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Prime CAT 11 2022 DILR

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Section-1

Sec 1

Directions for questions 1 to 6: Answer the questions on the basis of the information given below.

In a One Day International (ODI) Cricket Match between India and Australia, the top 5 run scorers in the match are Dhoni, Rohit, Virat, Maxwell and Warner. The number of sixes hit by each in their innings is a distinct number from among 11, 9, 7, 6 and 4. Each of the 5 players uses a bat of a different manufactures from among GM, SS, SG, BDM and MRF. The distance of the largest six hit by each is a distinct integral multiple of meters from among 91, 93, 97, 103 and 110. No other player hit any six in the match. Following is the additional information:
(i) The player who hit the longest six of the match is also the one who hit the highest number of sixes in the match. Further, the player who hit the least number of sixes among them is not the one who hit the 91 meters long six.
(ii) The number of sixes hit by each of the 2 players Dhoni and the player who uses the SS bat is a multiple of 3.
(iii) The longest six hit by each of the 2 players Dhoni and the player who uses the BDM bat is a prime number multiple of meters.
(iv) There are exactly two players for each of which neither the number of sixes hit nor the distance (in meters) of the longest six is a prime number.
(v) There are exactly two players for which the sum of the number of sixes hit and the numerical value of the distance (in meters) of the longest six is a prime number and these 2 prime numbers are distinct.
(vi) The number of sixes hit by Virat, who uses the SG bat, is less than that by Dhoni. While Rohit uses the GM bat and warner does not use BDM bat.

Q.1 [11831809]
The number of sixes hit by Dhoni is _____.

Solution:
Correct Answer : 6

Answer key/Solution

Step 1:
From conditions (ii) and (iii), it can be concluded that Dhoni neither uses the SS bat nor uses the BDM bat.
And from condition (vi), it can be further concluded that he neither uses the GM bat nor the SG bat. Therefore, the only option left for Dhoni is the MRF bat.
Also, from condition (vi), it is also clear that Warner uses SS bat and therefore Maxwell uses BDM bat.

The table can be shown as:

Player	Distance of the longest six (in m)	Bat	No. of sixes	Sum of the No. of sixes and distance of the longest six
Dhoni		MRF		
Virat		SG		
Rohit		GM		
Maxwell		BDM		
Warner		SS		

Step 2:
From condition (ii), it can be concluded that number of sixes hit by Dhoni is either 6 or 9 and from condition (iii), it can be concluded that either the longest six hit by Dhoni is of 97 meters or 103 meters.
From condition (iii), the longest six hit by Maxwell is either 97 meters or 103 meters. Therefore, from condition (i), the number of sixes hit by him cannot be 11.
Similarly, from condition (ii), the number of sixes hit by Warner is either 6 or 9. Therefore, from condition (i), the longest six for him cannot be 110 meters.
Hence, the only option left for number of sixes = 11 and longest six = 110 meters is Rohit.
From condition (ii), the number of sixes hit by Virat is either 4 or 7.
Step 3:
Now following are the possible cases:
Case I: Number of sixes hit by Dhoni is 6 and the longest six hit by him is either 97 meters or 103 meters.

Player	Distance of the longest six (in m)	Bat	No. of sixes	Sum of the No. of sixes and distance of the longest six
Dhoni	97/103	MRF	6	103/109
Virat	93	SG	4	97
Rohit	110	GM	11	121
Maxwell	103/97	BDM	7	110/104
Warner	91	SS	9	100

This case satisfies the conditions (iv) and (v). Hence, case I is possible.
Case II: Number of sixes hit by Dhoni is 9 and longest six hit by him is 97 meters.

Player	Distance of the longest six (in m)	Bat	No. of sixes	Sum of the No. of sixes and distance of the longest six
Dhoni	97	MRF	9	106
Virat	93/91	SG	4/7	97/98
Rohit	110	GM	11	121
Maxwell	103	BDM	7/4	110/107
Warner	91/93	SS	6	97/99

If the longest six hit by Virat is 93 meters, the condition (v) is not satisfy i.e., the sum is not two distinct numbers and if the longest six hit by Virat is 91 meters, the condition (v) is also not satisfy i.e., there is only one sum which is a prime number i.e., only 107.
Hence, case II cannot be possible.
Case III: Number of sixes by Dhoni is 9 and longest six hit by him is 103 meters.
Similarly, case III cannot be possible.

The number of sixes hit by Dhoni is 6.

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Directions for questions 1 to 6: Answer the questions on the basis of the information given below.

In a One Day International (ODI) Cricket Match between India and Australia, the top 5 run scorers in the match are Dhoni, Rohit, Virat, Maxwell and Warner. The number of sixes hit by each in their innings is a distinct number from among 11, 9, 7, 6 and 4. Each of the 5 players uses a bat of a different manufactures from among GM, SS, SG, BDM and MRF. The distance of the largest six hit by each is a distinct integral multiple of meters from among 91, 93, 97, 103 and 110. No other player hit any six in the match. Following is the additional information:
(i) The player who hit the longest six of the match is also the one who hit the highest number of sixes in the match. Further, the player who hit the least number of sixes among them is not the one who hit the 91 meters long six.
(ii) The number of sixes hit by each of the 2 players Dhoni and the player who uses the SS bat is a multiple of 3.
(iii) The longest six hit by each of the 2 players Dhoni and the player who uses the BDM bat is a prime number multiple of meters.
(iv) There are exactly two players for each of which neither the number of sixes hit nor the distance (in meters) of the longest six is a prime number.
(v) There are exactly two players for which the sum of the number of sixes hit and the numerical value of the distance (in meters) of the longest six is a prime number and these 2 prime numbers are distinct.
(vi) The number of sixes hit by Virat, who uses the SG bat, is less than that by Dhoni. While Rohit uses the GM bat and warner does not use BDM bat.

Q.2 [11831809]
Which player hit the highest number of sixes?

1 ◯ Dhoni

2 ◯ Warner

3 ◯ Rohit

4 ◯ Maxwell

Solution:
Correct Answer : 3

Answer key/Solution

Step 1:
From conditions (ii) and (iii), it can be concluded that Dhoni neither uses the SS bat nor uses the BDM bat.
And from condition (vi), it can be further concluded that he neither uses the GM bat nor the SG bat. Therefore, the only option left for Dhoni is the MRF bat.
Also, from condition (vi), it is also clear that Warner uses SS bat and therefore Maxwell uses BDM bat.

