put x = 0 in (2), y = -1
Y = 0 in (2), x = -1
Y = 1 in (2), x = -2
Shaded area is trapezium = ½ [2 + 4] × 1 = 35q.units



QNo:- 72 ,Correct Answer:- *C*

Explanation:- *65% lit. 35% Illiterates*
↓
25%
16.25% young
Given, 28% are young in which 16.25% are literates (from above) and 11.75% are illiterates. ∴ out of 35% illiterates 23.25% are old, that means
$\left(\frac{23.25}{35}\times 100\right)^{\%}$
⇒ *66.428% old illiterates*

QNo:- 73 ,Correct Answer:- *C*

Explanation:- *aa bb a > 0*
So, numbers are
1100 2200
1122 2222
1144 2244
1166 2266
1188 2288
↓ ↓
Mean Mean and so on
1144 2244
Average of 1144, 2244, 3344, 4444, 5544, 6644, 7744, 8844, 9944 is 5544

QNo:- 74 ,Correct Answer:- *C*

Explanation:-

	A	B	C
Volume	3	4	7
Weight of volume	5	2	6
Weight	15	8	42

$\therefore$ C's weight $= \frac{42}{(15+8+42)} \times 130 = 84$ kg

QNo:- 75 ,Correct Answer:- *20000*

Explanation:- *Let the purchase price of develop be x ∴ 1.2x + 0.9 (50000-x) = 1.02 × 50000*
$\Rightarrow 0.3x + 45000 = 51000 \Rightarrow x = \frac{6000}{3}\times 10 \Rightarrow x = 20{,}000$

QNo:- 76 ,Correct Answer:- *B*

Explanation:- $(x^2-7x+11)^{x^2+3x+42}=1$

As $a^0 = 1$

$\Rightarrow x^2 - 13x + 42 = 0$

$\Rightarrow x = 6, 7$

Also, $x^2 - 7x + 11 = 1$, $x^2 - 7x + 10 = 0$

$\Rightarrow x = 2, 5$

Also, $x^2 - 7x + 11 = -1$, $x^2 - 7x + 12 = 0$

$\Rightarrow x = 3, 4$

Directions of Test

Test Name	Actual CAT 2020 Slot II	Total Questions	76	Total Time	120 Mins

Section Name	No. of Questions	Time limit	Marks per Question	Negative Marking
Verbal Ability	26	0:40(h:m)	3	1/3
DI & Reasoning	24	0:40(h:m)	3	1/3
Quantitative Ability	26	0:40(h:m)	3	1/3

Section : Verbal Ability

QNo:- 1 ,Correct Answer:- *A*

Explanation:- *Options B, C and D find support in paragraph 4, 3 and 1 respectively. Only option A does not find mention in the passage.*

QNo:- 2 ,Correct Answer:- *B*

Explanation:- *Indignant means showing anger or annoyance*
Analytical means logical
Facetious meaning sarcasm.
The author's views in the given sentence do not support any of the above.
Rather he is giving reasons to why the people indulge I piracy, so IRONIC is appropriate.

QNo:- 3 ,Correct Answer:- *D*

Explanation:- *Option A is rejected because he has just mentioned them as examples and not those who laid foundation of piracy.*
Option B is rejected as it is opposite to what is mentioned in 2nd paragraph.
Option C is eliminated as the paragraph talks about disorganised people and not piracy.
Only option D brings in the meaning of the sentence(i.e. acquisition of wealth)

QNo:- 4 ,Correct Answer:- *C*

Explanation:- *Everything else is rejected by the author (refer penultimate paragraph) and only option C could help to bring piracy under control in the long run*

QNo:- 5 ,Correct Answer:- *A*

Explanation:- *Refer to the line "for some climate activists------- access to energy". So option A is correct.*

QNo:- 6 ,Correct Answer:- *D*

Explanation:- *Negative impacts of renewable energy need to be studied to ensure no social or environmental harm. Hence option D is the answer.*

QNo:- 7 ,Correct Answer:- *D*

Explanation:- *The author's reservation is about different consequences of renewable energy systems on environment, profitability etc. hence option D is the answer.*

QNo:- 8 ,Correct Answer:- *B*

Explanation:- *According to the last paragraph, there are pros as well as con to look after before going ahead with the development of renewable energy, hence option B is correct.*

QNo:- 9 ,Correct Answer:- *C*

Explanation:- *Throughout the passage, the author is majorly concerned about developing renewable systems o energy to reduce carbon footprint and the disposal of toxic waste globally, hence option C is correct.*

QNo:- 10 ,Correct Answer:- *C*

Explanation:- *Options A, B and D are illogical, only C can be interpreted.*

QNo:- 11 ,Correct Answer:- *D*

Explanation:- *Options A, B and C find support in paragraph 1, 4 and last respectively. Only option D cannot be inferred because not only institutional structure, but a number of other factors need to be considered that help to study visual culture.*

QNo:- 12 ,Correct Answer:- *B*

Explanation:- *Only option B conveys the correct interpretation of the given sentence. The idea is sight or vision becomes the meaningful visual experience. Rest of the options distort the main idea by putting focus on images , meaningful convenants or images of convenants being the base of visual experience which is wrong.*

QNo:- 13 ,Correct Answer:- *A*

Explanation:- *If we scan the passage from paragraph, 2 till the end, we can find the proper order of the words. First is IMAGERY, second is VISUAL PRACTICES, third is LIFEWORLDS, fourth is STRUCTURES OF PERCEPTION. Hence option A.*

QNo:- 14 ,Correct Answer:- *D*

Explanation:- ***EPIPHENOMENA*** *means a secondary effect or by-product of some event or condition, so option D is bringing the correct meaning.*

QNo:- 15 ,Correct Answer:- *D*

Explanation:- *2nd line of para 1 supports option A*
6th line of para 2 supports option B
5th line of para 2 supports option C
Whatever is mentioned as option D is opposite to the contents of the passage, hence the answer.

QNo:- 16 ,Correct Answer:- *D*

Explanation:- *The answer is clearly mentioned in the last lines of 1st para. Hence option D.*

QNo:- 17 ,Correct Answer:- *D*

Explanation:- *Options A, B and C find mention in 2nd paragraph. But option D states opposite to the 4th line of 2nd para, hence the answer.*

QNo:- 18 ,Correct Answer:- *A*

Explanation:- *The example is used by the author to explain a different type of aggression and not the type of torture inflicted on the enemy with the motive to extract any information as depicted in options B, C and D.*
The best explanation is given in option A.

QNo:- 19 ,Correct Answer:- *2413*

Explanation:- *Sentence 2 opens the paragraph as it introduces the topic.*
Sentence 4 gives further explanation to 2 and its contrast is given in 1.
The paragraph concludes with 3.
So the sequence is ***2413***

QNo:- 20 ,Correct Answer:- *4*

Explanation:- *The sentences 5231 seem to form a sequence.*
The 'questions' that arose in 4 seem to be from the same article but a link is missing to put 4 in the above sequence because we can't identify how the 'charitable questions' came up.
Hence ***sentence 4*** *is the misfit*

QNo:- 21 ,Correct Answer:- *2143*

Explanation:- *Sentence 2 introduces the topic VLT.*
The pronoun 'it' in 1 pairs with 2 (noun-pronoun pair)
4 describes further the functioning of VLT (key word 'these')
Finally 3 closes the paragraph.
So the sequence is ***2143***

QNo:- 22 ,Correct Answer:- *1342*

Explanation:- *Sentence 1opens the paragraph by introducing the topic (your brain is aware of all changes going around)*
Sentence 3 comes next in sequence (keyword "it" referring to brain)
Sentence 4 further explains 3
Sentence 2concludes the paragraph.
The final sequence is ***1342***

QNo:- 23 ,Correct Answer:- *C*

Explanation:- *We can conveniently eliminate options A and B as they focus on single aspect of the paragraph.*
Option D, though specifies both aspects , is eliminated because it is not the matter of time that is considered to differentiate between both types of decision- making.
Only ***option C*** *accurately captures the essence of the paragraph.*

QNo:- 24 ,Correct Answer:- *D*

Explanation:- *Options A and C are rejected because of the usage of 'voluntary desires' or 'voluntary surrender of rights' of people, rather it was a transactional relationship between people and sovereign state an the same is aptly presented in* ***option D.***
Option B is opposite to the contents of the paragraph, hence eliminated.

QNo:- 25 ,Correct Answer:- *2*

Explanation:- *The correct sequence is 3154*
Whereas in 2, altogether a different aspect(merchant capitalism) is taken which finds reference in none of the other sentences.
Although the other sentence talk about the beginning of the end of capitalism and also discuss new ways of working and sharing economy, but merchant capitalism is misfit here.
Hence ***sentence 2*** *is the misfit.*

QNo:- 26 ,Correct Answer:- *B*

Explanation:- *Option C is eliminated because the paragraph does not mention that current methodologies are irrelevant.*
Option D is rejected as combination of criteria is also important for interpretation of city's functions.
Option A seems close but missed the aspect of human judgement, hence rejected.
Option B *captures the summarized essence of the paragraph.*

Section : DI & Reasoning

QNo:- 27 ,Correct Answer:- *2,9*

Explanation:- *If we have to use 2 colors, then those two colors have to be Blue and Green only, because if red color is used, then there has to be at least one green and one blue between any two beads. There are two possible configurations if exactly 2 colors are used. Diagrams are shown below:*

A

BLUE	GREEN	BLUE	GREEN	BLUE
GREEN	BLUE	GREEN	BLUE	GREEN
BLUE	GREEN	BLUE	GREEN	BLUE
GREEN	BLUE	GREEN	BLUE	GREEN
BLUE	GREEN	BLUE	GREEN	BLUE

B

GREEN	BLUE	GREEN	BLUE	GREEN
BLUE	GREEN	BLUE	GREEN	BLUE
GREEN	BLUE	GREEN	BLUE	GREEN
BLUE	GREEN	BLUE	GREEN	BLUE
GREEN	BLUE	GREEN	BLUE	GREEN

QNo:- 28 ,Correct Answer:- *9,6*

Explanation:- *Maximum number of red beads can appear only when we minimize Blue and Green colored beads. The arrangement is as given below:*

RED	GREEN	BLUE	RED	GREEN
GREEN	RED	GREEN	BLUE	RED
BLUE	GREEN	RED	GREEN	BLUE
RED	BLUE	GREEN	RED	GREEN
GREEN	RED	BLUE	GREEN	RED

So we can see that there are 9 Red colored beads in the above arrangement.

QNo:- 29 ,Correct Answer:- *6,6*

Explanation:- *Minimum number of blue beads can appear only when we maximize Red and Green colored beads. The arrangement is as given below:*

RED	GREEN	BLUE	RED	GREEN
GREEN	RED	GREEN	BLUE	RED
BLUE	GREEN	RED	GREEN	BLUE
RED	BLUE	GREEN	RED	GREEN
GREEN	RED	BLUE	GREEN	RED

So we can see that there are 6 Blue colored beads in the above arrangement.

QNo:- 30 ,Correct Answer:- *6*

Explanation:- *We will make the arrangement as given in the question:*

RED			RED	
		RED		
	RED			RED
RED			RED	
		RED		

Now we can see that there will be maximum 6 red colored beads which satisfy the given arrangement.

QNo:- 31 ,Correct Answer:- *B*

Explanation:- *From 1, Economics is at scheduled at each slot*
From 2, Only A is scheduled at 10 so it has to be Economics and guided by R
From 5, 6 and 7 B,G and C are having seminar on Sociology. B and C are guided by P and having seminar in first two slots so C will be at 9, B and G will be at 9:30 and 1 student from economics guided by T will be also be at 9:30. R cannot be at 9 because Students who are guided by the same guide must be scheduled in consecutive slots.

From 3, F is at 10:30, so at 9:30, 3 students are there and at 9 am, C and 1 more student having economics would be there, at 10 am only 1 student would be there. At 10:30 2 students one having economics and other having anthropology would be there.
From the information given we can draw following table

Name	Subject	Time	Guide
A	Economics	10 am	R
B	Sociology	9:30 am	P
C	Sociology	9 am	P
D	Economics		R/T
E	Economics		R/T
F	Anthropology	10:30 am	S/Q
G	Sociology	9:30 am	S/Q
H	Economics		R/T

From the above information only two would be in 1st slot

QNo:- 32 ,Correct Answer:- *A*

Explanation:- *From 1, Economics is at scheduled at each slot*
From 2, Only A is scheduled at 10 so it has to be Economics and guided by R
From 5, 6 and 7 B,G and C are having seminar on Sociology. B and C are guided by P and having seminar in first two slots so C will be at 9, B and G will be at 9:30 and 1 student from economics guided by T will be also be at 9:30. R cannot be at 9 because Students who are guided by the same guide must be scheduled in consecutive slots.

