



Section : Verbal Ability

QNo:- 1 ,Correct Answer:- D

Explanation:-

Refer to this line of the third paragraph – “That showed the researchers that cuttlefish wouldn’t reject the prawns if it was the only food available.” Thus It’s not about survival. Other options are explicitly mentioned in the passage.

QNo:- 2 ,Correct Answer:- C

Explanation:-

Refer to this line of the third paragraph – “In the experimental trials, the cuttlefish didn’t jump on the prawns if the live grass shrimp were labeled with a triangle— many waited for the shrimp drawer to open up”

and this line of the second paragraph Preliminary experiments showed that cuttlefishes’ favorite food is live grass shrimp, while raw prawns are so-so and Asian shore crab is nearly unacceptable.

QNo:- 3 ,Correct Answer:- C

Explanation:-

Option C is correct; refer to this line of the last paragraph – “We don’t know if living in a social group is important for complex cognition unless we also show those abilities are lacking in less social species,”

Option A is wrong; refer to this line of the third paragraph – “The longest that a cuttlefish waited was 130 seconds.” As 100 is less than 130.”

Option B is wrong; refer to this line of the second paragraph – “Preliminary experiments showed that cuttlefishes’ favorite food is live grass shrimp, while raw prawns are so-so and Asian shore crab is nearly unacceptable.”

Option D if true would not complement the findings in any way.

QNo:- 4 ,Correct Answer:- C

Explanation:-

Refer to this line of the last paragraph – “We don’t know if living in a social group is important for complex cognition unless we also show those abilities are lacking in less social species,” Hence Option C cannot be inferred.

Options A, B and D can be inferred from Second & third paragraph of the passage.

QNo:- 5 ,Correct Answer:- A

Explanation:- Refer to this line of the third paragraph – “Indeed, they ***might*** be twins, the progeny of the same parents.” Might refers to a probability whereas ‘are’ refers to certainty.

QNo:- 6 ,Correct Answer:- D

Explanation:- The passage treads from introducing ‘Utopia’ and then harps on that as per popular belief it provides ‘security’ and leads to ‘Homogeneity’ and finally refers to ‘international community’ towards the end.

QNo:- 7 ,Correct Answer:- A

Explanation:-

Refer to this line of the first paragraph – “ In More’s time, for much of the population, given the plenty and security on offer, **such restraints would not have seemed overly unreasonable.**” This implies that restraints were not unwelcome. As this is an ‘Except’ question so first option is ruled out.

QNo:- 8 ,Correct Answer:- D

Explanation:-

Refer to this line of the first paragraph – “ In More’s time, for much of the population, given the plenty and security on offer, such restraints would not have seemed overly unreasonable.”

QNo:- 9 ,Correct Answer:- B

Explanation:-

Option A finds help in this line of the second paragraph – “Beginning in the 1700s, the temperance movement advocated for tea as a pleasure that cheered but did not inebriate.”

Option C finds help in this line of the second paragraph – “industrialists soon borrowed this moral argument in advancing their case for free trade in tea.”

Option D finds help in this line of the second paragraph – “Factory owners joined in, compelled by the cause of a sober workforce.”

QNo:- 10 ,Correct Answer:- D

Explanation:-

Refer to the last line of the passage – “It is not a stretch to say that tea marketers have advanced the particularly noble cause of human dialogue and friendship.”

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

Option D can't be supported based on the information stated in the passage.

Option C is correct, refer to this line of the second paragraph – “During the Second World War, tea service was presented as a social and patriotic activity that uplifted soldiers and calmed refugees.”

Option A and B are correct – Refer to these last lines of the passage – “It is not a stretch to say that tea marketers have advanced the particularly noble cause of human dialogue and friendship.”

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

Refer to this line of the second last paragraph – “And morality marketing is **now** a commodity as well, applied to food, “fair trade” apparel and eco-tourism.”

QNo:- 13 ,Correct Answer:- B**Explanation:-**

Only option B respects the plants for its needs and accepts it as an independent identity whereas all other options mark the element for its link or usage with humans.

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

This is a double negative question, thus we need to look for the statement that strengthens or is in line with the main idea conveyed by the passage.

Option D is explicitly against the main idea of the passage. Option B gives importance of human linkage to identify/ respect the identity of cats and dogs. Option A also mentions the importance of human linkage. Whereas Option C gives more importance to ‘local medicinal plants’.

QNo:- 15 ,Correct Answer:- B

Explanation:-

The example is neither meant to complicate nor provide an exemption. Rather it's an attempt to break the non-binary understanding of personhood by bringing in a third category that shares a similar relation.

Refer to this line of the last paragraph - "With these Maya examples, we are challenged to discard the person/nonperson binary that constitutes our basic ontological outlook....."

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

Refer to this line of the first paragraph – "For the Maya (who did have plenty of other communicating objects, if not smartphones), the answer was no." But if the personhood of the incense burner and the stone chopper was a function of their usefulness to humans. Then the answer would be changed to 'yes'.

QNo:- 17 ,Correct Answer:- 4**Explanation:-**

The discussion is regarding the ownership & rights related to the 'space'. Option 4 though touches upon the rights but it is not specifically linked to the 'outer space'

QNo:- 18 ,Correct Answer:- 4312**Explanation:-**

Sentence 4 introduces the topic by listing the 'two poles'. Sentence 3 mentions that 'fact must lie halfway between' Sentence 1 elaborates it further. The 'convergence' mentioned in sentence 2 makes it the appropriate concluding sentence.