The table can be shown as:

Player	Distance of the longest six (in m)	Bat	No. of sixes	Sum of the No. of sixes and distance of the longest six
Dhoni		MRF		
Virat		SG		
Rohit		GM		
Maxwell		BDM		
Warner		SS		

Step 2:
From condition (ii), it can be concluded that number of sixes hit by Dhoni is either 6 or 9 and from condition (iii), it can be concluded that either the longest six hit by Dhoni is of 97 meters or 103 meters.
From condition (iii), the longest six hit by Maxwell is either 97 meters or 103 meters. Therefore, from condition (i), the number of sixes hit by him cannot be 11.
Similarly, from condition (ii), the number of sixes hit by Warner is either 6 or 9. Therefore, from condition (i), the longest six for him cannot be 110 meters.
Hence, the only option left for number of sixes = 11 and longest six = 110 meters is Rohit.
From condition (ii), the number of sixes hit by Virat is either 4 or 7.
Step 3:
Now following are the possible cases:
Case I: Number of sixes hit by Dhoni is 6 and the longest six hit by him is either 97 meters or 103 meters.

Player	Distance of the longest six (in m)	Bat	No. of sixes	Sum of the No. of sixes and distance of the longest six
Dhoni	97/103	MRF	6	103/109
Virat	93	SG	4	97
Rohit	110	GM	11	121
Maxwell	103/97	BDM	7	110/104
Warner	91	SS	9	100

This case satisfies the conditions (iv) and (v). Hence, case I is possible.
Case II: Number of sixes hit by Dhoni is 9 and longest six hit by him is 97 meters.

Player	Distance of the longest six (in m)	Bat	No. of sixes	Sum of the No. of sixes and distance of the longest six
Dhoni	97	MRF	9	106
Virat	93/91	SG	4/7	97/98
Rohit	110	GM	11	121
Maxwell	103	BDM	7/4	110/107
Warner	91/93	SS	6	97/99

If the longest six hit by Virat is 93 meters, the condition (v) is not satisfy i.e., the sum is not two distinct numbers and if the longest six hit by Virat is 91 meters, the condition (v) is also not satisfy i.e., there is only one sum which is a prime number i.e., only 107.
Hence, case II cannot be possible.
Case III: Number of sixes by Dhoni is 9 and longest six hit by him is 103 meters.
Similarly, case III cannot be possible.

Rohit hit the highest number of sixes i.e., 11.

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Directions for questions 1 to 6: Answer the questions on the basis of the information given below.

In a One Day International (ODI) Cricket Match between India and Australia, the top 5 run scorers in the match are Dhoni, Rohit, Virat, Maxwell and Warner. The number of sixes hit by each in their innings is a distinct number from among 11, 9, 7, 6 and 4. Each of the 5 players uses a bat of a different manufactures from among GM, SS, SG, BDM and MRF. The distance of the largest six hit by each is a distinct integral multiple of meters from among 91, 93, 97, 103 and 110. No other player hit any six in the match. Following is the additional information:
(i) The player who hit the longest six of the match is also the one who hit the highest number of sixes in the match. Further, the player who hit the least number of sixes among them is not the one who hit the 91 meters long six.
(ii) The number of sixes hit by each of the 2 players Dhoni and the player who uses the SS bat is a multiple of 3.
(iii) The longest six hit by each of the 2 players Dhoni and the player who uses the BDM bat is a prime number multiple of meters.
(iv) There are exactly two players for each of which neither the number of sixes hit nor the distance (in meters) of the longest six is a prime number.
(v) There are exactly two players for which the sum of the number of sixes hit and the numerical value of the distance (in meters) of the longest six is a prime number and these 2 prime numbers are distinct.
(vi) The number of sixes hit by Virat, who uses the SG bat, is less than that by Dhoni. While Rohit uses the GM bat and warner does not use BDM bat.

Q.3 [11831809]

What is the distance (in meters) of the longest six hit by Warner?

Solution:
Correct Answer : 91

Answer key/Solution

Step 1:
From conditions (ii) and (iii), it can be concluded that Dhoni neither uses the SS bat nor uses the BDM bat.
And from condition (vi), it can be further concluded that he neither uses the GM bat nor the SG bat. Therefore, the only option left for Dhoni is the MRF bat.
Also, from condition (vi), it is also clear that Warner uses SS bat and therefore Maxwell uses BDM bat.

The table can be shown as:

Player	Distance of the longest six (in m)	Bat	No. of sixes	Sum of the No. of sixes and distance of the longest six
Dhoni		MRF		
Virat		SG		
Rohit		GM		
Maxwell		BDM		
Warner		SS		

Step 2:
From condition (ii), it can be concluded that number of sixes hit by Dhoni is either 6 or 9 and from condition (iii), it can be concluded that either the longest six hit by Dhoni is of 97 meters or 103 meters.
From condition (iii), the longest six hit by Maxwell is either 97 meters or 103 meters. Therefore, from condition (i), the number of sixes hit by him cannot be 11.
Similarly, from condition (ii), the number of sixes hit by Warner is either 6 or 9. Therefore, from condition (i), the longest six for him cannot be 110 meters.
Hence, the only option left for number of sixes = 11 and longest six = 110 meters is Rohit.
From condition (ii), the number of sixes hit by Virat is either 4 or 7.
Step 3:
Now following are the possible cases:
Case I: Number of sixes hit by Dhoni is 6 and the longest six hit by him is either 97 meters or 103 meters.

Player	Distance of the longest six (in m)	Bat	No. of sixes	Sum of the No. of sixes and distance of the longest six
Dhoni	97/103	MRF	6	103/109
Virat	93	SG	4	97
Rohit	110	GM	11	121
Maxwell	103/97	BDM	7	110/104
Warner	91	SS	9	100

This case satisfies the conditions (iv) and (v). Hence, case I is possible.
Case II: Number of sixes hit by Dhoni is 9 and longest six hit by him is 97 meters.

Player	Distance of the longest six (in m)	Bat	No. of sixes	Sum of the No. of sixes and distance of the longest six
Dhoni	97	MRF	9	106
Virat	93/91	SG	4/7	97/98
Rohit	110	GM	11	121
Maxwell	103	BDM	7/4	110/107
Warner	91/93	SS	6	97/99

If the longest six hit by Virat is 93 meters, the condition (v) is not satisfy i.e., the sum is not two distinct numbers and if the longest six hit by Virat is 91 meters, the condition (v) is also not satisfy i.e., there is only one sum which is a prime number i.e., only 107.
Hence, case II cannot be possible.
Case III: Number of sixes by Dhoni is 9 and longest six hit by him is 103 meters.
Similarly, case III cannot be possible.