From 3, F is at 10:30, so at 9:30, 3 students are there and at 9 am, C and 1 more student having economics would be there, at 10 am only 1 student would be there. At 10:30 2 students one having economics and other having anthropology would be there.
From the information given we can draw following table

Name	Subject	Time	Guide
A	Economics	10 am	R
B	Sociology	9:30 am	P
C	Sociology	9 am	P
D	Economics		R/T
E	Economics		R/T
F	Anthropology	10:30 am	S/Q
G	Sociology	9:30 am	S/Q
H	Economics		R/T

Economics are guided by R and T. So ans. is Option 1

QNo:- 33 ,Correct Answer:- *B*

Explanation:- *From 1, Economics is at scheduled at each slot*
From 2, Only A is scheduled at 10 so it has to be Economics and guided by R
From 5, 6 and 7 B,G and C are having seminar on Sociology. B and C are guided by P and having seminar in first two slots so C will be at 9, B and G will be at 9:30 and 1 student from economics guided by T will be also be at 9:30. R cannot be at 9 because Students who are guided by the same guide must be scheduled in consecutive slots.

From 3, F is at 10:30, so at 9:30, 3 students are there and at 9 am, C and 1 more student having economics would be there, at 10 am only 1 student would be there. At 10:30 2 students one having economics and other having anthropology would be there.
From the information given we can draw following table

Name	Subject	Time	Guide
A	Economics	10 am	R
B	Sociology	9:30 am	P
C	Sociology	9 am	P
D	Economics		R/T
E	Economics		R/T
F	Anthropology	10:30 am	S/Q
G	Sociology	9:30 am	S/Q
H	Economics		R/T

From the above information H is an Economics student.

QNo:- 34 ,Correct Answer:- *B*

Explanation:- *From 1, Economics is at scheduled at each slot*
From 2, Only A is scheduled at 10 so it has to be Economics and guided by R
From 5, 6 and 7 B,G and C are having seminar on Sociology. B and C are guided by P and having seminar in first two slots so C will be at 9, B and G will be at 9:30 and 1 student from economics guided by T will be also be at 9:30. R cannot be at 9 because Students who are guided by the same guide must be scheduled in consecutive slots.

From 3, F is at 10:30, so at 9:30, 3 students are there and at 9 am, C and 1 more student having economics would be there, at 10 am only 1 student would be there. At 10:30 2 students one having economics and other having anthropology would be there.
From the information given we can draw following table

Name	Subject	Time	Guide
A	Economics	10 am	R
B	Sociology	9:30 am	P
C	Sociology	9 am	P
D	Economics		R/T
E	Economics		R/T
F	Anthropology	10:30 am	S/Q
G	Sociology	9:30 am	S/Q
H	Economics		R/T

If D is scheduled later than Q then, Q will be at 9:30 and He will guide G and S will guide F. R will guide D at 10:30. E and H will be guided by T. So ans is option 2

QNo:- 35 ,Correct Answer:- *A*

Explanation:- *From 1, Economics is at scheduled at each slot*
From 2, Only A is scheduled at 10 so it has to be Economics and guided by R
From 5, 6 and 7 B,G and C are having seminar on Sociology. B and C are guided by P and having seminar in first two slots so C will be at 9, B and G will be at 9:30 and 1 student from economics guided by T will be also be at 9:30. R cannot be at 9 because Students who are guided by the same guide must be scheduled in consecutive slots.

From 3, F is at 10:30, so at 9:30, 3 students are there and at 9 am, C and 1 more student having economics would be there, at 10 am only 1 student would be there. At 10:30 2 students one having economics and other having anthropology would be there.
From the information given we can draw following table

Name	Subject	Time	Guide
A	Economics	10 am	R
B	Sociology	9:30 am	P
C	Sociology	9 am	P
D	Economics		R/T
E	Economics		R/T
F	Anthropology	10:30 am	S/Q
G	Sociology	9:30 am	S/Q
H	Economics		R/T

If E and Q are in same slot then it will be 9:30 or at 10:30
If E will be guided by R then D and H will be guided by T, and if E will be guided by T then one of D and H will be guided by T
So At least one of D and H is guided by T
So ans. will be 1st option

QNo:- 36 ,Correct Answer:- *D*

Explanation:- *From 1, Economics is at scheduled at each slot*
From 2, Only A is scheduled at 10 so it has to be Economics and guided by R
From 5, 6 and 7 B,G and C are having seminar on Sociology. B and C are guided by P and having seminar in first two slots so C will be at 9, B and G will be at 9:30 and 1 student from economics guided by T will be also be at 9:30. R cannot be at 9 because Students who are guided by the same guide must be scheduled in consecutive slots.

From 3, F is at 10:30, so at 9:30, 3 students are there and at 9 am, C and 1 more student having economics would be there, at 10 am only 1 student would be there. At 10:30 2 students one having economics and other having anthropology would be there.
From the information given we can draw following table

Name	Subject	Time	Guide
A	Economics	10 am	R
B	Sociology	9:30 am	P
C	Sociology	9 am	P
D	Economics		R/T
E	Economics		R/T
F	Anthropology	10:30 am	S/Q
G	Sociology	9:30 am	S/Q
H	Economics		R/T

If D is immediately before Q then Q is at 9:30 and D is at 9 that means F if guided by S at 10:30, G is guided by Q, D and E can be guided by R/T
So ans is option 4

QNo:- 37 ,Correct Answer:- *9,11*

Explanation:-

	A	B	C	D
Number of candidates	10	12	5	8
Total valid votes	500000	325000	600030	
Winning candidate	275000	48750		
First runner up	95000			37500
Second runner up	(85000)			30000
% of votes by Third runner up				10%

Votes got by Second runner up from A= 95000-10000= 85000
Votes got by the candidates who lost their security deposits= 500000-275000-95000-85000= 45000

$$\text{Required } \% = \frac{45000}{500000} \times 100 = 9\%$$

QNo:- 38 ,Correct Answer:- *11*

Explanation:-

	A	B	C	D
Number of candidates	10	12	5	8
Total valid votes	500000	325000	600030	
Winning candidate	275000	48750		
First runner up	95000			37500
Second runner up	(85000)			30000
% of votes by Third runner up				10%

$$\text{In constituency B winner got} = \frac{48750}{325000} \times 100 = 15\%$$

So all the candidates except the winner lose their security deposit because they got less than 1/6 of the total valid votes.
So ans is 12-1= 11

QNo:- 39 ,Correct Answer:- *D*

Explanation:-

	A	B	C	D
Number of candidates	10	12	5	8
Total valid votes	500000	325000	600030	
Winning candidate	275000	48750		
First runner up	95000			37500
Second runner up	(85000)			30000
% of votes by Third runner up				10%

All candidates should got more than 1/6th of the total valid votes which is

$$\frac{600030}{6} = 100005$$

Suppose winner got = x votes, and if we assume that each candidate got 10000 less votes than previous candidate
Then A.T.Q
= x+ x-10000+ x-20000+ x- 30000 + x-40000= 600030
Then x= 140006
So ans is option 4

QNo:- 40 ,Correct Answer:- *A*

Explanation:-

	A	B	C	D
Number of candidates	10	12	5	8
Total valid votes	500000	325000	600030	
Winning candidate	275000	48750		
First runner up	95000			37500
Second runner up	(85000)			30000
% of votes by Third runner up				10%

Let the valid votes in constituency D= x
1st runner up got = 37500
Winner got 37500+.05x
2nd runner up got 30000 votes and the remaining candidates loose their security so A.T.Q
37500+ .05x+ 37500+30000= 0.65x
So x= 175000
So ans is 1st option

QNo:- 41 ,Correct Answer:- *A*

Explanation:-

	A	B	C	D
Number of candidates	10	12	5	8
Total valid votes	500000	325000	600030	
Winning candidate	275000	48750		
First runner up	95000			37500
Second runner up	(85000)			30000
% of votes by Third runner up				10%

Winning margin in constituency D = .05 x 175000= 8750
Winning margin of C is atleast 10000 that means margin of C is greater than D
So option 1 is wrong.

QNo:- 42 ,Correct Answer:- *A*

Explanation:-

	A	B	C	D
Number of candidates	10	12	5	8
Total valid votes	500000	325000	600030	
Winning candidate	275000	48750		
First runner up	95000			37500
Second runner up	(85000)			30000
% of votes by Third runner up				10%

Total votes = 500000 + 325000 + 600030 + 175000= 1600030
In A (500000-275000-95000-85000) = 45000 votes were polled to the candidates who lost their security
In B, All candidates except the winner lost their security which is equal to 325000- 48750= 276250
In C, no one lost the security
In D, 35% of 175000= 61250 votes are polled to the candidates who lost their security
Total votes polled to the candidates who lost their security = 45000+276250+61250= 382500

$$\text{Required } \% = \frac{382500}{1600030} \times 100 = 23.91\%$$

So answer is option 1

QNo:- 43 ,Correct Answer:- *B*

Explanation:- *We have the following incomplete table which can be filled with different letters as per the condition given.*

	Delhi		Mumbai		Bengaluru		Kolkata	
	2018	2019	2018	2019	2018	2019	2018	2019
Apparels	x	y	y	c	y	b	x	54
Electronics	78	98	82	102	90	70	80	100
Home decor		100	a	72		80	a	54

In last point it is given that y, 54 and b are A. P. ⇒ bb + y = 108 ----(1)
The total of electronics dept. In 2018 = 330cr
Total of electronics dept. in 2019 = 370cr
Incase are in sales in 2019 as compare to 2018 is 40 cr
As per the point 4, we have
(y + c + b + 54) - (x + y + y + x) = 40
⇒ b + c + 54 - y - 2x = 40
⇒ 2x + y - b - c = 14 ---(2)
From 7, we have y - x = b - y
⇒ b = 2y - x -----(3)
& c - y = 54 - x
⇒ c = 54 + y - x ---(4)
Using (3) & (4) in (2) we get 2x + y - 2y + x - 54 - y + x = 14
⇒ 4x - 2y = 68
⇒ 2x - y = 34 ---(5)
Using (3) in (1), we get, 3y - x = 108 --(6)
Solve (5) & 6, to get y = 50, x = 42
∴ (3) ⇒ b = 58
(4) ⇒ c = 62
Total sale of Home décor increased by Rs 70 cr. Using point 6, we can say that sale of Home décor in Delhi in 2018 is Rs 80 cr & in Bengaluru in 2018 is Rs 60 Cr.
Now 72 - a + 54 - a = 30
⇒ 2a = 96 ⇒ a = 48
Hence the final table is as below

	Delhi		Mumbai		Bengaluru		Kolkata	
	2018	2019	2018	2019	2018	2019	2018	2019
Apparels	42	50	50	62	50	58	42	54
Electronics	78	98	82	102	90	70	80	100
Home decor	80	100	48	72	60	80	48	54

In Home décor, Delhi has maximum sales in 2018 & 2019.

QNo:- 44 ,Correct Answer:- *D*

Explanation:- *We have the following incomplete table which can be filled with different letters as per the condition given.*

	Delhi		Mumbai		Bengaluru		Kolkata	
	2018	2019	2018	2019	2018	2019	2018	2019
Apparels	x	y	y	c	y	b	x	54
Electronics	78	98	82	102	90	70	80	100
Home decor		100	a	72		80	a	54

In last point it is given that y, 54 and b are A. P. ⇒ bb + y = 108 ----(1)
The total of electronics dept. In 2018 = 330cr
Total of electronics dept. in 2019 = 370cr
Incase are in sales in 2019 as compare to 2018 is 40 cr
As per the point 4, we have
(y + c + b + 54) - (x + y + y + x) = 40
⇒ b + c + 54 - y - 2x = 40
⇒ 2x + y - b - c = 14 ---(2)
From 7, we have y - x = b - y
⇒ b = 2y - x -----(3)
& c - y = 54 - x
⇒ c = 54 + y - x ---(4)
Using (3) & (4) in (2) we get 2x + y - 2y + x - 54 - y + x = 14
⇒ 4x - 2y = 68
⇒ 2x - y = 34 ---(5)
Using (3) in (1), we get, 3y - x = 108 --(6)
Solve (5) & 6, to get y = 50, x = 42
∴ (3) ⇒ b = 58
(4) ⇒ c = 62
Total sale of Home décor increased by Rs 70 cr. Using point 6, we can say that sale of Home décor in Delhi in 2018 is Rs 80 cr & in Bengaluru in 2018 is Rs 60 Cr.
Now 72 - a + 54 - a = 30
⇒ 2a = 96 ⇒ a = 48
Hence the final table is as below

	Delhi		Mumbai		Bengaluru		Kolkata	
	2018	2019	2018	2019	2018	2019	2018	2019
Apparels	42	50	50	62	50	58	42	54
Electronics	78	98	82	102	90	70	80	100
Home decor	80	100	48	72	60	80	48	54

In Mumbai, the sales of Apparel dept. Increased by Rs. 12 cr.