QNo:- 19 ,Correct Answer:- D**Explanation:-**

Option A is wrong as it's not about 'confusion'. Option B is wrong as instead of multiplication it is about 'an entirely different message. 'Option C is wrong as it's not about winning over rather 'mismatch'

QNo:- 20 ,Correct Answer:- B**Explanation:-**

Options A & D are wrong as they focus on production & distribution & miss on 'business models'. Option C is wrong as the developing economies are not being forced into

something.

QNo:- 21 ,Correct Answer:- 5

Explanation:-

The topic of discussion is the 'predatory journals' specifically with reference to India but Option 5 moves on to the 'Global' aspect.

QNo:- 22 ,Correct Answer:- 2341

Explanation:-

Sentence 2 is a standalone complete and introductory sentence. 'They' in sentence 3 refers to Biologists mentioned in '2'. Sentence 4 lists the specific aspect and Statement 1 aptly sums up the discussion.

QNo:- 23 ,Correct Answer:- 2143

Explanation:-

Statement 2 raises a concern. Statement 1 lists a popular response to counter 'global warming'. Sentence 4 explains the mechanism. 'It' in Sentence 3 refers to carbon mentioned in statement 4.

QNo:- 24 ,Correct Answer:- D

Explanation:-

Option A is wrong as it shifts the onus on the 'environment' and hampers the need to mix up and listen to the grievance of the locals. Option B is wrong as this has not been stated as the reason for foreign peacekeepers being despised by the locals. Option C is wrong as the passage states that –"their spending more time working with communities, understanding their grievances and earning their trust, rather than only meeting government officials." Their refers to the foreign peacekeepers and not locals.

Section : DI & Reasoning

QNo:- 25 ,Correct Answer:- D

Explanation:- Total sales in 2019 of office supply
= 3.65 + 0.4 + 1.8 + 0.3 + 0.1 + 0.3 + 1.5 + 4.3 + 1.1 = 13.5 million

QNo:- 26 ,Correct Answer:- C

Explanation:- Sales of Furniture in 2019 = 1.9 + 6.2 + 2.0 + 4.4 = 14.5 million

Sales of furniture in 2020 = 22 + 70 + 201 + 45 = 15.8 million

$$\% \text{ increase} = \frac{15.8 - 14.5}{14.5} \times 100$$

$$= \frac{1.3}{14.5} \times 100 = 8\%$$

QNo:- 27 ,Correct Answer:- 1

Explanation:- By Visualisation

The increase should be 1/4 of Bar

It is only of Phones. Hence only 1

QNo:- 28 ,Correct Answer:- D

Explanation:- In Technology

The improvement index is for

Accessories and is $\frac{4.4 - 3.1}{3.1} \times 100 = 41\%$

In Furniture improvement index is

For book case and is $\frac{2.2 - 1.9}{1.9} \times 100 = 15\%$

In office supply improvement index is for

Appliance and is $\frac{3.2 - 1.8}{1.8} \times 100 = 77\%$

Hence order is Furniture technology office supply

QNo:- 29 ,Correct Answer:- C

Explanation:- As per information following are SP of finished product (will be represented by (a, b, c, d, e)

a	Mango smoothie	12
b	Apple smoothie	11
c	Banana smoothie	10
d	Mix fruit smoothie	19
e	Fruit salad	12

Now following are possible product sale of each of them in every hour and in last hour sale of left over and product in shown

	Ganga	Kavari	Narmada
Hour 1	a/b or e/b	b/d	d/e
Hour 2	b/c	(a/c) or (e/c)	b/c
Hour 3	c/d	b/d	a/b or e/b
Hour 4	Left over milk + mango sold a/e	Case 1: (2+1) Sold a/c Case 2: (4+1) sold a/c or e/c	Left over mango+apple (2+1) sold (d)

As shown fruit salad is represented by e. So it could be 1 or 2.

QNo:- 30 ,Correct Answer:- C

Explanation:- As per information following are SP of finished product (will be represented by (a, b, c, d, e)

a	Mango smoothie	12
b	Apple smoothie	11
c	Banana smoothie	10
d	Mix fruit smoothie	19
e	Fruit salad	12

Now following are possible product sale of each of them in every hour and in last hour sale of left over and product in shown

	Ganga	Kavari	Narmada
Hour 1	a/b or e/b	b/d	d/e
Hour 2	b/c	(a/c) or (e/c)	b/c
Hour 3	c/d	b/d	a/b or e/b
Hour 4	Left over milk + mango sold a/e	Case 1: (2+1) Sold a/c Case 2: (4+1) sold a/c or e/c	Left over mango+apple (2+1) sold (d)

As shown Ganga sold only left over milk and Mango not Apple. Hence option 3 is true.