From the possible case I, it is 91 meters.

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Directions for questions 1 to 6: Answer the questions on the basis of the information given below.

In a One Day International (ODI) Cricket Match between India and Australia, the top 5 run scorers in the match are Dhoni, Rohit, Virat, Maxwell and Warner. The number of sixes hit by each in their innings is a distinct number from among 11, 9, 7, 6 and 4. Each of the 5 players uses a bat of a different manufactures from among GM, SS, SG, BDM and MRF. The distance of the largest six hit by each is a distinct integral multiple of meters from among 91, 93, 97, 103 and 110. No other player hit any six in the match. Following is the additional information:
(i) The player who hit the longest six of the match is also the one who hit the highest number of sixes in the match. Further, the player who hit the least number of sixes among them is not the one who hit the 91 meters long six.
(ii) The number of sixes hit by each of the 2 players Dhoni and the player who uses the SS bat is a multiple of 3.
(iii) The longest six hit by each of the 2 players Dhoni and the player who uses the BDM bat is a prime number multiple of meters.
(iv) There are exactly two players for each of which neither the number of sixes hit nor the distance (in meters) of the longest six is a prime number.
(v) There are exactly two players for which the sum of the number of sixes hit and the numerical value of the distance (in meters) of the longest six is a prime number and these 2 prime numbers are distinct.
(vi) The number of sixes hit by Virat, who uses the SG bat, is less than that by Dhoni. While Rohit uses the GM bat and warner does not use BDM bat.

Q.4 [11831809]

For which of the following players the sum of the number of sixes hit and the numerical value of the distance (in meters) of the longest six is a prime number?

1 ◯ Dhoni

2 ◯ Warner

3 ◯ Both Virat & Rohit

4 ◯ Maxwell

Solution:
Correct Answer : 1

Answer key/Solution

Step 1:
From conditions (ii) and (iii), it can be concluded that Dhoni neither uses the SS bat nor uses the BDM bat.
And from condition (vi), it can be further concluded that he neither uses the GM bat nor the SG bat. Therefore, the only option left for Dhoni is the MRF bat.
Also, from condition (vi), it is also clear that Warner uses SS bat and therefore Maxwell uses BDM bat.

The table can be shown as:

Player	Distance of the longest six (in m)	Bat	No. of sixes	Sum of the No. of sixes and distance of the longest six
Dhoni		MRF		
Virat		SG		
Rohit		GM		
Maxwell		BDM		
Warner		SS		

Step 2:
From condition (ii), it can be concluded that number of sixes hit by Dhoni is either 6 or 9 and from condition (iii), it can be concluded that either the longest six hit by Dhoni is of 97 meters or 103 meters.
From condition (iii), the longest six hit by Maxwell is either 97 meters or 103 meters. Therefore, from condition (i), the number of sixes hit by him cannot be 11.
Similarly, from condition (ii), the number of sixes hit by Warner is either 6 or 9. Therefore, from condition (i), the longest six for him cannot be 110 meters.
Hence, the only option left for number of sixes = 11 and longest six = 110 meters is Rohit.
From condition (ii), the number of sixes hit by Virat is either 4 or 7.
Step 3:
Now following are the possible cases:
Case I: Number of sixes hit by Dhoni is 6 and the longest six hit by him is either 97 meters or 103 meters.

Player	Distance of the longest six (in m)	Bat	No. of sixes	Sum of the No. of sixes and distance of the longest six
Dhoni	97/103	MRF	6	103/109
Virat	93	SG	4	97
Rohit	110	GM	11	121
Maxwell	103/97	BDM	7	110/104
Warner	91	SS	9	100

This case satisfies the conditions (iv) and (v). Hence, case I is possible.
Case II: Number of sixes hit by Dhoni is 9 and longest six hit by him is 97 meters.

Player	Distance of the longest six (in m)	Bat	No. of sixes	Sum of the No. of sixes and distance of the longest six
Dhoni	97	MRF	9	106
Virat	93/91	SG	4/7	97/98
Rohit	110	GM	11	121
Maxwell	103	BDM	7/4	110/107
Warner	91/93	SS	6	97/99

If the longest six hit by Virat is 93 meters, the condition (v) is not satisfy i.e., the sum is not two distinct numbers and if the longest six hit by Virat is 91 meters, the condition (v) is also not satisfy i.e., there is only one sum which is a prime number i.e., only 107.
Hence, case II cannot be possible.
Case III: Number of sixes by Dhoni is 9 and longest six hit by him is 103 meters.
Similarly, case III cannot be possible.

There are two players Dhoni and Virat.
Hence, among the given options, Dhoni is the correct answer.

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In a One Day International (ODI) Cricket Match between India and Australia, the top 5 run scorers in the match are Dhoni, Rohit, Virat, Maxwell and Warner. The number of sixes hit by each in their innings is a distinct number from among 11, 9, 7, 6 and 4. Each of the 5 players uses a bat of a different manufactures from among GM, SS, SG, BDM and MRF. The distance of the largest six hit by each is a distinct integral multiple of meters from among 91, 93, 97, 103 and 110. No other player hit any six in the match. Following is the additional information:
(i) The player who hit the longest six of the match is also the one who hit the highest number of sixes in the match. Further, the player who hit the least number of sixes among them is not the one who hit the 91 meters long six.
(ii) The number of sixes hit by each of the 2 players Dhoni and the player who uses the SS bat is a multiple of 3.
(iii) The longest six hit by each of the 2 players Dhoni and the player who uses the BDM bat is a prime number multiple of meters.
(iv) There are exactly two players for each of which neither the number of sixes hit nor the distance (in meters) of the longest six is a prime number.
(v) There are exactly two players for which the sum of the number of sixes hit and the numerical value of the distance (in meters) of the longest six is a prime number and these 2 prime numbers are distinct.
(vi) The number of sixes hit by Virat, who uses the SG bat, is less than that by Dhoni. While Rohit uses the GM bat and warner does not use BDM bat.

Q.5 [11831809]
If the number of fours hit by each player is twice the number of sixes hit by him, which of the following player definitely scored a century i.e., at least 100 runs?