QNo:- 45 ,Correct Answer:- *B*

Explanation:- *We have the following incomplete table which can be filled with different letters as per the condition given.*

	Delhi		Mumbai		Bengaluru		Kolkata	
	2018	2019	2018	2019	2018	2019	2018	2019
Apparels	x	y	y	c	y	b	x	54
Electronics	78	98	82	102	90	70	80	100
Home decor		100	a	72		80	a	54

In last point it is given that y, 54 and b are A. P. ⇒ bb + y = 108 ----(1)
The total of electronics dept. In 2018 = 330cr
Total of electronics dept. in 2019 = 370cr
Incase are in sales in 2019 as compare to 2018 is 40 cr
As per the point 4, we have
(y + c + b + 54) - (x + y + y + x) = 40
⇒ b + c + 54 - y - 2x = 40
⇒ 2x + y - b - c = 14 ---(2)
From 7, we have y - x = b - y
⇒ b = 2y - x -----(3)
& c - y = 54 - x
⇒ c = 54 + y - x ---(4)
Using (3) & (4) in (2) we get 2x + y - 2y + x - 54 - y + x = 14
⇒ 4x - 2y = 68
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Using (3) in (1), we get, 3y - x = 108 --(6)
Solve (5) & 6, to get y = 50, x = 42
∴ (3) ⇒ b = 58
(4) ⇒ c = 62
Total sale of Home décor increased by Rs 70 cr. Using point 6, we can say that sale of Home décor in Delhi in 2018 is Rs 80 cr & in Bengaluru in 2018 is Rs 60 Cr.
Now 72 - a + 54 - a = 30
⇒ 2a = 96 ⇒ a = 48
Hence the final table is as below

	Delhi		Mumbai		Bengaluru		Kolkata	
	2018	2019	2018	2019	2018	2019	2018	2019
Apparels	42	50	50	62	50	58	42	54
Electronics	78	98	82	102	90	70	80	100
Home decor	80	100	48	72	60	80	48	54

The max % increase is 50% for Mumbai in Home décor dept.

QNo:- 46 ,Correct Answer:- *D*

Explanation:- *We have the following incomplete table which can be filled with different letters as per the condition given.*

	Delhi		Mumbai		Bengaluru		Kolkata	
	2018	2019	2018	2019	2018	2019	2018	2019
Apparels	x	y	y	c	y	b	x	54
Electronics	78	98	82	102	90	70	80	100
Home decor		100	a	72		80	a	54

In last point it is given that y, 54 and b are A. P. ⇒ bb + y = 108 ----(1)
The total of electronics dept. In 2018 = 330cr
Total of electronics dept. in 2019 = 370cr
Incase are in sales in 2019 as compare to 2018 is 40 cr
As per the point 4, we have
(y + c + b + 54) - (x + y + y + x) = 40
⇒ b + c + 54 - y - 2x = 40
⇒ 2x + y - b - c = 14 ---(2)
From 7, we have y - x = b - y
⇒ b = 2y - x -----(3)
& c - y = 54 - x
⇒ c = 54 + y - x ---(4)
Using (3) & (4) in (2) we get 2x + y - 2y + x - 54 - y + x = 14
⇒ 4x - 2y = 68
⇒ 2x - y = 34 ---(5)
Using (3) in (1), we get, 3y - x = 108 --(6)
Solve (5) & 6, to get y = 50, x = 42
∴ (3) ⇒ b = 58
(4) ⇒ c = 62
Total sale of Home décor increased by Rs 70 cr. Using point 6, we can say that sale of Home décor in Delhi in 2018 is Rs 80 cr & in Bengaluru in 2018 is Rs 60 Cr.
Now 72 - a + 54 - a = 30
⇒ 2a = 96 ⇒ a = 48
Hence the final table is as below

	Delhi		Mumbai		Bengaluru		Kolkata	
	2018	2019	2018	2019	2018	2019	2018	2019
Apparels	42	50	50	62	50	58	42	54
Electronics	78	98	82	102	90	70	80	100
Home decor	80	100	48	72	60	80	48	54

The total sales of all dept. In 2019 is Rs. 900 crore

QNo:- 47 ,Correct Answer:- *C*

Explanation:- *The initial cars are 1, 2, 3, 4, when can 1 leaves, we have the arrangement*
V V 2 3 4
Now car 5 (a compact car) and car 6 (an SUV) came. So arrangement is
5 V 2 3 4 6
Now care 4 left, we have the arrangement
5 V 2 3 V V 6
Now car 7 (an S U V) and car 8 (a compact car) arrived, so final arrangement is 5, 8, 2, 3, 7, 6. Hence car number 7 is parked next to car 3.

QNo:- 48 ,Correct Answer:- *A*

Explanation:- *As per the options, car 1 & car 4 left as Car 8 is the last car to arrive, so it should be either at 1st position or the last position. So option 3 is wrong.*
In option 2, the position of car 4 is vacant. If car 5 arrived after car 4 left, then it should have been next to car 3. If car 4 left after the car 5 arrived, then car 5 should be next to V. in any case, car 5 cannot be after car 6. Hence option 2 is wrong.
In option 4, it is clear that car 4 left after car 5 arrived. So car next to car 5 should be car 6. Hence it is wrong.
Only option 1 is true where car 4 left after car 5 arrived.

QNo:- 49 ,Correct Answer:- *A*

Explanation:- *Total cars arrived here are 6 and car 3 is placed in the end. It is possible it cars 1 & 2 are S UV, then we have the arrangement 1 2 3*
Now cars 1 & 2 left, then the arrangement is V V V V 3
After that the cars 4, 5, 6 arrived in order so that the final arrangement is. 4 5 6 V 3
Hence cars 4 & 5 are compact & car 1 is an S U V. but we cannot say about car 3, whether it is an S U V or a compact car.

QNo:- 50 ,Correct Answer:- *C*

Explanation:- *The original order is 1 2 3 4 5. Now car 6 is at the place of car 4 and car 4 is not the first one to leave. So either car 1 & car 2 will leave first.*
If we assume that the first car left is car 1, them as car 2 is also leaving, so car 7 will take the first position. So first position cannot be empty.
Hence car 2 is the one which left at the first place and after it car 4 left.
So we have following possibilities.
1 V 3 V 5 or 1 V 3 V V 5
Car 2 is not an S U V because in that case, car 6 will be next to car 1.
Also car 6 is not compact otherwise, it will be again next to car 1. So car 6 is an S U V and we have the order 1 V 3 6 5
Now car 7 came which is compact and order is 1 7 3 6 5. After that the car 1 left to give the final order as V 7 3 6 5

Section : Quantitative Ability

QNo:- 51 ,Correct Answer:- 800

Explanation:- Given that Amal : Sunil = 3 : 2.
Also, Sunil : Mita = 4 : 5
On combining the ratio we get Amal : Sunil : Mita = 6 : 4 : 5
So, let their shares be 6x, 4x and 5x
According to the question $6x - 4x = 400$
$2x = 400$
$x = 200$
So, Sunil's share = $4x = 4 \times 200 = 800$

QNo:- 52 ,Correct Answer:- 17,17

Explanation:- $2x + 5y = 99$ also it is given that $x \geq y \geq -20$
So, possible cases are

x	y	x	y
47	1	52	-1
42	3	57	-3
37	5	62	-5
32	7	67	-7
27	9	72	-9
22	11	77	-11
17	13	82	-13
		87	-15
		92	-17
		97	-19

So, total 17 cases are there

QNo:- 53 ,Correct Answer:- C

Explanation:- $(x^2 - 5x + 7)^{x+1} = 1$
For R.H.S to be 1, we must have $x^2 - 5x = -6$
$x^2 - 5x + 6 = 0$
On solving, we get x = 2, 3 (2 values)
Also, we must have $a^0 = 1$
So, $x + 1 = 0$ i.e. x = -1 (1 value) also satisfies.
Hence answer is 3.

QNo:- 54 ,Correct Answer:- 90000

Explanation:- Let the principal = 8000
So, simple interest for 3 years @ 3% per annum = Rs.720
Compound interest for 2 years @ 5% per annum = Rs.820
Difference = Rs.100
So, using unitary method
When difference is 100 principal is 8000
When difference is 1125 principal is 90000

QNo:- 55 ,Correct Answer:- B

Explanation:- Let the cost of pencil is Rs. x and of sharpener is Rs.(x+2)
Let Aron bought 'a' pencils & 'b' sharpeners.
Aditya bought '2a' pencils & 'b – 10' sharpeners.
Now, $ax + b(x + 2) = 2ax + (b – 10)(x + 2)$
$ax + bx + 2b = 2ax + bx + 2b – 10x – 20$
$ax – 10x = 20$
$a – 10 = 20/x$
$a = 20/x + 10$
Now 'a' is minimum when 'x' is maximum i.e. x = 20
Minimum 'a' = 20/20 + 10 = 11
Total pencils = $3a = 3 \times 11 = 33$

QNo:- 56 ,Correct Answer:- A

Explanation:- Given that John had spent Rs.450 in April and it is being given that in May price of rice is increased by 20%. So, price of rice is increased by 90 (20% of 450). And it is given that in May he had Rs.150 more out of which 90 is for rice. So, for wheat he had spend Rs.60 more (150 – 90).
12% of original price in April = 60
100% of original price in April = 500.
So, he spend on wheat in may = 500 + 12% of 500 = 560

QNo:- 57 ,Correct Answer:- 315,2704

Explanation:- Case I: When 7 is at first place then 3 can be any of the three places
$= 1 \times 1 \times 8 \times 7 + 1 \times 8 \times 1 \times 7 + 1 \times 8 \times 7 \times 1 = 168$
Case II: When 3 is at the last place
$= 7 \times 1 \times 7 \times 1 + 7 \times 7 \times 1 \times 1 = 98$
Case III: When both 7 and 3 are in middle places
$= 7 \times 1 \times 1 \times 7 = 49$
So, total cases = 168 + 98 + 49 = 315

QNo:- 58 ,Correct Answer:- 2704

Explanation:- Since we need to find the minimum value and as we know that minimum value will occur when we have symmetry. So, as x + y = 102. We have x = 51 and y = 51.
So, the minimum possible value of $2601 (1 + 1/x) (1 + 1/y) = 2704$

QNo:- 59 ,Correct Answer:- C

Explanation:- $x^2 - 2|x| + |a-2| = 0$ _____(1)

Case I: $x \geq 0$ & $a \geq 2$

$x^2 - 2x + a - 2 = 0$

For $D \geq 0 \Rightarrow 4 - 4(a-2) \geq 0 \Rightarrow 1 - (a-2) \geq 0$

$\Rightarrow 1 - a + 2 \geq 0 \Rightarrow a \leq 3$

Therefore $a = 2, 3$

If $a = 2$, eq''(1) becomes

$x^2 - 2x = 0 \Rightarrow x = 0, 2$

Therefore, (0, 2), (2, 0) are possible pairs.

If $a = 3$, eq''(1) becomes $x^2 - 2x + 1 = 0 \Rightarrow x = 1$

So (1, 3) is possible pair.

Case II: $x \geq 0$, $a < 2$

$x^2 - 2x - (a-2) = 0$

For $D \geq 0 \Rightarrow 4 + 4(a-2) \geq 0$

$\Rightarrow 1 + a - 2 \geq 0$

$\Rightarrow a - 1 \geq 0 \Rightarrow a \geq 1$

$\Rightarrow a = 1$

When $a = 1$, eq"(1) becomes $x^2 - 2x + 1 = 0 \Rightarrow x = 1$

Therefore (1,1) is possible pair.

Case III: If $x < 0$, $a \geq 2$

$x^2 + 2x + a - 2 = 0$

For $D \geq 0 \Rightarrow 4 - 4(a-2) \geq 0$

$1 - a + 2 \geq 0 \Rightarrow a \leq 3$

$\Rightarrow a = 2, 3$

If $a = 2$, eq"(1) becomes $x^2 + 2x = 0 \Rightarrow x = 0, -2$

Therefore (0, 2) and (-2, 2) is pair

If $a = 3$, eq"(1) becomes $x^2 + 2x + 1 = 0 \Rightarrow (x+1)^2 = 0 \Rightarrow x = -1$

Therefore (-1, 3) is possible pair.