QNo:- 31 ,Correct Answer:- D

Explanation:- As per information following are SP of finished product (will be represented by (a, b, c, d, e)

a	Mango smoothie	12
b	Apple smoothie	11



c	Banana smoothie	10
d	Mix fruit smoothie	19
e	Fruit salad	12

Now following are possible product sale of each of them in every hour and in last hour sale of left over and product in shown

	Ganga	Kavari	Narmada
Hour 1	a/b or e/b	b/d	d/e
Hour 2	b/c	(a/c) or (e/c)	b/c
Hour 3	c/d	b/d	a/b or e/b
Hour 4	Left over milk + mango sold a/e	Case 1: (2+1) Sold a/c Case 2: (4+1) sold a/c or e/c	Left over mango+apple (2+1) sold (d)

As shown it is 18 or 19 or 20

QNo:- 32 ,Correct Answer:- 6

Explanation:- As per information following are SP of finished product (will be represented by (a, b, c, d, e)

a	Mango smoothie	12
b	Apple smoothie	11
c	Banana smoothie	10
d	Mix fruit smoothie	19
e	Fruit salad	12

Now following are possible product sale of each of them in every hour and in last hour sale of left over and product in shown

	Ganga	Kavari	Narmada
Hour 1	a/b or e/b	b/d	d/e
Hour 2	b/c	(a/c) or (e/c)	b/c
Hour 3	c/d	b/d	a/b or e/b
Hour 4	Left over milk + mango sold a/e	Case 1: (2+1) Sold a/c Case 2: (4+1) sold a/c or e/c	Left over mango+apple (2+1) sold (d)

It means each of them sold 1 left over Mango. So we have to count Apple smoothie i.e. b
So 2 + 2 + 2 = 6 is the answer

QNo:- 33 ,Correct Answer:- C

Explanation:-

Before drawing the table following Summarization should be done

Authors (eight) : A,B,C,D,E,F,G,H

Research paper (18) : 5 in Jan, 5 in April, 4 in July, 4 in Oct.

Also ratio of (A,D,G,H) to B,C,E,F) is 2:1

So, A,D,E,G must have published total 12 and BCEF total 6 papers

Further no one can publish more than 3 papers, so A,D,E,H each must have published 3 each .

Now B,C,E,F could have published 3, 1, 1, 1 or 2, 2, 1, 1 in any order.

According to point 6 both C and E have published same number and for 2 months.

So C and E have published 2 each and B and F 1 each respectively.

So whole points are summarized in following table.

Authors	No. of Papers	Everyday	Area	Months
A	3	Indian	Automation	Jan, April, July
B	1	Indian	Logistics	April
C	2	Chinese	Manufacturing	Jan, Oct
D	3	Japanese	Manufacturing	Jan, April, Oct
E	2	Chinese	Logistics	April, July
F	1	Indian	Logistics	Oct.
G	3	Indian	Automation	Jan, July, Oct
H	3	Japanese	Logistics	Jan, April, July

As shown it is 1,2,2,3

QNo:- 34 ,Correct Answer:- 8

Explanation:-

Before drawing the table following Summarization should be done

Authors (eight) : A,B,C,D,E,F,G,H

Research paper (18) : 5 in Jan, 5 in April, 4 in July, 4 in Oct.

Also ratio of (A,D,G,H) to B,C,E,F) is 2:1

So, A,D,E,G must have published total 12 and BCEF total 6 papers

Further no one can publish more than 3 papers, so A,D,E,H each must have published 3 each .

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C	2	Chinese	Manufacturing	Jan, Oct
D	3	Japanese	Manufacturing	Jan, April, Oct
E	2	Chinese	Logistics	April, July
F	1	Indian	Logistics	Oct.
G	3	Indian	Automation	Jan, July, Oct
H	3	Japanese	Logistics	Jan, April, July

Total papers by Indian Authors are $3 + 1 + 1 + 3 = 8$

QNo:- 35 ,Correct Answer:- C

Explanation:-

Before drawing the table following Summarization should be done

Authors (eight) : A,B,C,D,E,F,G,H

Research paper (18) : 5 in Jan, 5 in April, 4 in July, 4 in Oct.

Also ratio of (A,D,G,H) to B,C,E,F) is 2:1

So, A,D,E,G must have published total 12 and BCEF total 6 papers

Further no one can publish more than 3 papers, so A,D,E,H each must have published 3 each .

Now B,C,E,F could have published 3, 1, 1, 1 or 2, 2, 1, 1 in any order.

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D	3	Japanese	Manufacturing	Jan, April, Oct
E	2	Chinese	Logistics	April, July
F	1	Indian	Logistics	Oct.
G	3	Indian	Automation	Jan, July, Oct
H	3	Japanese	Logistics	Jan, April, July

Only option A is true

QNo:- 36 ,Correct Answer:- A

Explanation:-

Before drawing the table following Summarization should be done

Authors (eight) : A,B,C,D,E,F,G,H

Research paper (18) : 5 in Jan, 5 in April, 4 in July, 4 in Oct.

Also ratio of (A,D,G,H) to B,C,E,F) is 2:1

So, A,D,E,G must have published total 12 and BCEF total 6 papers

Further no one can publish more than 3 papers, so A,D,E,H each must have published 3 each .

Now B,C,E,F could have published 3, 1, 1, 1 or 2, 2, 1, 1 in any order.

According to point 6 both C and E have published same number and for 2 months.

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So whole points are summarized in following table.

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C	2	Chinese	Manufacturing	Jan, Oct
D	3	Japanese	Manufacturing	Jan, April, Oct
E	2	Chinese	Logistics	April, July
F	1	Indian	Logistics	Oct.
G	3	Indian	Automation	Jan, July, Oct
H	3	Japanese	Logistics	Jan, April, July

Option 1 is false

QNo:- 37 ,Correct Answer:- B

Explanation:-

Before drawing the table following Summarization should be done

Authors (eight) : A,B,C,D,E,F,G,H

Research paper (18) : 5 in Jan, 5 in April, 4 in July, 4 in Oct.