1 ◯ Virat

2 ◯ Dhoni

3 ◯ Both Dhoni & Maxwell

4 ◯ Warner

Solution:
Correct Answer : 4

Answer key/Solution

Step 1:
From conditions (ii) and (iii), it can be concluded that Dhoni neither uses the SS bat nor uses the BDM bat.
And from condition (vi), it can be further concluded that he neither uses the GM bat nor the SG bat. Therefore, the only option left for Dhoni is the MRF bat.
Also, from condition (vi), it is also clear that Warner uses SS bat and therefore Maxwell uses BDM bat.

The table can be shown as:

Player	Distance of the longest six (in m)	Bat	No. of sixes	Sum of the No. of sixes and distance of the longest six
Dhoni		MRF		
Virat		SG		
Rohit		GM		
Maxwell		BDM		
Warner		SS		

Step 2:
From condition (ii), it can be concluded that number of sixes hit by Dhoni is either 6 or 9 and from condition (iii), it can be concluded that either the longest six hit by Dhoni is of 97 meters or 103 meters.
From condition (iii), the longest six hit by Maxwell is either 97 meters or 103 meters. Therefore, from condition (i), the number of sixes hit by him cannot be 11.
Similarly, from condition (ii), the number of sixes hit by Warner is either 6 or 9. Therefore, from condition (i), the longest six for him cannot be 110 meters.
Hence, the only option left for number of sixes = 11 and longest six = 110 meters is Rohit.
From condition (ii), the number of sixes hit by Virat is either 4 or 7.
Step 3:
Now following are the possible cases:
Case I: Number of sixes hit by Dhoni is 6 and the longest six hit by him is either 97 meters or 103 meters.

Player	Distance of the longest six (in m)	Bat	No. of sixes	Sum of the No. of sixes and distance of the longest six
Dhoni	97/103	MRF	6	103/109
Virat	93	SG	4	97
Rohit	110	GM	11	121
Maxwell	103/97	BDM	7	110/104
Warner	91	SS	9	100

This case satisfies the conditions (iv) and (v). Hence, case I is possible.
Case II: Number of sixes hit by Dhoni is 9 and longest six hit by him is 97 meters.

Player	Distance of the longest six (in m)	Bat	No. of sixes	Sum of the No. of sixes and distance of the longest six
Dhoni	97	MRF	9	106
Virat	93/91	SG	4/7	97/98
Rohit	110	GM	11	121
Maxwell	103	BDM	7/4	110/107
Warner	91/93	SS	6	97/99

If the longest six hit by Virat is 93 meters, the condition (v) is not satisfy i.e., the sum is not two distinct numbers and if the longest six hit by Virat is 91 meters, the condition (v) is also not satisfy i.e., there is only one sum which is a prime number i.e., only 107.
Hence, case II cannot be possible.
Case III: Number of sixes by Dhoni is 9 and longest six hit by him is 103 meters.
Similarly, case III cannot be possible.

To check for a definite century, take the case of minimum runs scored by each.
For Maxwell the minimum number of runs = 7 × 6 + 14 × 4 = 42 + 56 = 98 runs.
For Warner the minimum number of runs = 9 × 6 + 18 × 4 = 54 + 72 = 126 runs.
Hence, among the given options, only for Warner, it is definitely more than 100.

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(iii) The longest six hit by each of the 2 players Dhoni and the player who uses the BDM bat is a prime number multiple of meters.
(iv) There are exactly two players for each of which neither the number of sixes hit nor the distance (in meters) of the longest six is a prime number.
(v) There are exactly two players for which the sum of the number of sixes hit and the numerical value of the distance (in meters) of the longest six is a prime number and these 2 prime numbers are distinct.
(vi) The number of sixes hit by Virat, who uses the SG bat, is less than that by Dhoni. While Rohit uses the GM bat and warner does not use BDM bat.

Q.6 [11831809]
If each player scored at least 60% of their runs thru sixes, what could be the minimum difference in runs scored by Rohit and Virat?

Solution:
Correct Answer : 26

Answer key/Solution

Step 1:
From conditions (ii) and (iii), it can be concluded that Dhoni neither uses the SS bat nor uses the BDM bat.
And from condition (vi), it can be further concluded that he neither uses the GM bat nor the SG bat. Therefore, the only option left for Dhoni is the MRF bat.
Also, from condition (vi), it is also clear that Warner uses SS bat and therefore Maxwell uses BDM bat.

The table can be shown as:

Player	Distance of the longest six (in m)	Bat	No. of sixes	Sum of the No. of sixes and distance of the longest six
Dhoni		MRF		
Virat		SG		
Rohit		GM		
Maxwell		BDM		
Warner		SS		

Step 2:
From condition (ii), it can be concluded that number of sixes hit by Dhoni is either 6 or 9 and from condition (iii), it can be concluded that either the longest six hit by Dhoni is of 97 meters or 103 meters.
From condition (iii), the longest six hit by Maxwell is either 97 meters or 103 meters. Therefore, from condition (i), the number of sixes hit by him cannot be 11.
Similarly, from condition (ii), the number of sixes hit by Warner is either 6 or 9. Therefore, from condition (i), the longest six for him cannot be 110 meters.
Hence, the only option left for number of sixes = 11 and longest six = 110 meters is Rohit.
From condition (ii), the number of sixes hit by Virat is either 4 or 7.
Step 3:
Now following are the possible cases:
Case I: Number of sixes hit by Dhoni is 6 and the longest six hit by him is either 97 meters or 103 meters.

Player	Distance of the longest six (in m)	Bat	No. of sixes	Sum of the No. of sixes and distance of the longest six
Dhoni	97/103	MRF	6	103/109
Virat	93	SG	4	97
Rohit	110	GM	11	121
Maxwell	103/97	BDM	7	110/104
Warner	91	SS	9	100

This case satisfies the conditions (iv) and (v). Hence, case I is possible.
Case II: Number of sixes hit by Dhoni is 9 and longest six hit by him is 97 meters.