Case IV: If $x < 0$, $a < 2$

$x^2 + 2x - (a-2) = 0$

For $D \geq 0 \Rightarrow 4 + 4(a-2) \geq 0$

$1 + a - 2 \geq 0 \Rightarrow a \geq 1$

Therefore, $a = 1$

Eq"(1) becomes $x^2 + 2x + 1 = 0 \Rightarrow x = -1$

Therefore (-1, 1) is possible pair.

There are 7 such pairs of integers as follows

(0, 2)
(2, 2)
(1, 3)
(1, 1)
(-2, 2)
(-1, 3)
(-1, 1)

QNo:- 60 ,Correct Answer:- C

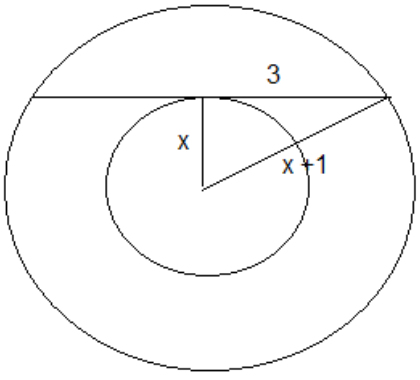
Explanation:- Ratio of time taken by Ram and Rahim is
$= 2\pi \times 100 \times 18/15 \times 5 : 2\pi \times 20 \times 18/5 \times 5$
$= 5:3$
So, ratio of distance = 3:5
So, answer is 3.

QNo:- 61 ,Correct Answer:- A

Explanation:- $f(x) = x^2 + ax + b$ and $g(x) = f(x + 1) – f(x – 1)$
$g(x) = (x + 1)^2 + a(x + 1) + b – [(x – 1)^2 + a(x – 1) + b]$
$g(x) = x^2 + 2x + 1 + ax + a + b – [x^2 – 2x + 1 + ax – a + b]$
$g(x) = x^2 + 2x + 1 + ax + a + b – x^2 + 2x - 1 - ax + a – b$
$g(x) = 4x + 2a$
Now, $g(20) = 72 \Rightarrow 4(20) + 2a = 72$
$\Rightarrow 2a = -8$
$\Rightarrow a = -4$
$\therefore f(x) = x^2 – 4x + b$
As $f(x) \geq 0 \Rightarrow D \leq 0$
$16 – 4b \leq 0$
$\Rightarrow b \geq 4$
Therefore smallest value of b is 4.

QNo:- 62 ,Correct Answer:- 10

Explanation:- If the diameter of circle C_1 is 2 more than the diameter of circle C_2 so we can say that radius of C_1 is 1 more than the radius of circle C_2. As shown below in the figure,



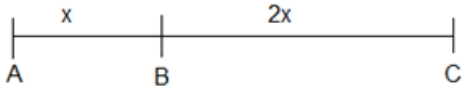
Now, we can say that it must satisfy Pythagoras property
So, x will be 4 and x + 1 will be 5 i.e. radius of circle C_1 is 5 cm.
So, diameter of circle C_1 is 10 cm.

QNo:- 63 ,Correct Answer:- D

Explanation:- Let the ratio be x. So, the dimensions of rectangle is x and 3x and let the side of equilateral triangle be 'a'
Perimeter of rectangle = 2 (x + 3x) = 8x
Perimeter of equilateral triangle = 3a
According to the question:
3a + 8x = 90 _____ (1)
Also, given that relation $R = T^2$, where R is area of rectangle and T is area of equilateral triangle
So, we have
$3x^2 = (\sqrt{3}/4\ a^2)^2$
$x = a^2/4$
Substituting x in eq"(1), we have
$2a^2 + 3a - 90 = 0$
On solving, we get a = 6
Hence, x = 9
So, longer side of rectangle = 3x = 3 × 9 = 27

QNo:- 64 ,Correct Answer:- C

Explanation:- Let the distance between AB = x and BC = 3x



Let speed of train 1 be 'y' and speed of train 2 be '2y'
As we know, Time = Distance/Speed
For A to B:
For Train 1 time = x/y and For Train 2 time = 3x/2y
For B to C:
For Train 1 time = x/2y and For Train 2 time = 3x/y
So, total time = [x/y + 3x/2y]/[x/2y + 3x/y] = 5x/7x
So, time taken by train1 to that taken by train 2 in travelling from A to C is 5:7

QNo:- 65 ,Correct Answer:- C

Explanation:- Difference between highest number – Lowest number = 9 × 47 – 9 × 42 = 45
Maximum possible value of highest number = 42 + 45 = 87
Minimum possible value of lowest number = 47 – 45 = 2
So, Maximum possible mean = [42 × 9 + 87]/10 = 46.5
Minimum possible mean = [47 × 9 + 2]/10 = 42.5
Required difference = 46.5 – 42.5 = 4

QNo:- 66 ,Correct Answer:- *A*

Explanation:- *Let 'a', 'r' be the first term and common ratio respectively.*
Given that m^{th} term = ¾
$a\ r^{m-1}$ = ¾ _____ (1)
Also, n^{th} term = 12
$a\ r^{n-1}$ = 12 _____(2)
Dividing (2) by (1), we have
$a\ r^{n-1}/ a\ r^{m-1}$ = 12/(3/4)
r^{n-m} = 16
Now, for minimum value of r + n – m, we have
r = - 4 and n – m = 2
Smallest possible value of r + n – m = - 4 + 2 = - 2

QNo:- 67 ,Correct Answer:- *B*

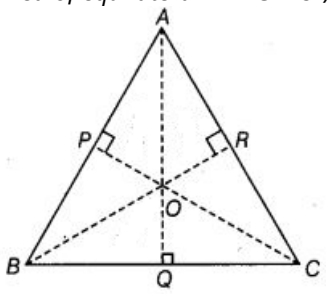
Explanation:- *As we know that if two objects P and Q start at the same time in opposite direction from point A and B respectively. After passing each other, P reaches B in x seconds and Q reaches A in y seconds then,*
Speed of P: Speed of Q = √b : √a
So, Ram's speed : Rahim's speed = √4 : √1 = 2 : 1

QNo:- 68 ,Correct Answer:- *D*

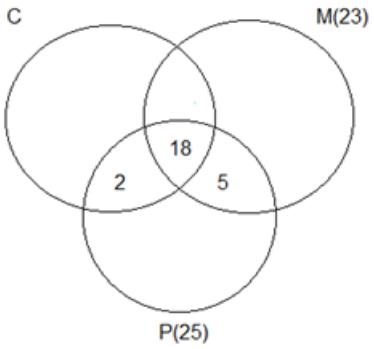
Explanation:- *Let A travels = x*
B travels = x – 45
C travels = x – 90
So, when B covers (x – 45) then C covers (x – 90)
When B covers x = (x – 90)/(x – 45) × x = (x – 50)
On solving, we get x = 450

QNo:- 69 ,Correct Answer:- D

Explanation:- Let the side of equilateral triangle = 'a'
As we know area of equilateral triangle ΔABC
= √3/4 (Side)^2 = √3/4 (a)^2 _____ (1)
Also, we have PO + OQ + OR = s (Given)
Area of ΔOAB = ½ × AB × OP = ½ × a × OP
Area of ΔOBC = ½ × BC × OQ = ½ × a × OQ
Area of Δ OAC = ½ × AC × OR = ½ × a × OR
Area of ΔABC = Area of ΔOAB + Area of ΔOBC + Area of Δ OAC
= ½ × a × OP + ½ × a × OQ + ½ × a × OR
= ½ × a × (OP + OQ + OR)
= ½ × a × s _____ (2)
Equating (1) and (2), we have
√3/4 a^2 = ½ × a × s
a = 2s/√3
Substituting, value of 'a' in equation (1), we have
Area of equilateral ΔABC = s^2/√3



QNo:- 70 ,Correct Answer:- C



Explanation:-

As the no. of students who have chemistry is minimum, so let 5 students have both Maths and Physics only. So, 2 students with physics will have chemistry also.
Therefore, minimum students with chemistry = 18 + 2 = 20

QNo:- 71 ,Correct Answer:- D

Explanation:- Let x be the total purchase price of all articles and y be the marked price of one article.
So, according to the question:
$8 \times 0.8 \times y + 4 \times 0.75 \times 0.8 \times y = 2112$
On solving, we get $y = 240$
Given, $2112 = 1.10x$
$x = 1920$
If no discount is given, then $12 \times 240 = 2880$
Required % = 2880 – 1920/1920 = 50%

QNo:- 72 ,Correct Answer:- A

Explanation:- As we know the minimum value of $x + 1/x = 2$. So, the answer will be $1/\sqrt{2}$.

QNo:- 73 ,Correct Answer:- 4

Explanation:- Since John takes twice as much as Jack to finish a job. So, efficiency of John and jack is 1:2. Also, Jack and Jim together take one-third of the time to finish the job than John. So, efficiency of Jack + Jim and John is 3:1.
So, efficiency of John, Jack and Jim is 1:2:1 respectively.
Now, let all of them together took 'x' days so John alone take x + 3 days.
So, $x (1 + 2 + 1) = x + 3$
On solving, we get $x = 1$
So, John takes = 4 days, Jack = 4/2 = 2 days and Jim = 4 days

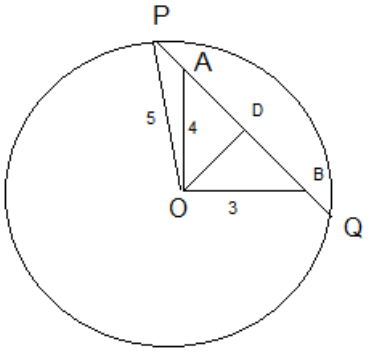
QNo:- 74 ,Correct Answer:- B

Explanation:- Let $A = \log_a (a/b) + \log_b (b/a)$
$A = \log_a a - \log_a b + \log_b b - \log_b a$
$A = 2 - [\log_a b + \log_b a]$
$A = 2 - [\log_a b + 1/\log_a b]$
Now, $[\log_a b + 1/\log_a b]$ has minimum value 2.
Therefore, maximum value of A = 2 – 2 = 0
⇒ A cannot take value as 1.

QNo:- 75 ,Correct Answer:- 23

Explanation:- $x + 9 = z$ _____ (1)
$y + 1 = z$ _____ (2)
Adding (1) and (2), we get
$x + y + 10 = 2z$
$\Rightarrow x + y = 2z - 10$
Now, $x + y < z + 5$
$2z - 10 < z + 5$
$z < 15$
Therefore, Maximum z = 14
From eq"(1), Maximum $x = z - 9 = 5$
From eq"(2), Maximum $y = z - 1 = 13$
Max.$(2x + y) = 2 \times 5 + 13 = 23$

QNo:- 76 ,Correct Answer:- *A*



Explanation:-

Here OD perpendicular to PQ

OA = 4, OB = 3

⇒ AB = 5

Now in ΔOAB

1/3 × 3 × 4 = ½ × OD × 5

OD = 12/5 = 2.4

Now, join OP, ΔODP is right angled triangle & OP = 5

PD = $\sqrt{(OP)^2 - (OD)^2}$ = $\sqrt{25 - (2.4)^2}$ = $\sqrt{19.24}$ = 4.4

PD = 4.4

PB = 4.4 × 2 = 8.8 m

Directions of Test

Test Name	Actual CAT 2020 Slot III	Total Questions	76	Total Time	120 Mins

Section Name	No. of Questions	Time limit	Marks per Question	Negative Marking
Verbal Ability	26	0:40(h:m)	3	1/3
DI & Reasoning	24	0:40(h:m)	3	1/3
Quantitative Ability	26	0:40(h:m)	3	1/3

Section : Verbal Ability

QNo:- 1 ,Correct Answer:- *D*

Explanation:- *Refer to this line of the second paragraph - that the Occident defined itself through essentialist, ethnocentric, and* ***racist representations of the Orient.***
Orientalism means style, artefacts, or traits considered characteristic of the peoples and cultures of Asia. The representation of Asia in a stereotyped way that is regarded as embodying a ***colonialist attitude****.*

QNo:- 2 ,Correct Answer:- *A*

Explanation:-
Refer to this line of the last paragraph – Many studies from the 1970s onward demonstrated the ways in which women's gendered identities were negotiated differently "at home" than they were "away,"

QNo:- 3 ,Correct Answer:- *D*

Explanation:- *There isn't any significant mention or stress laid upon the class conflict or class tensions in the passage.*

QNo:- 4 ,Correct Answer:- *D*

Explanation:-
Refer to the last line of the first paragraph – "male protagonists "discovering themselves" on their journeys, emphasizing the ***independence of road travel*** *and the value of rural folk traditions."*
So travel literature of the 1920s may or may not have developed the male protagonists' desire for independence but they definitely enjoyed the freedom that it gave. Also they did discover themselves, similar or different than others is not mentioned in the passage. To participate and to value something are different things.