Also ratio of (A,D,G,H) to B,C,E,F) is 2:1

So, A,D,E,G must have published total 12 and BCEF total 6 papers

Further no one can publish more than 3 papers, so A,D,E,H each must have published 3 each .

Now B,C,E,F could have published 3, 1, 1, 1 or 2, 2, 1, 1 in any order.

According to point 6 both C and E have published same number and for 2 months.

So C and E have published 2 each and B and F 1 each respectively.

So whole points are summarized in following table.

Authors	No. of Papers	Everyday	Area	Months
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A	3	Indian	Automation	Jan, April, July
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D	3	Japanese	Manufacturing	Jan, April, Oct
E	2	Chinese	Logistics	April, July
F	1	Indian	Logistics	Oct.
G	3	Indian	Automation	Jan, July, Oct
H	3	Japanese	Logistics	Jan, April, July

Option 2 is false

QNo:- 38 ,Correct Answer:- A

Explanation:-

Before drawing the table following Summarization should be done

Authors (eight) : A,B,C,D,E,F,G,H

Research paper (18) : 5 in Jan, 5 in April, 4 in July, 4 in Oct.

Also ratio of (A,D,G,H) to B,C,E,F) is 2:1

So, A,D,E,G must have published total 12 and BCEF total 6 papers

Further no one can publish more than 3 papers, so A,D,E,H each must have published 3 each .

Now B,C,E,F could have published 3, 1, 1, 1 or 2, 2, 1, 1 in any order.

According to point 6 both C and E have published same number and for 2 months.

So C and E have published 2 each and B and F 1 each respectively.

So whole points are summarized in following table.

Authors	No. of Papers	Everyday	Area	Months
A	3	Indian	Automation	Jan, April, July
B	1	Indian	Logistics	April
C	2	Chinese	Manufacturing	Jan, Oct
D	3	Japanese	Manufacturing	Jan, April, Oct
E	2	Chinese	Logistics	April, July
F	1	Indian	Logistics	Oct.
G	3	Indian	Automation	Jan, July, Oct
H	3	Japanese	Logistics	Jan, April, July

Papers by Authors from Automation are $3 + 3 = 6$

BY Manufacturing are $2 + 3 = 5$

By Logistics are $1 + 2 + 1 + 3 = 7$

Hence option 1 is the answer

QNo:- 39 ,Correct Answer:- B

Explanation:-

Before solving we have to understand the following :

(i) Each one will have total 6 relation (Friend, Acquaintances, strangers). So in first row for Amudha number of friends are $6 - (1+4) = 6 - 5 = 1$.

Similarly for Gowtham the number of friends for Gowtham are also $6 - (2 + 3) = 6 - 5 = 1$

(ii) The best way of solving is by Grid e.g. if C and G are friends we write in intersection of C and G as Fr and intersection of G and C also Fr

Proceeding in this way we will conclude the whose information in following Grid:

.	A	B	C	D	E	F	G
A	X	S	S	Ac	Fr	S	S
B	S	X	S	Fr	Ac	S	S
C	S	S	X	S	S	Ac	Fr
D	Ac	Fr	S	X	Fr	S	Ac
E	Fr	Ac	S	Fr	X	Fr	Ac
F	S	S	Ac	Ac	Fr	X	Ac
G	S	S	Fr	Ac	Ac	Ac	X

As shown Gowtham's Acquaintances are Dhinesh, Ezhil and Fani

QNo:- 40 ,Correct Answer:- A

Explanation:-

Before solving we have to understand the following :

(i) Each one will have total 6 relation (Friend, Acquaintances, strangers). So in first row for Amudha number of friends are $6 - (1+4) = 6-5 = 1$.

Similarly for Gowtham the number of friends for Gowtham are also $6 - (2 + 3) = 6-5 = 1$

(ii) The best way of solving is by Grid e.g. if C and G are friends we write in intersection of C and G as Fr and intersection of G and C also Fr

Proceeding in this way we will conclude the whose information in following Grid:

.	A	B	C	D	E	F	G
A	X	S	S	Ac	Fr	S	S
B	S	X	S	Fr	Ac	S	S
C	S	S	X	S	S	Ac	Fr
D	Ac	Fr	S	X	Fr	S	Ac
E	Fr	Ac	S	Fr	X	Fr	Ac
F	S	S	Ac	Ac	Fr	X	Ac
G	S	S	Fr	Ac	Ac	Ac	X

As in option 1 both pairs above same relation of Acquaintance. Hence the Answer

QNo:- 41 ,Correct Answer:- C

Explanation:-

Before solving we have to understand the following :

(i) Each one will have total 6 relation (Friend, Acquaintances, strangers). So in first row for Amudha number of friends are $6 - (1+4) = 6-5 = 1$.