Player	Distance of the longest six (in m)	Bat	No. of sixes	Sum of the No. of sixes and distance of the longest six
Dhoni	97	MRF	9	106
Virat	93/91	SG	4/7	97/98
Rohit	110	GM	11	121
Maxwell	103	BDM	7/4	110/107
Warner	91/93	SS	6	97/99

If the longest six hit by Virat is 93 meters, the condition (v) is not satisfy i.e., the sum is not two distinct numbers and if the longest six hit by Virat is 91 meters, the condition (v) is also not satisfy i.e., there is only one sum which is a prime number i.e., only 107.
Hence, case II cannot be possible.
Case III: Number of sixes by Dhoni is 9 and longest six hit by him is 103 meters.
Similarly, case III cannot be possible.

Since we have to minimize the difference in the runs scored by Rohit and Virat, therefore we need to minimize runs scored by Rohit, which is at least (11 × 6 = 66 runs) and maximum runs scored by Virat by taking runs scored in sixes by him to be only 60% of his total runs, thus it is (4 × 6 = 24 runs) and the remaining 40% runs would be equal to 16 runs.
Hence, the minimum difference = 66 – (24 + 16) = 26.

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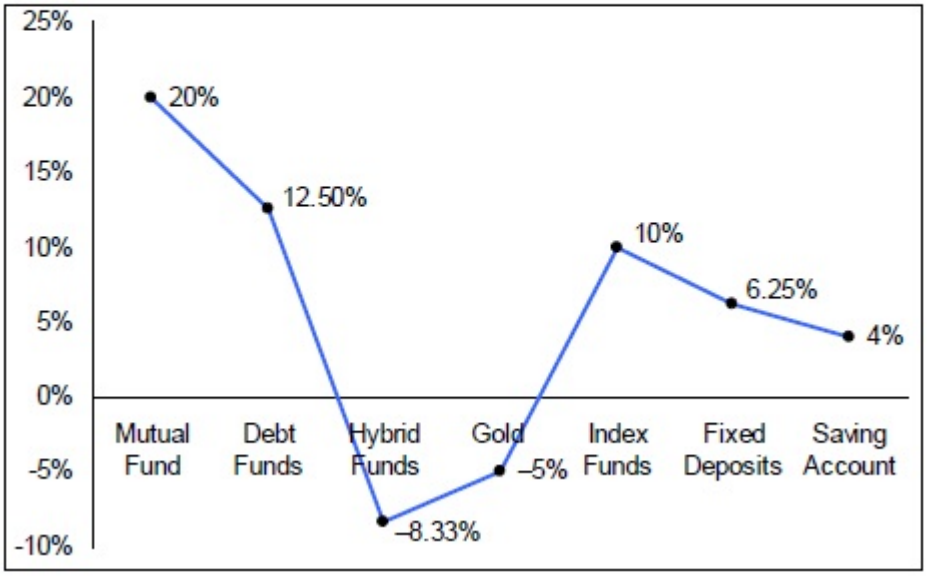
Directions for questions 7 to 10: Answer the questions on the basis of the information given below.

The table given below shows the break-up of Mr. Jindal's investment portfolio in 7 different sectors in 2021, while the line graph given below shows the percentage of profit or loss from each of these investments in 2021 as compared to the previous year 2020.

Mutual Fund	Debt Funds	Hybrid Funds	Gold	Index Funds	Fixed Deposits	Saving Account
20%	15%	10%	10%	12%	25%	8%



Q.7 [11831809]
The share of investment in Fixed Deposits in 2020 was approximately what percent more or less than the share of investment in Debt Funds in the same year?

1 ◯ 43.33%

2 ◯ 76.5%

3 ◯ 56.67%

4 ◯ 83.5%

Solution:
Correct Answer : 2

Answer key/Solution

There is a profit of 6.25% or 1/16 in Fixed Deposits in 2021, the share of Fixed Deposits in 2020
= 0.25 × 16/17 = 4/17
Also, there is a profit of 12.5% or 1/8 in Debt Funds in 2021, the share of Debt Funds in 2020
= 0.15 × 8/9 = 4/30

Hence, required percentage = $\frac{\frac{4}{17}-\frac{4}{30}}{\frac{4}{30}} \times 100 = \frac{13}{17} \times 100 \approx 76.5\%.$

Bookmark FeedBack

Directions for questions 7 to 10: Answer the questions on the basis of the information given below.

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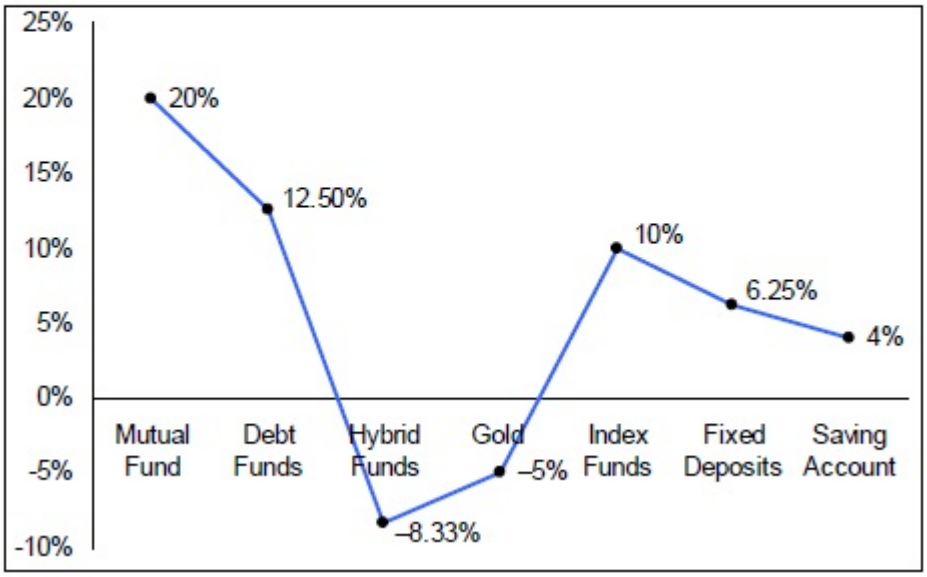

Q.8 [11831809]
Mr. Jindal divided his investment of Mutual Fund into four companies A, B, C and D in equal proportion in 2021. If the market share of A becomes three times in 2021 as compared to 2020, then find the total share (in %) of B, C and D in the overall portfolio in 2020.

1 ◯ 13

2 ◯ 14

3 ◯ 15

4 ◯ 16

Solution:
Correct Answer : 3
In 2021 the share of Mutual Fund is 20%.
Out of which 5% must be for A and the remaining 15% for B, C and D.
In 2020, share of mutual fund = 20/1.2 = 50/3% and share of company A = 5/3%
Hence, total share of B, C and D in 2020 = 50/3% – 5/3% = 15%.