QNo:- 5 ,Correct Answer:- *D*

Explanation:-
As travel writing is what travelers wrote about their experiences hence Option 4 is the correct answer.

QNo:- 6 ,Correct Answer:- *A*

Explanation:-
This line of the last paragraph reflects the author's viewpoit – "In any case, the fear of civilisational collapse, Bregman believes, is unfounded. It's the result of what the Dutch biologist Frans de Waal calls "veneer theory" – the idea that just below the surface, our bestial nature is waiting to break out."
This line of first paragraph reflects the thought process of Bregman - "By and large, according to Rutger Bregman in his new book Humankind, we have a rather pessimistic view – not of ourselves exactly, but of everyone else."

QNo:- 7 ,Correct Answer:- *B*

Explanation:-
Refer to this line of the third paragraph – "Then we discovered agriculture and for the next 10,000 years it was all property, war, ***greed*** *and injustice. . . ."*

QNo:- 8 ,Correct Answer:- *A*

Explanation:-
Refer to this line of the second last paragraph – "he claims, see them more as a reprieve, in which the enslaved gain their freedom and culture flourishes."

QNo:- 9 ,Correct Answer:- *D*

Explanation:-
This question is asking to point out something which is mentioned in the passage. Option 4 finds reference in this line of the first paragraph – "By and large, according to Rutger Bregman in his new book Humankind, we have a rather pessimistic view – not of ourselves exactly, but of everyone else."

QNo:- 10 ,Correct Answer:- *C*

Explanation:-
The question asks which the negative effects of screen time are the author least likely to endorse i.e. it is asking for a positive effect, which is presented in Option 3 only.

QNo:- 11 ,Correct Answer:- *B*

Explanation:-
There is no mention of the 'cost' factor playing any role for increased screen time, mentioned in the passage.

QNo:- 12 ,Correct Answer:- *A*

Explanation:-
Confusion would happen only when one says or does two different things, which is reflected only in option 1.

QNo:- 13 ,Correct Answer:- *A*

Explanation:-
Refer to the first line of the passage – "[There is] a curious new reality: Human contact is becoming a luxury good"

QNo:- 14 ,Correct Answer:- *C*

Explanation:-
Refer to the last line of the paragraph – "we've suddenly been hit by a crisis which shows in the starkest terms that whether we like it or not—and there are large parts of it that you would have to be crazy to like—we're all in this together." All the information stated before by the author is to lead the discussion to this end.

QNo:- 15 ,Correct Answer:- *A*

Explanation:-
As the author has been occupied with the economic crisis for more than two years, so it cannot definitely be less than 2 years.

QNo:- 16 ,Correct Answer:- *D*

Explanation:-
Refer to this line of the first paragraph – "—though the sluggishness of the world's governments, in not preparing for the great unraveling of autumn 2008, was then and still is stupefying". Negating Option 4 will strengthen author's viewpoint.

QNo:- 17 ,Correct Answer:- *D*

Explanation:-
Option 1 is supported by this line of the passage – "Many bright, literate people have no idea about all sorts of economic basic"
Option 2 is supported by "after decades in which the ideology of the Western world was personally and economically individualistic……we're all in this together."
Option 3 is supported by this line of the passage – "It is an absolutely amazing story, full of human interest and drama, one whose byways of mathematics, economics, and psychology ……"

QNo:- 18 ,Correct Answer:- *C*

Explanation:-
Option 1 points to research whereas a generic program would serve the purpose.
Option 2 does not mention anything about raising awareness among masses.
Option 4 is too extreme.

QNo:- 19 ,Correct Answer:- *3,3,3142,2431*

Explanation:-
The context is about the software (AI) to detect hate speech and to stop the spread of abusive language on social media. One sentence tells that what exactly it is based on. The flip side is that this machine learning models are prone to biases as seen in data fed to them. An example is also given to substantiate the same. 3 is odd one out as it talks about the 'context' which is nowhere mentioned i.e. machine cannot understand the context in which the word or the language has been used.

QNo:- 20 ,Correct Answer:- *A*

Explanation:-
The context moves around 'political representatives should have disinterested approach along with responsibility towards job and people. Also being 'disinterested 'does not mean 'being indifferent.

QNo:- 21 ,Correct Answer:- *3*

Explanation:-
The context moves around the distinction between being a woman and 'being feminine' To signify this difference, 'appearance' became the standard and ability to use the tools of fashion and beauty industries gained significance. Those who were not able to use them effectively to enhance feminine grace were denigrated. 3 talks about the role played by the media to fuel this thought process. Hence odd one out.

QNo:- 22 ,Correct Answer:- *3142*

Explanation:-
The opener is this case is 3 as it introduces the idea of seven popular Japanese deities. 'Each one' is linked to 3 as it is telling us 'what each signifies'. Then 4 will come as it tells that only two are Japanese and 'others' are popular Buddhist or Hindu gods.

QNo:- 23 ,Correct Answer:- *2431,4123*

Explanation:-
The context moves around the result of 'adaptation' and 'exaptation'. That is a few of the features shown by animals may not have basis in natural selection. Hence the sentence 2 will be an opener. After this 4 will come as it further explains the basis of 'The exaptation concept, and the Russian-doll organization concept' can be applied to understand CNS. 3 explain another way of looking at these two processes. 1 will conclude as it tells that how CNS is not permanent in structural set up but changes from moment to moment.

QNo:- 24 ,Correct Answer:- *A*

Explanation:-
The paragraph has highlighted two definitions of 'how language evolved and its underlying purpose. Both the aspects have been captured well by option 1

QNo:- 25 ,Correct Answer:- *C*

Explanation:-
The key line is 'metabolic theory may provide a conceptual foundation for much of ecology just as genetic theory provides a foundation for much of evolutionary biology' Another important line ', genetic theory can be seen to focus on genome dynamics, phylogenetic inference, game theory and the regulation of gene expression.

QNo:- 26 ,Correct Answer:- *4123*

Explanation:-
The context talks about 'antitrust law' and how it has not served its purpose. After this 1 will come as it explains the approach adopted by this law. 2 shows the consequences. And finally new regulations are required to curb the tendencies to use loopholes in the existing system , which is evident from 'the dearth of enforcement actions against monopolies and the few cases challenging mergers in the USA'.

Section : DI & Reasoning

QNo:- 27 ,Correct Answer:- *B*

Explanation:- *Since vial C tests positive so the patient who has the disease has to be one of the following:- 5, 6, 7, 8, 13, 14, 15, 16, but as vial E tests negative so patients 15, 16, 7 and 8 are ruled out, similarly as vial H tests negative so patients 5 and 13 are also ruled out. Also as vial A tests negative so patients 13, 14, 15,16 are ruled out. Hence we are only left with patient 6 who has the disease.*

QNo:- 28 ,Correct Answer:- *D*

Explanation:- *Since vial A tests positive and vials D and G test negative so from the given table the only possible patients with the disease can be 13 or 15. To eliminate between 13 and 15 numbered patients vial E or F can be tested as they both have vials A, C and H, as common vials. So answer is 4^{th} option*

QNo:- 29 ,Correct Answer:- *C*

Explanation:- *Going by options, 1^{st} option is possible and it will result into patient 4 being diseased.*
2^{nd} option is possible and it will result into patient 4, 8 or 12 being diseased
3^{rd} option is not possible is not possible as it will result into making all the patients free from disease. 4^{th} option is possible as it will result into patient 14 being diseased.
So, 3^{rd} option is the correct answer.

QNo:- 30 ,Correct Answer:- *C*

Explanation:- *Since every patient's blood sample is there in 4 vials so with a mixing of two non-diseased patient's blood samples there will be 4 vials with positive test result. If the mixing of samples includes the sample of the patient suffering from disease then the number of vials testing positive can increase and become 5, 6, 7 or 8 depending upon the number of vials further testing positive because of the mix-up being 1, 2, 3 or 4 whish were earlier testing negative in case of no mix up. So the correct answer is 3^{rd} option*

QNo:- 31 ,Correct Answer:- *B*

Explanation:- *As per the given conditions the table of first three rounds is given below*

Table - I

	Arun	**Bankim**	**Charu**	**Dipak**
Round 1	Hi (+2)	Lo (-2)	Lo (-2)	Hi (+2)
Round 2	Hi (+3)	Lo (-1)	Lo (-1)	Lo (-1)
Round 3	Lo (+1)	Lo (+1)	Lo (+1)	Lo (+1)
Total	6	-2	-2	2

So, at the end of three rounds, Arun had scored 6 points, Dipak had scored 2 points, Bankim and Charu had scored -2 points each. Now with the further condition being given that at the end of six rounds, Arun had scored 7 points. Bankim and Dipak had scored 7 points, also with the condition that there has to be one more round after the first three rounds in which Arun was the only player who bid Hi, we can have the following combinations for Rounds 4, 5 & 6.

Table - II

Arun	**Bankim**	**Charu**	**Dipak**
Hi (+3)	Lo (-1)	Lo (-1)	Lo (-1)
Hi (-1)	Hi (-1)	Hi (-1)	Hi (-1)
Lo (-1)	Hi (+1)	Lo (-1)	Lo (-1)

Refer to table I.

QNo:- 32 ,Correct Answer:- *4,4,4,2,1*

Explanation:- *As per the given conditions the table of first three rounds is given below*

Table - I

	Arun	Bankim	Charu	Dipak
Round 1	Hi (+2)	Lo (-2)	Lo (-2)	Hi (+2)
Round 2	Hi (+3)	Lo (-1)	Lo (-1)	Lo (-1)
Round 3	Lo (+1)	Lo (+1)	Lo (+1)	Lo (+1)
Total	6	-2	-2	2

So, at the end of three rounds, Arun had scored 6 points, Dipak had scored 2 points, Bankim and Charu had scored -2 points each. Now with the further condition being given that at the end of six rounds, Arun had scored 7 points. Bankim and Dipak had scored 7 points, also with the condition that there has to be one more round after the first three rounds in which Arun was the only player who bid Hi, we can have the following combinations for Rounds 4, 5 & 6.

Table - II

Arun	Bankim	Charu	Dipak
Hi (+3)	Lo (-1)	Lo (-1)	Lo (-1)
Hi (-1)	Hi (-1)	Hi (-1)	Hi (-1)
Lo (-1)	Hi (+1)	Lo (-1)	Lo (-1)

Arun bid Hi in 4 rounds.

QNo:- 33 ,Correct Answer:- *4*

Explanation:- *As per the given conditions the table of first three rounds is given below*

Table - I

	Arun	**Bankim**	**Charu**	**Dipak**
Round 1	Hi (+2)	Lo (-2)	Lo (-2)	Hi (+2)
Round 2	Hi (+3)	Lo (-1)	Lo (-1)	Lo (-1)
Round 3	Lo (+1)	Lo (+1)	Lo (+1)	Lo (+1)
Total	6	-2	-2	2

So, at the end of three rounds, Arun had scored 6 points, Dipak had scored 2 points, Bankim and Charu had scored -2 points each. Now with the further condition being given that at the end of six rounds, Arun had scored 7 points. Bankim and Dipak had scored 7 points, also with the condition that there has to be one more round after the first three rounds in which Arun was the only player who bid Hi, we can have the following combinations for Rounds 4, 5 & 6.

Table - II

Arun	**Bankim**	**Charu**	**Dipak**
Hi (+3)	Lo (-1)	Lo (-1)	Lo (-1)
Hi (-1)	Hi (-1)	Hi (-1)	Hi (-1)
Lo (-1)	Hi (+1)	Lo (-1)	Lo (-1)

Bankim bid Lo in 4 rounds

QNo:- 34 ,Correct Answer:- *2*

Explanation:- *As per the given conditions the table of first three rounds is given below*

Table - I

	Arun	Bankim	Charu	Dipak
Round 1	Hi (+2)	Lo (-2)	Lo (-2)	Hi (+2)
Round 2	Hi (+3)	Lo (-1)	Lo (-1)	Lo (-1)
Round 3	Lo (+1)	Lo (+1)	Lo (+1)	Lo (+1)
Total	6	-2	-2	2

So, at the end of three rounds, Arun had scored 6 points, Dipak had scored 2 points, Bankim and Charu had scored -2 points each. Now with the further condition being given that at the end of six rounds, Arun had scored 7 points. Bankim and Dipak had scored 7 points, also with the condition that there has to be one more round after the first three rounds in which Arun was the only player who bid Hi, we can have the following combinations for Rounds 4, 5 & 6.