Similarly for Gowtham the number of friends for Gowtham are also $6 - (2 + 3) = 6-5 = 1$

(ii) The best way of solving is by Grid e.g. if C and G are friends we write in intersection of C and G as Fr and intersection of G and C also Fr

Proceeding in this way we will conclude the whose information in following Grid:

.	A	B	C	D	E	F	G
A	X	S	S	Ac	Fr	S	S
B	S	X	S	Fr	Ac	S	S
C	S	S	X	S	S	Ac	Fr
D	Ac	Fr	S	X	Fr	S	Ac
E	Fr	Ac	S	Fr	X	Fr	Ac
F	S	S	Ac	Ac	Fr	X	Ac

G	S	S	Fr	Ac	Ac	Ac	X
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As shown it is Dhinesh

QNo:- 42 ,Correct Answer:- A

Explanation:-

Before solving we have to understand the following :

(i) Each one will have total 6 relation (Friend, Acquaintances, strangers). So in first row for Amudha number of friends are $6 - (1+4) = 6 - 5 = 1$.

Similarly for Gowtham the number of friends for Gowtham are also $6 - (2 + 3) = 6 - 5 = 1$

(ii) The best way of solving is by Grid e.g. if C and G are friends we write in intersection of C and G as Fr and intersection of G and C also Fr

Proceeding in this way we will conclude the whose information in following Grid:

.	A	B	C	D	E	F	G
A	X	S	S	Ac	Fr	S	S
B	S	X	S	Fr	Ac	S	S
C	S	S	X	S	S	Ac	Fr
D	Ac	Fr	S	X	Fr	S	Ac
E	Fr	Ac	S	Fr	X	Fr	Ac
F	S	S	Ac	Ac	Fr	X	Ac
G	S	S	Fr	Ac	Ac	Ac	X

As shown it is Fani

QNo:- 43 ,Correct Answer:- 3

Explanation:-

Before solving we have to understand the following :

(i) Each one will have total 6 relation (Friend, Acquaintances, strangers). So in first row for Amudha number of friends are $6 - (1+4) = 6 - 5 = 1$.

Similarly for Gowtham the number of friends for Gowtham are also $6 - (2 + 3) = 6 - 5 = 1$

(ii) The best way of solving is by Grid e.g. if C and G are friends we write in intersection of C and G as Fr and intersection of G and C also Fr

Proceeding in this way we will conclude the whose information in following Grid:

.	A	B	C	D	E	F	G
A	X	S	S	Ac	Fr	S	S
B	S	X	S	Fr	Ac	S	S
C	S	S	X	S	S	Ac	Fr

D	Ac	Fr	S	X	Fr	S	Ac
E	Fr	Ac	S	Fr	X	Fr	Ac
F	S	S	Ac	Ac	Fr	X	Ac
G	S	S	Fr	Ac	Ac	Ac	X

As shown 3 Friends

QNo:- 44 ,Correct Answer:- 4

Explanation:-

Before solving we have to understand the following :

(i) Each one will have total 6 relation (Friend, Acquaintances, strangers). So in first row for Amudha number of friends are $6 - (1+4) = 6 - 5 = 1$.

Similarly for Gowtham the number of friends for Gowtham are also $6 - (2 + 3) = 6 - 5 = 1$

(ii) The best way of solving is by Grid e.g. if C and G are friends we write in intersection of C and G as Fr and intersection of G and C also Fr

Proceeding in this way we will conclude the whose information in following Grid:

.	A	B	C	D	E	F	G
A	X	S	S	Ac	Fr	S	S
B	S	X	S	Fr	Ac	S	S
C	S	S	X	S	S	Ac	Fr
D	Ac	Fr	S	X	Fr	S	Ac
E	Fr	Ac	S	Fr	X	Fr	Ac
F	S	S	Ac	Ac	Fr	X	Ac
G	S	S	Fr	Ac	Ac	Ac	X

Friends are Amudha, Dhinesh and Fani. Also Dhani's friend Bhartan. So 4 is answer

Section : Quantitative Ability

QNo:- 45 ,Correct Answer:- 200

Explanation:- Indigo in 1st bottle = 33% of 800 = 264gm

Indigo in 2nd bottle = 17% of 800 = 136gm

New Indigo in 1st bottle = 21% of 800 = 168gm

Reduction in Indigo = 264 - 168 = 96gm

Now per 100cc reduction (if 100 cc are thrown form 1st bottle and replaced from 2nd bottle

$$= 33 - 17 = 16\text{gm} \quad \therefore \text{solution transferred from 2nd bottle} = \frac{96}{16} \times 100 = 600 \text{ cc}$$

$$\therefore \text{solution left in 2nd bottle} = 800 - 600 = 200\text{cc}$$



QNo:- 46 ,Correct Answer:- 70

Explanation:- Let digit at unit place = a

Ten's place = b

Hundred's place = c

\therefore Number = $100c + 10b + a$

On reversing number = $100a + 10b + c$

$\therefore (100a + 10b + c) - (100c + 10b + a) = 198$

$99a - 99c = 198$

$\Rightarrow a - c = 2$

Now (a,c) can have seven combinations i.e. (3,1) (4, 2) (5,3) (6,4) (7,5) (8,6) (9,7) and b can take 10 values (0 to 9)