Answer key/Solution

Bookmark FeedBack

Directions for questions 7 to 10: Answer the questions on the basis of the information given below.

The table given below shows the break-up of Mr. Jindal's investment portfolio in 7 different sectors in 2021, while the line graph given below shows the percentage of profit or loss from each of these investments in 2021 as compared to the previous year 2020.

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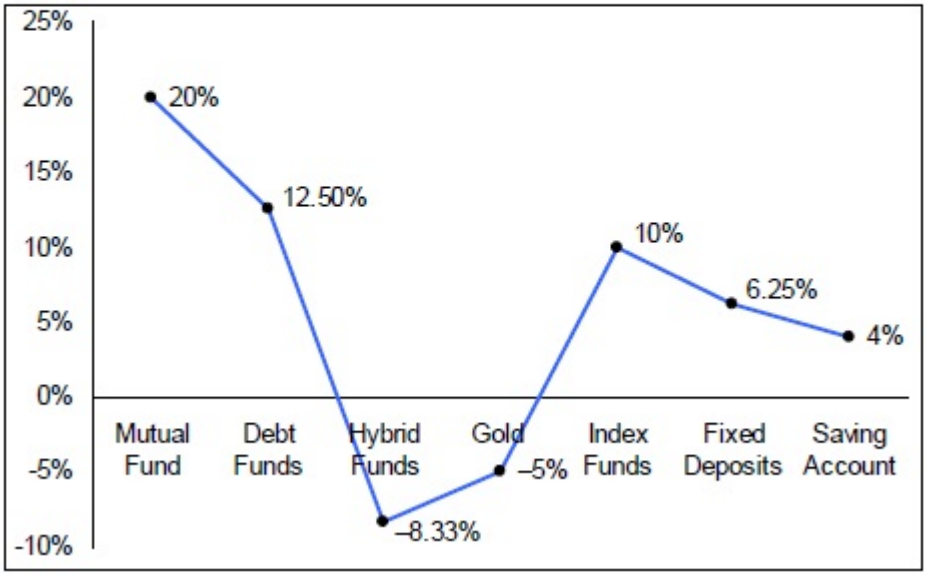

Q.9 [11831809]
If the total investment by Mr. Jindal in all funds together was Rs. 60 lakhs in 2020 and the break-up of his investment in Hybrid Funds, Gold and Saving Account was same as in 2021, then what was his total profit/loss (in Rs.) in these three areas of investment in 2021?

1 ◯ 60,800

2 ◯ 62,400

3 ◯ 58,600

4 ◯ 50,800

Solution:
Correct Answer : 1
Loss from Hybrid Funds = 60 × 0.1 × 1/12 = Rs. 0.5 lakh
Loss from Gold = 60 × 0.1 × 1/20 = Rs. 0.3 lakh
Profit from Saving Account = 60 × 0.08 × 1/25 = Rs. 0.192 lakh
Hence, his loss = 0.5 + 0.3 – 0.192 = Rs. 0.608 lakh or Rs. 60,800.

Answer key/Solution

Bookmark FeedBack

Directions for questions 7 to 10: Answer the questions on the basis of the information given below.

The table given below shows the break-up of Mr. Jindal's investment portfolio in 7 different sectors in 2021, while the line graph given below shows the percentage of profit or loss from each of these investments in 2021 as compared to the previous year 2020.

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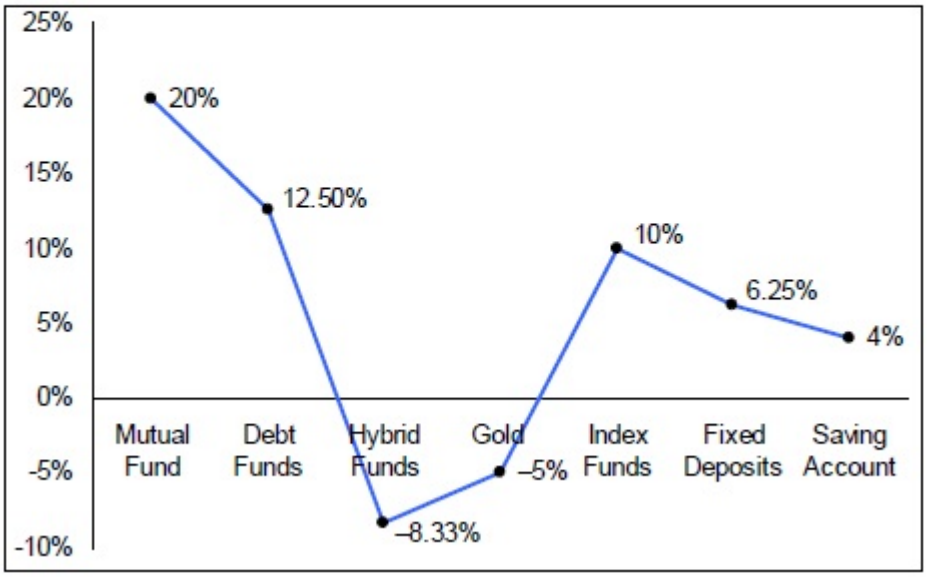

Q.10 [11831809]
Mr. Jindal invested equally amounts in four companies W, X, Y and Z of Index Funds in 2021. If out of these four companies, only company X expected to show a loss (i.e., a maximum of 20%) in 2022 and Index Funds is expected to show an overall profit of 10%, then what would be the maximum profit (in %) of Y in 2022?

1 ◯ 50%

2 ◯ 40%

3 ◯ 100%

4 ◯ 60%

Answer key/Solution

Solution:
Correct Answer : 4
Let the share of Index Funds in 2021 be 100a. Share of X is 25a.
Share of W and Z combined is 50a and share of Y is 25a.
In 2022, share of Index Funds will be 110a.
Share of X in 2022 will be 20a (it shows a maximum of 20% loss.).
For maximum profit of Y, let W and Z have no profit no loss.
So, share of W and Z = 50a.
Share of Y = 110a – 20a – 50a = 40a.
Hence, the maximum profit of Y = (40a – 25a)/25a × 100 = 60%.

Bookmark FeedBack

Directions for questions 11 to 16: Answer the questions on the basis of the information given below.