Table - II

Arun	Bankim	Charu	Dipak
Hi (+3)	Lo (-1)	Lo (-1)	Lo (-1)
Hi (-1)	Hi (-1)	Hi (-1)	Hi (-1)
Lo (-1)	Hi (+1)	Lo (-1)	Lo (-1)

All four players made identical bids in Round 3 and once again in one of rounds 4, 5 or 6. So this happened in 2 rounds.

QNo:- 35 ,Correct Answer:- *1*

Explanation:- *As per the given conditions the table of first three rounds is given below*

Table - I

	Arun	**Bankim**	**Charu**	**Dipak**
Round 1	Hi (+2)	Lo (-2)	Lo (-2)	Hi (+2)
Round 2	Hi (+3)	Lo (-1)	Lo (-1)	Lo (-1)
Round 3	Lo (+1)	Lo (+1)	Lo (+1)	Lo (+1)
Total	6	-2	-2	2

So, at the end of three rounds, Arun had scored 6 points, Dipak had scored 2 points, Bankim and Charu had scored -2 points each. Now with the further condition being given that at the end of six rounds, Arun had scored 7 points. Bankim and Dipak had scored 7 points, also with the condition that there has to be one more round after the first three rounds in which Arun was the only player who bid Hi, we can have the following combinations for Rounds 4, 5 & 6.

Table - II

Arun	**Bankim**	**Charu**	**Dipak**
Hi (+3)	Lo (-1)	Lo (-1)	Lo (-1)
Hi (-1)	Hi (-1)	Hi (-1)	Hi (-1)
Lo (-1)	Hi (+1)	Lo (-1)	Lo (-1)

Dipak gained exactly 1 point only in round 3. So this happened only in one of the rounds.

QNo:- 36 ,Correct Answer:- *A*

Explanation:- *As per the given conditions the table of first three rounds is given below*

Table - I

	Arun	Bankim	Charu	Dipak
Round 1	Hi (+2)	Lo (-2)	Lo (-2)	Hi (+2)
Round 2	Hi (+3)	Lo (-1)	Lo (-1)	Lo (-1)
Round 3	Lo (+1)	Lo (+1)	Lo (+1)	Lo (+1)
Total	6	-2	-2	2

So, at the end of three rounds, Arun had scored 6 points, Dipak had scored 2 points, Bankim and Charu had scored -2 points each. Now with the further condition being given that at the end of six rounds, Arun had scored 7 points. Bankim and Dipak had scored 7 points, also with the condition that there has to be one more round after the first three rounds in which Arun was the only player who bid Hi, we can have the following combinations for Rounds 4, 5 & 6.

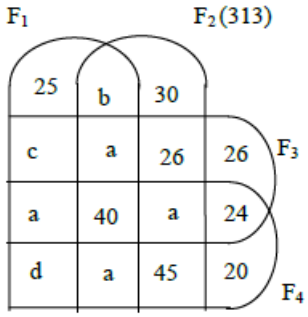
Table - II

Arun	Bankim	Charu	Dipak
Hi (+3)	Lo (-1)	Lo (-1)	Lo (-1)
Hi (-1)	Hi (-1)	Hi (-1)	Hi (-1)
Lo (-1)	Hi (+1)	Lo (-1)	Lo (-1)

The only round we are sure about Arun being the only player to bid Hi so answer is 1^{st} option.

QNo:- 37 ,Correct Answer:- *A*

Explanation:-

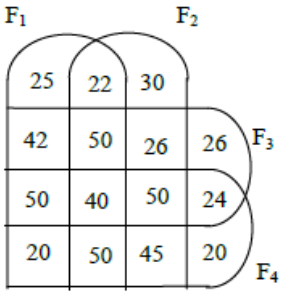


Number of schools who do not have any of these 4 facilities = 80

2a + 40 + b = 162.....(1)
162 + 30 + 26 + a + 45 = 313.....(2). So a = 50.
Putting this value of a in equation (1), we get b = 22.

As the number of schools having F1 was the same as the number of schools having F4, so 25 + c + a + d + b + a + 40 + a = a + 40 + a + 24 + d + a + 45 + 20
Þ25 + c + 22 + 40 = 129 Þ c = 42.
Also 25 + c + a + d + 162 + 30 + 26 + a + 45 + 26 + 24 + 20 + 80 = 600
⇒ 25 + 42 + 50 + d + 162 + 30 + 26 + 50 + 45 + 26 + 24 + 20 + 20 + 80 = 600 ⇒ d = 20

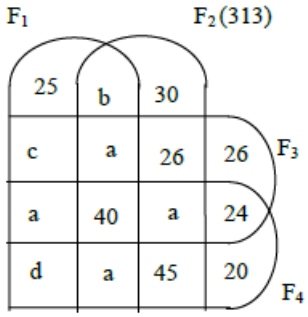
So we get the final diagram as follows:



Number of schools having exactly three of the four facilities = 50 + 50 + 50 + 50 = 200

QNo:- 38 ,Correct Answer:- *D*

Explanation:-

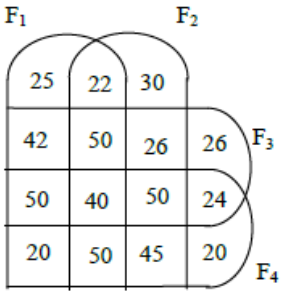


Number of schools who do not have any of these 4 facilities = 80

2a + 40 + b = 162.....(1)
162 + 30 + 26 + a + 45 = 313.....(2). So a = 50.
Putting this value of a in equation (1), we get b = 22.

As the number of schools having F1 was the same as the number of schools having F4, so 25 + c + a + d + b + a + 40 + a = a + 40 + a + 24 + d + a + 45 + 20
Þ25 + c + 22 + 40 = 129 Þ c = 42.
Also 25 + c + a + d + 162 + 30 + 26 + a + 45 + 26 + 24 + 20 + 80 = 600
⇒ 25 + 42 + 50 + d + 162 + 30 + 26 + 50 + 45 + 26 + 24 + 20 + 20 + 80 = 600 ⇒ d = 20

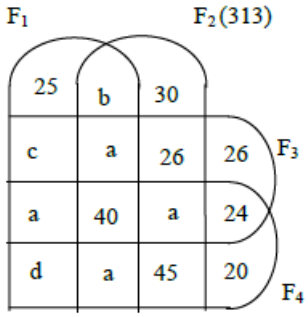
So we get the final diagram as follows:



Number of schools having facilities F_2 and F_4 = 40 + 50 + 50 + 45 = 185

QNo:- 39 ,Correct Answer:- *42,20*

Explanation:-

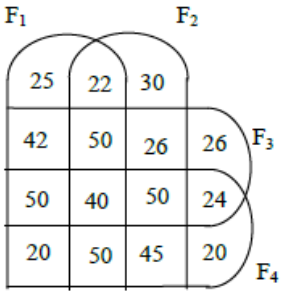


Number of schools who do not have any of these 4 facilities = 80

2a + 40 + b = 162.....(1)
162 + 30 + 26 + a + 45 = 313.....(2). So a = 50.
Putting this value of a in equation (1), we get b = 22.

As the number of schools having F1 was the same as the number of schools having F4, so 25 + c + a + d + b + a + 40 + a = a + 40 + a + 24 + d + a + 45 + 20
Þ25 + c + 22 + 40 = 129 Þ c = 42.
Also 25 + c + a + d + 162 + 30 + 26 + a + 45 + 26 + 24 + 20 + 80 = 600
⇒ 25 + 42 + 50 + d + 162 + 30 + 26 + 50 + 45 + 26 + 24 + 20 + 20 + 80 = 600 ⇒ d = 20

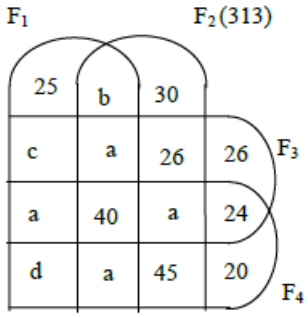
So we get the final diagram as follows:



Number of schools having only facilities F_1 and F_3 = 42

QNo:- 40 ,Correct Answer:- *20*

Explanation:-

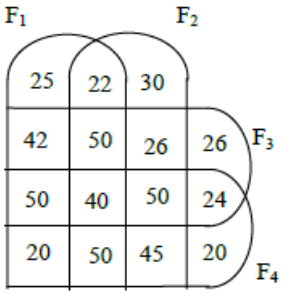


Number of schools who do not have any of these 4 facilities = 80

2a + 40 + b = 162.....(1)
162 + 30 + 26 + a + 45 = 313.....(2). So a = 50.
Putting this value of a in equation (1), we get b = 22.

As the number of schools having F1 was the same as the number of schools having F4, so 25 + c + a + d + b + a + 40 + a = a + 40 + a + 24 + d + a + 45 + 20
Þ25 + c + 22 + 40 = 129 Þ c = 42.
Also 25 + c + a + d + 162 + 30 + 26 + a + 45 + 26 + 24 + 20 + 80 = 600
⇒ 25 + 42 + 50 + d + 162 + 30 + 26 + 50 + 45 + 26 + 24 + 20 + 20 + 80 = 600 ⇒ d = 20

So we get the final diagram as follows:



Number of schools having only facilities F_1 and F_4 = 20

QNo:- 41 ,Correct Answer:- *C*

Explanation:- *Firstly we will convert the cumulative values to normal frequency model. So the new table becomes*

Day	Orders Booked	Orders Delivered	Orders Lost
13^{th}		11	
14^{th}	30	27	1
15^{th}	28	23	2
16^{th}	25	11	12
17^{th}	25	21	12
18^{th}	5	13	2
19^{th}	5	14	9

As is given that number of orders that were booked on 11^{th}, 12^{th} and 13^{th} of the last month that took 2 days to deliver were 4, 6 and 8 respectively, so we can say that on the 13^{th} day, the breakup of 11 orders which were delivered will be 4 + 7. Hence the remaining 7 orders must have been booked on 12^{th} day.

Similarly, we can get the breakup of 27 orders which were delivered on 14^{th} day will be 6 + 21. Hence the remaining 21 orders must have been booked on 13^{th} day.

Similarly, we can get the breakup of 23 orders which were delivered on 15^{th} day will be 8 + 15. Hence the remaining 15 orders must have been booked on 14^{th} day.

But we can see that there are 2 orders which are lost on 15^{th} day. These must have been booked on 13^{th} day.

As 12 orders on 16^{th} day are lost, so they must have been booked on 14^{th} day. So we can say that breakup of 11 orders on day 16 will be 3 + 8. Hence 3 orders delivered on 16^{th} day must have been ordered on 14^{th} day and remaining 8 orders must have been booked on 15^{th} day.

Moving in this pattern, we can find the breakup of 17^{th}, 18^{th} and 19^{th} day and we can get the final table as follows::

Day	Orders Booked	Orders Delivered (Day wise)	Orders Lost
13^{th}		4 (11^{th} day) + 7 (12^{th} day)	
14^{th}	30	6 (12^{th} day) + 21 (13^{th} day)	1
15^{th}	28	8 (13^{th} day) + 15 (14^{th} day)	2 (13^{th} day)
16^{th}	25	3 (14^{th} day) + 8 (15^{th} day)	12 (14^{th} day)
17^{th}	25	8 (15^{th} day) + 13 (16^{th} day)	12 (15^{th} day)
18^{th}	5	10 (16^{th} day) + 3 (17^{th} day)	2 (16^{th} day)
19^{th}	5	13 (17^{th} day) + 1 (18^{th} day)	9 (17^{th} day)

Now we can find the number of orders booked on 13^{th} day = 21 + 8 + 2 = 31. Now we can find all the answers:

Orders lost as a fraction of orders booked was maximum on 15^{th} day which is equal to 12/28.

QNo:- 42 ,Correct Answer:- *B*

Explanation:- *Firstly we will convert the cumulative values to normal frequency model. So the new table becomes*

Day	Orders Booked	Orders Delivered	Orders Lost
13^{th}		11	
14^{th}	30	27	1
15^{th}	28	23	2
16^{th}	25	11	12
17^{th}	25	21	12
18^{th}	5	13	2
19^{th}	5	14	9

As is given that number of orders that were booked on 11^{th}, 12^{th} and 13^{th} of the last month that took 2 days to deliver were 4, 6 and 8 respectively, so we can say that on the 13^{th} day, the breakup of 11 orders which were delivered will be 4 + 7. Hence the remaining 7 orders must have been booked on 12^{th} day.

Similarly, we can get the breakup of 27 orders which were delivered on 14^{th} day will be 6 + 21. Hence the remaining 21 orders must have been booked on 13^{th} day.

Similarly, we can get the breakup of 23 orders which were delivered on 15^{th} day will be 8 + 15. Hence the remaining 15 orders must have been booked on 14^{th} day.