$\therefore 7 \times 10 = 70$ are possible three-digit numbers

QNo:- 47 ,Correct Answer:- C

Explanation:- (Neeta + Geeta) : Sita = 6 : 1

Means Sita = $\frac{1}{7}$ th of total

(Sita + Neeta) : Geeta = 2: 1

Means Geeta = $\frac{1}{3}$ rd of total

So Neeta = $1 - \frac{1}{7} - \frac{1}{3}$

$$\frac{21 - 3 - 7}{21} = \frac{11}{21}$$

\therefore Highest to lowest ratio = $\frac{11}{21} : \frac{7}{21}$

$$= \frac{11 : 3}{21} = 11 : 3$$

QNo:- 48 ,Correct Answer:- B

Explanation:- Let total work = 60 units

\therefore Anu can do $\frac{60}{15} = 4$ units/day

Vinu can do $\frac{60}{12} = 5$ units/day

Manu can do $\frac{60}{20} = 3$ units/day

1st day work = $(4+5) = 9$ units

2nd day work = $(5+3) = 8$ units

\therefore work done in 2 days = $9 + 8 = 17$ units



Work done in 6 days = $17 \times 3 = 51$ units
So remaining $60 - 51 = 9$ units are done in 7th day

QNo:- 49 ,Correct Answer:- A

Explanation:- $x_0 = 1$

$$x_1 = 2$$

$$\text{As } x_{n+2} = \frac{1+2n+1}{xn}$$

$$\therefore x_2 = \frac{1+x_1}{x_0} = \frac{1+2}{1} = 3$$

$$x_3 = \frac{1+x_2}{x_1} = \frac{1+3}{2} = 2$$

$$x_4 = \frac{1+x_3}{x_2} = \frac{1+2}{3} = 1$$

So sequence become (1,2,3, 2,1) and it states replacing from x_5 .

$\therefore x_{2021}$ which will be 2022nd term will be 2nd term i.e. 2

QNo:- 50 ,Correct Answer:- 99

$$5 - \log_{10} \sqrt{1+x} + 4 \log_{10} \sqrt{1-x} = \log_{10} \frac{1}{\sqrt{1-x^2}}$$

$$\log 100000 - \log \sqrt{1+x} + \log (\sqrt{1-x})^4 = \log \frac{1}{\sqrt{1-x^2}}$$

$$\log \left[\frac{100000 \times (\sqrt{1-x})^4}{\sqrt{1+x}} \right] = \log \frac{1}{\sqrt{1-x^2}}$$

Explanation:-

$$\frac{100000 (\sqrt{1-x})^4}{\sqrt{1+x}} = \frac{1}{\sqrt{1+x} \sqrt{1-x}}$$

$$\frac{100000 (\sqrt{1-x})^4}{1} = \frac{1}{(\sqrt{1-x})}$$

$$\Rightarrow (\sqrt{1-x})^5 = 10^{-5}$$

$$\sqrt{1-x} = 10^{-1}$$

$$1-x = \frac{1}{100}$$

$$\Rightarrow x = \frac{99}{100}$$

$$\therefore 100x = \frac{99}{100} \times 100 = 99$$

QNo:- 51 ,Correct Answer:- 35

Explanation:- Let patient in hospital B = x

Patient in hospital A = x - 21

Patient/day in B = B

Patient/day in A = B + 3

According to question

$$xB = 152$$

$$(x-21)(B+3) = 200$$

$$B = \frac{152}{x}$$

$$(x-21) \left(\frac{152}{x} + 3 \right) = 200$$

$$152x - 3192 + 3x^2 + 630 = 200x$$

$$3x^2 - 11x - 3192 = 0$$

$$x^2 - 37x - 1064 = 0$$

$$(x-56)(x+19) = 0$$

$$\Rightarrow x = 56$$

So patient in A = x - 21

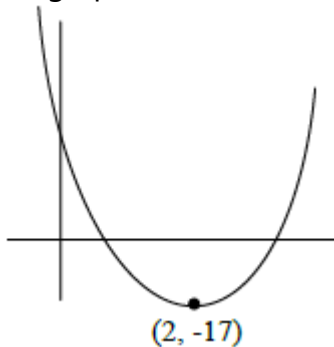
$$= 56 - 21 = 35$$

QNo:- 52 ,Correct Answer:- A

Explanation:- Here $|x^2 - 4x - 13| = r$

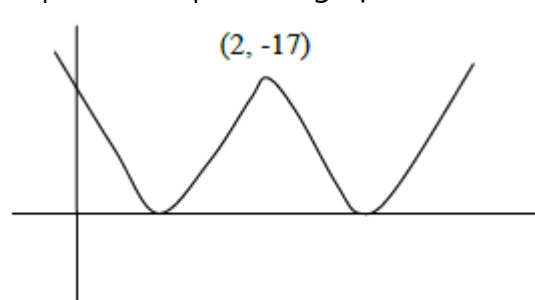
$$\text{Let } f(x) = x^2 - 4x - 13 = (x-2)^2 - 17$$

Its graph will be



$$\text{Now } |x^2 - 4x - 13| = 0$$

$$\Rightarrow |(x-2)^2 - 17| = 0, \text{ its graph will be}$$

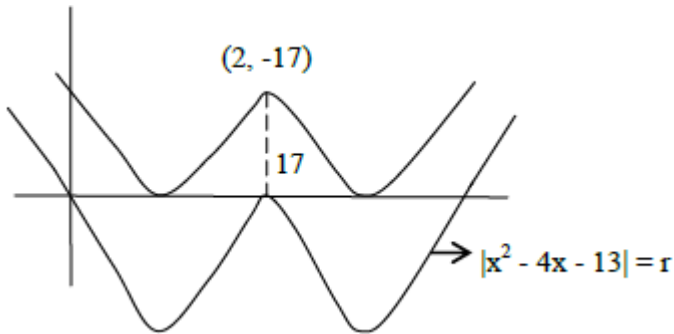


The original equation is $|x^2 - 4x - 13| = r$

$$\Rightarrow |(x-2)^2 - 17| - r = 0$$



As it has exactly 3 roots so the above graph will touch x-axis thrice, so
∴ value of r = 17