Twenty four (24) candidates from XYZ Academy crack the Civil Services Examination and are selected for one out of the three services - Administrative, Revenue and Police - based on their performance in the Examination. These candidates have consecutive roll numbers from C01 to C24. The following information is also known that:
(i) The number of candidates joining each service is different. The number of candidates joining the Police Services is even and is four more than those joining the Revenue Services.
(ii) C14 does not join Administrative Services. C19, C20, C23 and C24 join the Police Services. None of the other candidates with consecutive roll numbers join the same service.
(iii) Out of all the candidates that join the Revenue Services, five have roll numbers that are multiples of 3. Among the first twelve candidates (i.e., from C01 to C12) only two join the Revenue Services.
(iv) All candidates joining the Administrative Services have roll numbers that are even. The number of candidates joining the Administrative Services is neither the highest nor the lowest among the three categories.

Q.11 [11831809]
Which of the following MUST be true?

1 ◯ C13 joined the Police Services.

2 ◯ C14 joined the Revenue Services.

3 ◯ C21 joined the Administrative Services.

4 ◯ C13 joined the Revenue Services.

Solution:
Correct Answer : 4

Answer key/Solution

Step 1:
Let each service be represented by the initial letters - A, R and P.
From condition (i), we can say that P = R + 4 and A + R + P = 24, for distinct values of A, E and P.
From condition (iv), Also, A is neither the least nor the highest number among these three. From condition (i), P is even, so R is also even.
Since the sum of the three is 24, so A is also even. The only combination possible for A, R and P, that fulfills all the conditions, is (8, 6, 10).
From condition (iii), we can fill the service for C19, C20, C23 and C24 as P.
Step 2:
Also, C14 does not join A. Remaining even numbers from 1 to 24 are 2, 4, 6, 8, 10, 12, 16, 18 and 22. Eight candidates out of these nine join A.
Also, remaining multiples of 3 from 1 to 24 are 3, 6, 9, 12, 15, 18 and 21. Five out of these 7 join R.
Since C14 does not join A, also, C15 joins R and two consecutive candidates cannot join R, so C14 has to join P.
From condition (iii), we can conclude that C06 and C12 join A. Now, C13 cannot join A or P, so he has to join R.
Now, we have 8 A's in all so C18 will be R. The remaining empty cells in the table can be filled with P.

Hence, the above information can be shown in the following table.

Candidate	Service	Candidate	Service
C01	Police	C13	Revenue
C02	Administrative	C14	Police
C03	Revenue	C15	Revenue
C04	Administrative	C16	Administrative
C05	Police	C17	Police
C06	Administrative	C18	Revenue
C07	Police	C19	Police
C08	Administrative	C20	Police
C09	Revenue	C21	Revenue
C10	Administrative	C22	Administrative
C11	Police	C23	Police
C12	Administrative	C24	Police

C13 joined the Revenue Services.

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Directions for questions 11 to 16: Answer the questions on the basis of the information given below.

Twenty four (24) candidates from XYZ Academy crack the Civil Services Examination and are selected for one out of the three services - Administrative, Revenue and Police - based on their performance in the Examination. These candidates have consecutive roll numbers from C01 to C24. The following information is also known that:
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(iv) All candidates joining the Administrative Services have roll numbers that are even. The number of candidates joining the Administrative Services is neither the highest nor the lowest among the three categories.

Q.12 [11831809]
What can be said about the number of candidates, who joined the Police Services from among C01 to C12?

1 ◯ Exactly 4

2 ◯ At least 8

3 ◯ Exactly 6

4 ◯ At most 5

Solution:
Correct Answer : 1

Answer key/Solution

Step 1:
Let each service be represented by the initial letters - A, R and P.
From condition (i), we can say that P = R + 4 and A + R + P = 24, for distinct values of A, E and P.
From condition (iv), Also, A is neither the least nor the highest number among these three. From condition (i), P is even, so R is also even.
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C07	Police	C19	Police
C08	Administrative	C20	Police
C09	Revenue	C21	Revenue
C10	Administrative	C22	Administrative
C11	Police	C23	Police
C12	Administrative	C24	Police

Exactly 4 candidates out of the first 12 candidates joined the Police Services.

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Q.13 [11831809]
What is the maximum gap between the roll numbers of any two consecutive candidates who joined the Revenue Services?

1 ◯ Three

2 ◯ Six

3 ◯ Five

4 ◯ Four

Solution:
Correct Answer : 3

Answer key/Solution

Step 1:
Let each service be represented by the initial letters - A, R and P.
From condition (i), we can say that P = R + 4 and A + R + P = 24, for distinct values of A, E and P.
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The maximum gap is five, between C03 and C09.

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Q.14 [11831809]
How many possible triplets of the given candidates, whose roll numbers are three consecutive numbers, have joined three different services?

1 ◯ 8

2 ◯ 11

3 ◯ 12

4 ◯ 10

Solution:
Correct Answer : 2

Answer key/Solution

Step 1:
Let each service be represented by the initial letters - A, R and P.
From condition (i), we can say that P = R + 4 and A + R + P = 24, for distinct values of A, E and P.
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C08	Administrative	C20	Police
C09	Revenue	C21	Revenue
C10	Administrative	C22	Administrative
C11	Police	C23	Police
C12	Administrative	C24	Police

The possible triplets are: (C01, C02, C03), (C03, C04, C05), (C07, C08, C09), (C09, C10, C11), (C11, C12, C13), (C12, C13, C14), (C14, C15, C16), (C15, C16, C17), (C16, C17, C18), (C20, C21, C22) and (C21, C22, C23). Hence, 11 such triplets are possible.

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Q.15 [11831809]
Which of the following statements is/are INCORRECT?
I. C14 and C18 joined the same service.
II. Exactly 5 candidates have joined the Administrative Services whose roll numbers are between C02 and C10.
III. The absolute difference between the number of candidates joining Administrative Services and Revenue Services is 4.

1 ◯ I only

2 ◯ Both I & II

3 ◯ Both II & III

4 ◯ All I, II & III

Solution:
Correct Answer : 4

Answer key/Solution

Step 1:
Let each service be represented by the initial letters - A, R and P.
From condition (i), we can say that P = R + 4 and A + R + P = 24, for distinct values of A, E and P.
From condition (iv), Also, A is neither the least nor the highest number among these three. From condition (i), P is even, so R is also even.
Since the sum of the three is 24, so A is also even. The only combination possible for A, R and P, that fulfills all the conditions, is (8, 6, 10).
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C08	Administrative	C20	Police
C09	Revenue	C21	Revenue
C10	Administrative	C22	Administrative
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C12	Administrative	C24	Police

All I, II & III statements are INCORRECT.