But we can see that there are 2 orders which are lost on 15^{th} day. These must have been booked on 13^{th} day.

As 12 orders on 16^{th} day are lost, so they must have been booked on 14^{th} day. So we can say that breakup of 11 orders on day 16 will be 3 + 8. Hence 3 orders delivered on 16^{th} day must have been ordered on 14^{th} day and remaining 8 orders must have been booked on 15^{th} day.

Moving in this pattern, we can find the breakup of 17^{th}, 18^{th} and 19^{th} day and we can get the final table as follows::

Day	Orders Booked	Orders Delivered (Day wise)	Orders Lost
13^{th}		4 (11^{th} day) + 7 (12^{th} day)	
14^{th}	30	6 (12^{th} day) + 21 (13^{th} day)	1
15^{th}	28	8 (13^{th} day) + 15 (14^{th} day)	2 (13^{th} day)
16^{th}	25	3 (14^{th} day) + 8 (15^{th} day)	12 (14^{th} day)
17^{th}	25	8 (15^{th} day) + 13 (16^{th} day)	12 (15^{th} day)
18^{th}	5	10 (16^{th} day) + 3 (17^{th} day)	2 (16^{th} day)
19^{th}	5	13 (17^{th} day) + 1 (18^{th} day)	9 (17^{th} day)

Now we can find the number of orders booked on 13^{th} day = 21 + 8 + 2 = 31. Now we can find all the answers:

We can see that highest number of orders were booked on 13^{th} day i.e 31.

QNo:- 43 ,Correct Answer:- *C*

Explanation:- *Firstly we will convert the cumulative values to normal frequency model. So the new table becomes*

Day	Orders Booked	Orders Delivered	Orders Lost
13^{th}		11	
14^{th}	30	27	1
15^{th}	28	23	2
16^{th}	25	11	12
17^{th}	25	21	12
18^{th}	5	13	2
19^{th}	5	14	9

As is given that number of orders that were booked on 11^{th}, 12^{th} and 13^{th} of the last month that took 2 days to deliver were 4, 6 and 8 respectively, so we can say that on the 13^{th} day, the breakup of 11 orders which were delivered will be 4 + 7. Hence the remaining 7 orders must have been booked on 12^{th} day.

Similarly, we can get the breakup of 27 orders which were delivered on 14^{th} day will be 6 + 21. Hence the remaining 21 orders must have been booked on 13^{th} day.

Similarly, we can get the breakup of 23 orders which were delivered on 15^{th} day will be 8 + 15. Hence the remaining 15 orders must have been booked on 14^{th} day.

But we can see that there are 2 orders which are lost on 15^{th} day. These must have been booked on 13^{th} day.

As 12 orders on 16^{th} day are lost, so they must have been booked on 14^{th} day. So we can say that breakup of 11 orders on day 16 will be 3 + 8. Hence 3 orders delivered on 16^{th} day must have been ordered on 14^{th} day and remaining 8 orders must have been booked on 15^{th} day.

Moving in this pattern, we can find the breakup of 17^{th}, 18^{th} and 19^{th} day and we can get the final table as follows::

Day	Orders Booked	Orders Delivered (Day wise)	Orders Lost
13^{th}		4 (11^{th} day) + 7 (12^{th} day)	
14^{th}	30	6 (12^{th} day) + 21 (13^{th} day)	1
15^{th}	28	8 (13^{th} day) + 15 (14^{th} day)	2 (13^{th} day)
16^{th}	25	3 (14^{th} day) + 8 (15^{th} day)	12 (14^{th} day)
17^{th}	25	8 (15^{th} day) + 13 (16^{th} day)	12 (15^{th} day)
18^{th}	5	10 (16^{th} day) + 3 (17^{th} day)	2 (16^{th} day)
19^{th}	5	13 (17^{th} day) + 1 (18^{th} day)	9 (17^{th} day)

Now we can find the number of orders booked on 13^{th} day = 21 + 8 + 2 = 31. Now we can find all the answers:

Delivery Ratio is highest for 14^{th} day which is equal to 15 : 3 Þ 5 : 1. Hence 3^{rd} option.

QNo:- 44 ,Correct Answer:- *D*

Explanation:- *Firstly we will convert the cumulative values to normal frequency model. So the new table becomes*

Day	Orders Booked	Orders Delivered	Orders Lost
13^{th}		11	
14^{th}	30	27	1
15^{th}	28	23	2
16^{th}	25	11	12
17^{th}	25	21	12
18^{th}	5	13	2
19^{th}	5	14	9

As is given that number of orders that were booked on 11^{th}, 12^{th} and 13^{th} of the last month that took 2 days to deliver were 4, 6 and 8 respectively, so we can say that on the 13^{th} day, the breakup of 11 orders which were delivered will be 4 + 7. Hence the remaining 7 orders must have been booked on 12^{th} day.

Similarly, we can get the breakup of 27 orders which were delivered on 14^{th} day will be 6 + 21. Hence the remaining 21 orders must have been booked on 13^{th} day.

Similarly, we can get the breakup of 23 orders which were delivered on 15^{th} day will be 8 + 15. Hence the remaining 15 orders must have been booked on 14^{th} day.

But we can see that there are 2 orders which are lost on 15^{th} day. These must have been booked on 13^{th} day.

As 12 orders on 16^{th} day are lost, so they must have been booked on 14^{th} day. So we can say that breakup of 11 orders on day 16 will be 3 + 8. Hence 3 orders delivered on 16^{th} day must have been ordered on 14^{th} day and remaining 8 orders must have been booked on 15^{th} day.

Moving in this pattern, we can find the breakup of 17^{th}, 18^{th} and 19^{th} day and we can get the final table as follows::

Day	Orders Booked	Orders Delivered (Day wise)	Orders Lost
13^{th}		4 (11^{th} day) + 7 (12^{th} day)	
14^{th}	30	6 (12^{th} day) + 21 (13^{th} day)	1
15^{th}	28	8 (13^{th} day) + 15 (14^{th} day)	2 (13^{th} day)
16^{th}	25	3 (14^{th} day) + 8 (15^{th} day)	12 (14^{th} day)
17^{th}	25	8 (15^{th} day) + 13 (16^{th} day)	12 (15^{th} day)
18^{th}	5	10 (16^{th} day) + 3 (17^{th} day)	2 (16^{th} day)
19^{th}	5	13 (17^{th} day) + 1 (18^{th} day)	9 (17^{th} day)

Now we can find the number of orders booked on 13^{th} day = 21 + 8 + 2 = 31. Now we can find all the answers:

Average time taken as given in the question is least for 14^{th} day which is equal to

$$\frac{15+2(3)}{15+3}=\frac{21}{18}$$

QNo:- 45 ,Correct Answer:- *B*

Explanation:-

	1	2	3	4
X	12 C			
Y	21 A			A
Z	B	C	9	28

Given
Total number of trees = 205
A – C = 20 and D – A = 6 (from condition 1)
Let number of teak trees in column 2,3 and 4 is x, 2x and 4x respectively (from condition 3)
From condition 6 and 8, only possible plots for D is Row 1, column 3 and 4
From condition 7, plots for Bina are Row 1 column 2, Row 3 column 4 and Row 2 column 3. So Bina got 4 plots.
From condition 4 Abha and Dipti got 4 and 2 plots respectively.
(as each daughter got an even number of plots)
Using all conditions we get, number of plots as A = 4, B = 4, C = 2 and D = 2

	1	2	3	4	
X	12 C	B	D	D	M(2a)
Y	21 A	A	B	A	T(a)
Z	B	C	9 A	28 B	P
		x	2x	4x	

Now as each plot had trees in non-zero multiples of 3 or 4 and none of the plots had the same number of trees. So we cannot take x as 3 or 6.

If x = 4 then 2x = 8 and 4x = 16

	1	2	3	4	
X	12 C	B	D	D	M(98)
Y	21 A	4 A	8 B	16 A	T(49)
Z	B	C	9 A	28 B	P
		x	2x	4x	

So we have A = 50
From condition 1, C = 30 and D = 56 Þ B = 69

So we have

	1	2	3	4	
X	12 C	30 B	D	D	M(98)
Y	21 A	4 A	8 B	16 A	T(49)

Z	3 B	18 C	9 A	28 B	P

There are 98 mango trees in total

QNo:- 46 ,Correct Answer:- *B*

Explanation:-

	1	2	3	4
X	12 C			
Y	21 A			A
Z	B	C	9	28

Given
Total number of trees = 205
A – C = 20 and D – A = 6 (from condition 1)
Let number of teak trees in column 2,3 and 4 is x, 2x and 4x respectively (from condition 3)
From condition 6 and 8, only possible plots for D is Row 1, column 3 and 4
From condition 7, plots for Bina are Row 1 column 2, Row 3 column 4 and Row 2 column 3. So Bina got 4 plots.
From condition 4 Abha and Dipti got 4 and 2 plots respectively.
(as each daughter got an even number of plots)
Using all conditions we get, number of plots as A = 4, B = 4, C = 2 and D = 2

	1	2	3	4	
X	12 C	B	D	D	M(2a)
Y	21 A	A	B	A	T(a)
Z	B	C	9 A	28 B	P
		x	2x	4x	

Now as each plot had trees in non-zero multiples of 3 or 4 and none of the plots had the same number of trees. So we cannot take x as 3 or 6.

If x = 4 then 2x = 8 and 4x = 16

	1	2	3	4	
X	12 C	B	D	D	M(98)
Y	21 A	4 A	8 B	16 A	T(49)
Z	B	C	9 A	28 B	P
		x	2x	4x	

So we have A = 50
From condition 1, C = 30 and D = 56 Þ B = 69

So we have

	1	2	3	4	
X	12 C	30 B	D	D	M(98)
Y	21 A	4 A	8 B	16 A	T(49)
Z	3 B	18 C	9 A	28 B	P

50, 69, 30, 56 is the correct sequence of trees received by Abha, Bina, Chitra and Dipti.

QNo:- 47 ,Correct Answer:- *A*

Explanation:-

	1	2	3	4
X	12 C			
Y	21 A			A
Z	B	C	9	28

Given
Total number of trees = 205
A – C = 20 and D – A = 6 (from condition 1)
Let number of teak trees in column 2,3 and 4 is x, 2x and 4x respectively (from condition 3)
From condition 6 and 8, only possible plots for D is Row 1, column 3 and 4
From condition 7, plots for Bina are Row 1 column 2, Row 3 column 4 and Row 2 column 3. So Bina got 4 plots.
From condition 4 Abha and Dipti got 4 and 2 plots respectively.
(as each daughter got an even number of plots)
Using all conditions we get, number of plots as A = 4, B = 4, C = 2 and D = 2

	1	2	3	4	
X	12 C	B	D	D	M(2a)
Y	21 A	A	B	A	T(a)
Z	B	C	9 A	28 B	P
		x	2x	4x	

Now as each plot had trees in non-zero multiples of 3 or 4 and none of the plots had the same number of trees. So we cannot take x as 3 or 6.

If x = 4 then 2x = 8 and 4x = 16

	1	2	3	4	
X	12 C	B	D	D	M(98)
Y	21 A	4 A	8 B	16 A	T(49)
Z	B	C	9 A	28 B	P
		x	2x	4x	

So we have A = 50
From condition 1, C = 30 and D = 56 Þ B = 69

So we have

	1	2	3	4	
X	12 C	30 B	D	D	M(98)
Y	21 A	4 A	8 B	16 A	T(49)
Z	3 B	18 C	9 A	28 B	P

Chitra receives 18 pine trees.

QNo:- 48 ,Correct Answer:- *A*

Explanation:-

	1	2	3	4
X	12 C			
Y	21 A			A
Z	B	C	9	28

Given
Total number of trees = 205
A – C = 20 and D – A = 6 (from condition 1)
Let number of teak trees in column 2,3 and 4 is x, 2x and 4x respectively (from condition 3)
From condition 6 and 8, only possible plots for D is Row 1, column 3 and 4
From condition 7, plots for Bina are Row 1 column 2, Row 3 column 4 and Row 2 column 3. So Bina got 4 plots.
From condition 4 Abha and Dipti got 4 and 2 plots respectively.
(as each daughter got an even number of plots)
Using all conditions we get, number of plots as A = 4, B = 4, C = 2 and D = 2

	1	2	3	4	
X	12 C	B	D	D	M(2a)
Y	21 A	A	B	A	T(a)
Z	B	C	9 A	28 B	P
		x	2x	4x	

Now as each plot had trees in non-zero multiples of 3 or 4 and none of the plots had the same number of trees. So we cannot take x as 3 or 6.