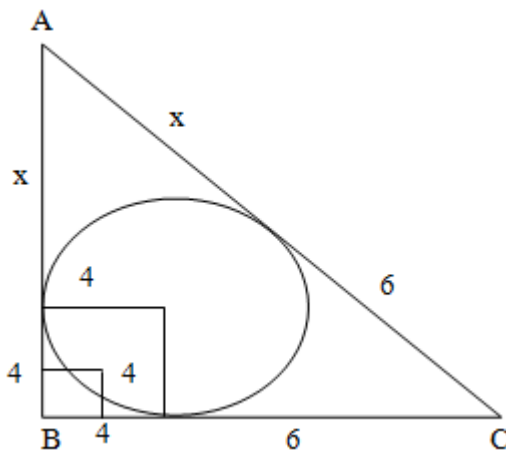


QNo:- 53 ,Correct Answer:- A

$$\text{Required interest} = \frac{866.72}{806.25} \times 866.72 = 931.72$$

Explanation:-

QNo:- 54 ,Correct Answer:- 120



Explanation:-

$$\text{In radius} = \frac{\text{Area of } \Delta}{\text{Semi perimeter}}$$

$$\therefore 4 = \frac{\frac{1}{2} \times BC \times AB}{\frac{x + 4 + 10 + x + 6}{2}}$$

$$4 = \frac{\frac{1}{2} \times 10(x + 4)}{\frac{2x + 20}{2}}$$

$$4 = \frac{5(x + 4)}{x + 10}$$

$$4x + 40 = 5x + 20$$

$$\Rightarrow x = 20$$

$$\begin{aligned} \text{Area of } \Delta &= \frac{1}{2} \times BC \times AB \\ &= \frac{1}{2} \times 10 \times 24 \\ &= 120 \text{ sq. inch} \end{aligned}$$

QNo:- 55 ,Correct Answer:- A

$$\begin{aligned} \text{Speed of 1st train} &= \frac{160}{12} = \frac{40}{3} \text{ m/sec} \\ \text{Speed of 2nd train} &= \frac{40}{3} - \frac{6 \times 5}{18} \\ &= \frac{40}{3} - \frac{5}{3} = \frac{35}{3} \text{ m/sec} \\ \text{Relative speed} &= \frac{40}{3} + \frac{35}{3} = \frac{75}{3} = 25 \text{ m/sec} \end{aligned}$$

Explanation:-

- ∴ time = 14 sec
- ∴ Sum of lengths of two trains = 25 × 14 = 350m
- ∴ length of 2nd train = 350 - 160 = 190m

QNo:- 56 ,Correct Answer:- B

Explanation:- 2A + 4 O + 6 M = 1 A + 4 O + 8 M

$$\Rightarrow 1A = 2M \dots\dots\dots (1)$$

$$1A + 4O + 8M = 8O + 7M$$

$$2M + 4O + 8M = 8O + 7M$$

$$10M + 4O = 8O + 7M$$

$$3M = 8O - 4O$$

$$3M = 4O$$

So 1st basket in terms of M can be 2A + 4O + 6M

$$= 4M + 3M + 6M$$

$$= 13 \text{ Mangoes}$$

QNo:- 57 ,Correct Answer:- 32

Explanation:- Amar and Akbar can do work in 12 months

Akbar and Anthony in 16 months

Anthony and Amar in 24 months

Let total work = 48 units

$$\therefore \text{Amar + Akbar will } 48/12 = 4 \text{ units/month}$$

$$\text{Akbar + Anthony will } 48/16 = 3 \text{ units/month}$$

$$\text{Anthony + Amar will do } 48/24 = 2 \text{ units/months}$$

$$\therefore 2 \text{ (Amar + Akbar + Anthony) will do } 4 + 3 + 2 = 9 \text{ units/month}$$

$$\therefore \text{Amar + Akbar + Anthony do } 9/2 = 4.5 \text{ units/month}$$



∴ Anthony will do $4.5 - 4 = .5$ units/month

Hence will do work in $48/.5 = 96$ months

$$\text{Amar will do } \frac{48}{(4.5-3)} = \frac{48}{1.5} = 32 \text{ months}$$

$$\text{Akbar will do in } \frac{48}{(4.5-2)} = \frac{48}{2.5} = 19.2 \text{ months}$$

So neither fastest non slowest will do in 32 months.

QNo:- 58 ,Correct Answer:- B

Explanation:- Let side of hexagon = a

$$\therefore \frac{6 \times \sqrt{3}}{4} \times a^2 = \frac{\sqrt{3}}{4} \times 12^2$$

$$a^2 = \frac{12 \times 12}{6} = 24$$

$$\Rightarrow a = \sqrt{24} = 2\sqrt{6}$$

QNo:- 59 ,Correct Answer:- 1000

Explanation:-

Let number of pens = n

Fixed salary = k

CP of n pens = 8n Rs.

So According to question

$$[12 \times 100 + (n-100) \times 11] - [k+8n] = 300 \dots\dots\dots (1)$$

Also

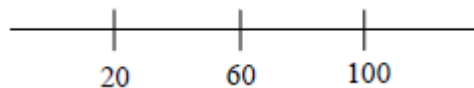
$$[12 \times 100 + (n-100) \times 9] - [k+8n] = -300$$

Solving we get = n = 400

and k = 1000

∴ Salary = 1000 Rs.

QNo:- 60 ,Correct Answer:- A



Explanation:-

- (i) $|n - 60|$ is the distance of n from 60 or number line
- (ii) $|n - 100|$ is the distance of n from 100 or number line
- (iii) $|n - 20|$ is distance of n from 20 on number line

Given that $|n-60| < |n-100| < |n-20|$

At n = 60, $|n-20|$ and $|n-100|$ are equal

∴ n > 60



Mid-point of 60 and 100 is 80

At $n = 80, |n-60| = |n-100|$

$\therefore n < 80$

So n lines between 60 and 80

$n = (61, 62, \dots, 79)$

Hence 19 values possible

QNo:- 61 ,Correct Answer:- A

Explanation:- Let as suppose each chocolate weight k gm and n_1 are chocolate in small box and n_2 in second box and price are P and 88 p.

$\therefore (n_2 \times k) \times .88P = 2(n_1 \times k) \times P$

$$\therefore \frac{n_2 \times k}{n_1 \times k} = \frac{2}{.88} = \frac{200}{88} = \frac{25}{11}$$

$$\therefore \% \text{ increase} = \frac{25-11}{11} \times 100$$

$$= \frac{14}{11} \times 100$$

$$\approx 127\%$$

QNo:- 62 ,Correct Answer:- A

Explanation:- In first group 1 element is there

In second group 3 elements are there

In third group 5 elements are there

\therefore in 14th group 27 elements are there

\therefore Numbers used = $1 + 3 + 5 + \dots + 27 = 14^2$

\therefore First elements of 15th group will be 197 and it will have 29 numbers

$\therefore S = 29/2 [2 \times 197 + (28)] = 6119$

QNo:- 63 ,Correct Answer:- C

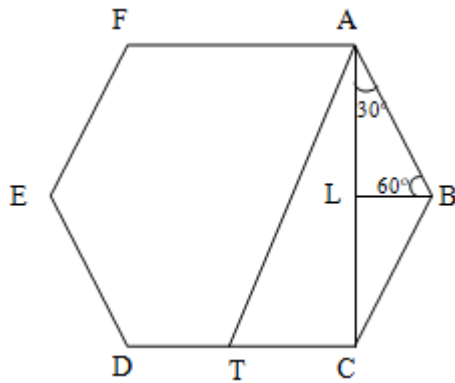
Explanation:- Fixed amount for 1st 3 months will be LCM of 10, 20, 25 i.e. 100 Rs. And last two months will be $100/2 = 50$ Rs.

$$\therefore \text{Quantity purchase} = \frac{100}{10} + \frac{100}{20} + \frac{100}{25} + \frac{50}{25} + \frac{50}{50}$$

$$= 10 + 5 + 4 + 2 + 1 = 22\text{kg}$$

$$\text{Average Price} = (100 + 100 + 100 + 50 + 50)/22 = 400/22 = 18/\text{kg}$$

QNo:- 64 ,Correct Answer:- A



Explanation:-

As shown $BL = \sqrt{3}$ ($30^\circ, 60^\circ, 90^\circ \Delta$)

Also $LC = \sqrt{3}$

$\therefore AC = 2\sqrt{3}$

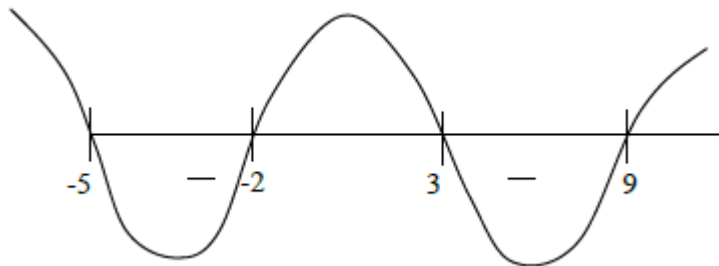
$\therefore AT^2 = (2\sqrt{3})^2 + (1)^2$

$= 12 + 1$

$= 13$

$\Rightarrow AT = \sqrt{13}$

QNo:- 65 ,Correct Answer:- B



Explanation:-

$$f(x) = \frac{x^2 + 2x - 15}{x^2 - 7x - 18}$$

$$= \frac{x^2 + 5x - 3x - 15}{x^2 - 9x + 2x - 18} = \frac{(x+5)(x-3)}{(x-9)(x+2)}$$

$$\frac{(x+5)(x-3)}{(x-9)(x+2)} < 0$$

$\therefore -5 < x < -2$ or $3 < x < 9$

is the answer

QNo:- 66 ,Correct Answer:- 47

Explanation:- As 3, 5 are fixed. So we have to select remaining digits such that 7, 8 are not together.



Three digits number = ${}^6C_1 = 6$ (as only 1 digit is selected out of)

4 digit number = ${}^6C_2 - 1 = 14$

5 digits number = ${}^6C_3 - 4 = 16$

6 digits number = ${}^6C_4 - 6 = 9$

7 digits number = ${}^6C_5 - {}^4C_3 = 2$

8 digit number will not be possible as (7,8) will be together'

\therefore number of groups = $6 + 14 + 16 + 9 + 2 = 47$