If x = 4 then 2x = 8 and 4x = 16

	1	2	3	4	
X	12 C	B	D	D	M(98)
Y	21	4	8	16	T(49)

	A	A	B	A	
Z	B	C	9 A	28 B	P
		x	2x	4x	

So we have A = 50
From condition 1, C = 30 and D = 56 Þ B = 69

So we have

	1	2	3	4	
X	12 C	30 B	D	D	M(98)
Y	21 A	4 A	8 B	16 A	T(49)
Z	3 B	18 C	9 A	28 B	P

Bina got the plot with smallest number of trees i.e. 3.

QNo:- 49 ,Correct Answer:- *A*

Explanation:-

	1	2	3	4
X	12 C			
Y	21 A			A
Z	B	C	9	28

Given
Total number of trees = 205
A – C = 20 and D – A = 6 (from condition 1)
Let number of teak trees in column 2,3 and 4 is x, 2x and 4x respectively (from condition 3)
From condition 6 and 8, only possible plots for D is Row 1, column 3 and 4
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	1	2	3	4	
X	12 C	B	D	D	M(2a)
Y	21 A	A	B	A	T(a)
Z	B	C	9 A	28 B	P
		x	2x	4x	

Now as each plot had trees in non-zero multiples of 3 or 4 and none of the plots had the same number of trees. So we cannot take x as 3 or 6.

If x = 4 then 2x = 8 and 4x = 16

	1	2	3	4	
X	12 C	B	D	D	M(98)
Y	21 A	4 A	8 B	16 A	T(49)
Z	B	C	9 A	28 B	P
		x	2x	4x	

So we have A = 50
From condition 1, C = 30 and D = 56 Þ B = 69

So we have

	1	2	3	4	
X	12 C	30 B	D	D	M(98)
Y	21 A	4 A	8 B	16 A	T(49)
Z	3 B	18 C	9 A	28 B	P

Statement 1 is wrong as Bina got 3 pine trees.

***QNo:- 50 ,Correct Answer:-** B*

Explanation:-

	1	2	3	4
X	12 C			
Y	21 A			A
Z	B	C	9	28

Given
Total number of trees = 205
A – C = 20 and D – A = 6 (from condition 1)
Let number of teak trees in column 2,3 and 4 is x, 2x and 4x respectively (from condition 3)
From condition 6 and 8, only possible plots for D is Row 1, column 3 and 4
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From condition 4 Abha and Dipti got 4 and 2 plots respectively.
(as each daughter got an even number of plots)
Using all conditions we get, number of plots as A = 4, B = 4, C = 2 and D = 2

	1	2	3	4	
X	12 C	B	D	D	M(2a)
Y	21 A	A	B	A	T(a)
Z	B	C	9 A	28 B	P
		x	2x	4x	

Now as each plot had trees in non-zero multiples of 3 or 4 and none of the plots had the same number of trees. So we cannot take x as 3 or 6.

If x = 4 then 2x = 8 and 4x = 16

	1	2	3	4	
X	12 C	B	D	D	M(98)
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		x	2x	4x	

So we have A = 50
From condition 1, C = 30 and D = 56 Þ B = 69

So we have

	1	2	3	4	
X	12 C	30 B	D	D	M(98)
Y	21 A	4 A	8 B	16 A	T(49)
Z	3 B	18 C	9 A	28 B	P

Total trees in column 1 = 36
Total trees in column 2 = 52
As Dipti got 32 trees in one of her plots. We can see taking 32 trees in either column 3 or 4, number of trees in column 4 is always more than all other columns. So column 4 is the answer.

Section : Quantitative Ability

QNo:- 51 ,Correct Answer:- *B*

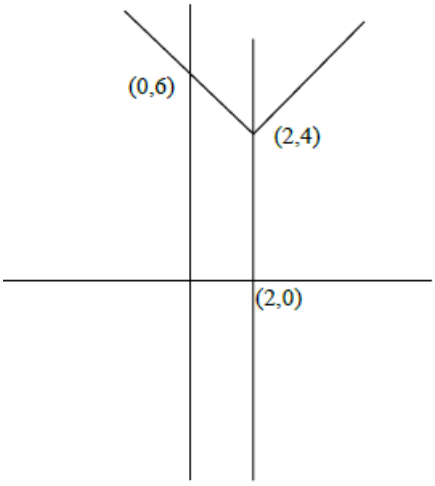
Explanation:- *Let initial volume of A and B be 1 lt and 3 lt. Now 4lt of A is added. Now A = 5 lt and B = 3lt.*
Let % of alcohol in B is p%. So according to the question:
8×72/100 = (5 × 60/100) + (3 × p/100)
On solving this we get p= 92

QNo:- 52 ,Correct Answer:- *C*

Explanation:- *Time taken by Anil to complete one round = 3/15*
Time taken by Sunil to complete one round = 3/10
Time taken by Anil and Sunil to meet at the starting point first time = 3/5 hrs
Distance travelled by Ravi in 3/5 hrs = 8×3/5 = 4.8 kms

QNo:- 53 ,Correct Answer:- *A*

Explanation:- *The figure is a trapezium*
Area = ½ x (4 + 6) × 2 = 10



QNo:- 54 ,Correct Answer:- *C*

Explanation:- *Distance covered by Train from point A till 10:30 = 40 × 1.5 = 60 km*
So remaining distance = 90 – 60 = 30 km
Time = 30/(40+20) = ½ hrs
So trains meet each other at 11:00 am

QNo:- 55 ,Correct Answer:- *A*

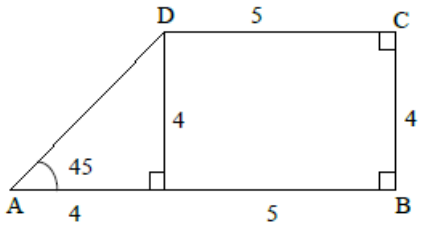
Explanation:- *Bishnu scored 52% and Asha scored 64%. Difference between their actual marks = 23 + 34 =57*
Difference in their percentages = 12%
So 12% of Total = 57
Total = 57×100/12
Score of Geeta = (57 × 100/12) × 84/100 = 399

QNo:- 56 ,Correct Answer:- *B*

Explanation:- *A+B = $\log_a 5 + \log_a 6 - \log_a 5 + \log_a 3 = \log_a 18$*
$\log_a 2 = 3$
So $\log_a 18 = \log_a 2 + 2\log_a 3$
So $A+B = 3 + 2\log_a 3$
$\log_a 3 = (A+B-3)/2$
So $\log_3 a = 2/(A+B-3)$

QNo:- 57 ,Correct Answer:- *28*

Explanation:- *Required Area = (5 × 4) + ½ x 4 x 4 = 28*



QNo:- 58 ,Correct Answer:- *D*

Explanation:- *$F(5 + 5) = F(5)^2 = 16$*
similarly F(-5)= 1/4 , So F(-10) = 1/16
So 16 - 1/16 = 15.9375

QNo:- 59 ,Correct Answer:- *24,6*

Explanation:- *(2 × 4 × 8 × 16) / (4 × 27/8 × 256/81) = 24*

QNo:- 60 ,Correct Answer:- *6,252,18*

Explanation:- *N=x + y*
Minimum of x + y = 3 + 15 =18
Maximum value of x + y = 9 + 22 = 31
Now as N > 25, so all values from 26 to 31 are possible.
6 values are possible

QNo:- 61 ,Correct Answer:- *A*

Explanation:- *Let cost per kg = 1*
Mark Price = 1.2/kg
Total cost = 35
Total selling price = 35x 1.15 = 40.25
[(5x1.2)+ (15x 1.2 x 0.9)+ (3× 0) + (12×1.2× (1 + p/100))] = 40.25
p= 25

QNo:- 62 ,Correct Answer:- *B*

Explanation:- *Let usual time taken is t*
40 x t = 35 x (t + 6)
So t = 42 mins
Distance = 40 x 42/60 = 28kms
So 28 x 2/3 = 56/3 kms are covered in 42/3 = 14 mins
Vimla stops for 8 mins.
Time left = 42 – 14 – 8 = 20 mins
So 28/3 kms are to be covered in 20 mins.
Speed = (28/3)/(20/60) = 28kmph

QNo:- 63 ,Correct Answer:- 252

Explanation:- Three digit numbers without repetition = 9 × 9 × 8 = 648
So three digit numbers with at least one digit repeated = 900 – 648 = 252

QNo:- 64 ,Correct Answer:- B

Explanation:- Total score of (n+2) innings = 29x(n+2) = 29n + 58
Total score of n innings = 29n + 58 – 38 – 15 = 30n
So n=5
So total score in 5 innings = 30 × 5 = 150
Maximum score in any inning = 37
So 150 – (37× 4) = 2

QNo:- 65 ,Correct Answer:- D

Explanation:- $K/4 = 1/K$
So $K^2 = 4$
$|K| = 2$

QNo:- 66 ,Correct Answer:- 18,1600,3

Explanation:- Let age of Tom = x
So age of Dick = 3x and Harry = 6x
So (x + 3x + 6x)/3 - 3x = 1
x = 3
So Harry's age = 18

QNo:- 67 ,Correct Answer:- C

Explanation:- Let coordinates of the circumcenter be (x, y)
Now just equating the distance of this point from the vertices of the triangle.
$x^2 + y^2 = (x – 4)^2 + y^2$
$x^2 + y^2 = (x – 3)^2 + (y – 9)^2$
On solving these two equations we get x=2 and y= 13/3
So $R^2 = (2^2 + (13/3)^2) = 205\pi/9$

QNo:- 68 ,Correct Answer:- 1600

Explanation:- $P (1 +5/100)^3 = 18522$
P = 16000

QNo:- 69 ,Correct Answer:- 3

Explanation:- $14^a = 36^b = 84^c = K$
$14 = k^{1/a}$
$84 = k^{1/c}$
$36 = k^{1/b}$
$(84/14)^2 = 36$
$K^{(2/c - 2/a)} = K^{1/b}$
$2(1/c - 1/a) = 1/b$
$2b(1/c - 1/a) = 1$
So $6b(1/c - 1/a) = 3$

QNo:- 70 ,Correct Answer:- A

Explanation:- The diagonals will intersect at the midpoint of the line joining (2,1) and (-3,-4). This point will be (-1/2 , -3/2).
The line x+9y +c =0 will also pass through (-1/2 , -3/2)
so -1/2 + 9x-3/2 + c = 0
c = 14

QNo:- 71 ,Correct Answer:- D

Explanation:- As N is even and N/11 lies between 0.2 and 0.5, So N has to be 4.
N/M is less than 0.5, So M has to be greater than 8 but has to be less than 10 as M/20 is also less than 0.5
So M = 9
M – 2N = 9 – 8= 1

QNo:- 72 ,Correct Answer:- C

Explanation:- $X_1 = -1, X_2 = -3, X_3 = -6, X_4 = -10$
So you can observe the pattern $X_n = -n(n+1)/2$
$X_{100} = -100x101/2 = -5050$

QNo:- 73 ,Correct Answer:- C

Explanation:- Numbers divisible by 2 = 120/2 = 60
Numbers divisible by 5 = 120/5 = 24
Numbers divisible by 7 = 120/7 = 17
Numbers divisible by 2 and 5 = 120/10 = 12
Numbers divisible by 5 and 7 = 120/35 = 3
Numbers divisible by 2 and 7 = 120/14 = 8
Numbers divisible by 2, 5 and 7 = 120/70 = 1
Numbers divisible by either 2, 5 or 7 = 60+24+17 – 12 – 3 – 8 + 1 = 79
Numbers divisible by none of 2, 5 or 7 = 120 – 79 = 41

QNo:- 74 ,Correct Answer:- *40*

Explanation:- *To complete 1.5 km, 140 persons took 60 days*
So to complete the remaining 4.5 km, 140 persons would have taken = 60×3 = 180 days
Now to complete 180 days work in (200 – 60) = 140 days:
Number of persons required = 140 × 180/140 = 180
Additional persons = 180 – 140 = 40

QNo:- 75 ,Correct Answer:- *C*

Explanation:- *Ax B = 4^{2017}*
A x B = 2^{4034}
Now A and B are factors of 2^{4034}
Total factors of the above number are 4035
So there are 4035 cases possible
So there will be one case where A= B.
(4035 – 1)/2 = 2017 cases will be there A>B, these cases are invalid.
So 4035 – 2017 = 2018 cases

QNo:- 76 ,Correct Answer:- *D*

Explanation:- *$m^2 – 8n >= 0$ and $4n^2 – 4m >= 0$*
Now the smallest value m can take for the first equation is m=3 and n =1, but this will not satisfy the second equation.
If m= 4 then n= 2
So m + n = 6