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Q.16 [11831809]
If the first letter of the names of the candidates from C01 to C24 are in alphabetical order such that only letters O and X are missing, then which of the following MUST be FALSE?

1 ◯ Dev and Qadir join the same service.

2 ◯ Umesh and Chetan join different services.

3 ◯ Hiten, Jiten and Lalit join three different services.

4 ◯ Amit and Yogi join the Police Services.

Solution:
Correct Answer : 3

Answer key/Solution

Step 1:
Let each service be represented by the initial letters - A, R and P.
From condition (i), we can say that P = R + 4 and A + R + P = 24, for distinct values of A, E and P.
From condition (iv), Also, A is neither the least nor the highest number among these three. From condition (i), P is even, so R is also even.
Since the sum of the three is 24, so A is also even. The only combination possible for A, R and P, that fulfills all the conditions, is (8, 6, 10).
From condition (iii), we can fill the service for C19, C20, C23 and C24 as P.
Step 2:
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C07	Police	C19	Police
C08	Administrative	C20	Police
C09	Revenue	C21	Revenue
C10	Administrative	C22	Administrative
C11	Police	C23	Police
C12	Administrative	C24	Police

Let us place the initials against each candidate and check:

Candidate	Name	Service	Candidate	Name	Service
C01	A	Police	C13	M	Revenue
C02	B	Administrative	C14	N	Police
C03	C	Revenue	C15	P	Revenue
C04	D	Administrative	C16	Q	Administrative
C05	E	Police	C17	R	Police
C06	F	Administrative	C18	S	Revenue
C07	G	Police	C19	T	Police
C08	H	Administrative	C20	U	Police
C09	I	Revenue	C21	V	Revenue
C10	J	Administrative	C22	W	Administrative
C11	K	Police	C23	Y	Police
C12	L	Administrative	C24	Z	Police

It is clear that Hiten, Jiten and Lalit join the Administrative Services.
Hence, the given statement, that all three of them join different services, is wrong.

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Directions for questions 17 to 20: Answer the questions on the basis of the information given below.

A cube is painted on all its six faces such that each face is painted with one color only which is then cut into 343 smaller identical cubes. There are only 4 colours available - Red, Green, Blue, and Yellow for painting of the cube and no four faces of the cube are painted with the same color. Atleast one of the faces is painted Blue and atleast one of the faces is painted Green.

Q.17 [11831809]
What can be the maximum number of smaller cubes which have both red and blue colours on atleast one of their faces?

1 ◯ 38

2 ◯ 36

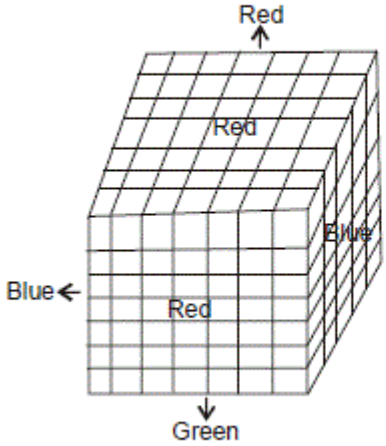
3 ◯ 40

4 ◯ 34

Solution:
Correct Answer : 1

Answer key/Solution

To maximize the number of smaller cubes with both red and blue colours on them, let only one face of the bigger cube be painted with Green and two of the remaining five faces be painted with one of the colours out of blue and red and the rest three faces be painted with the remaining of the two colours out of Blue and Red, as shown below:



There are 6 edges which have both red and blue colours.
Hence, number of smaller cubes with both colours = (7 + 7 + 5) × 2 = 38.

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Directions for questions 17 to 20: Answer the questions on the basis of the information given below.

A cube is painted on all its six faces such that each face is painted with one color only which is then cut into 343 smaller identical cubes. There are only 4 colours available - Red, Green, Blue, and Yellow for painting of the cube and no four faces of the cube are painted with the same color. Atleast one of the faces is painted Blue and atleast one of the faces is painted Green.

Q.18 [11831809]

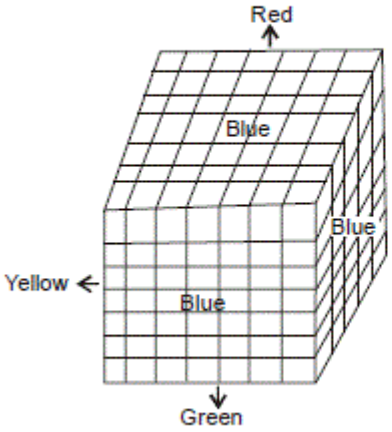
When each of the four colours are painted on atleast one face and the number of faces painted with blue color is maximum, then what can be the minimum number of smaller cubes which have blue color on atleast one of their faces?

Solution:

Correct Answer : 127

Answer key/Solution

The maximum possible faces with blue colours are 3 such that other 3 faces have colours red, green and yellow. In order to minimize the number of cubes with blue colours on atleast one of the faces, consider three adjacent faces with blue colour.



Hence, number of smaller cubes with blue colours on atleast one of their faces = 49 + 42 + 36 = 127.

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Directions for questions 17 to 20: Answer the questions on the basis of the information given below.

A cube is painted on all its six faces such that each face is painted with one color only which is then cut into 343 smaller identical cubes. There are only 4 colours available - Red, Green, Blue, and Yellow for painting of the cube and no four faces of the cube are painted with the same color. Atleast one of the faces is painted Blue and atleast one of the faces is painted Green.

Q.19 [11831809]

Let x be sum of the number of faces painted with yellow and green colours. When number of faces painted with blue and yellow colour is equal to number of faces painted with green and red colour, then how many different values can x take?

1 ○ 2

2 ◯ 3

3 ◯ 4

4 ◯ More than 4

Solution:
Correct Answer : 4

Answer key/Solution

Since atleast one of the faces is painted Blue and atleast one of the faces is painted Green.
Therefore,

Blue + Yellow		Green + Red	
1	2	1	2
1	2	2	1
2	1	2	1
2	1	1	2
3	0	3	0
3	0	2	1
3	0	1	2
2	1	3	0
1	2	3	0

Sum of number of faces painted in yellow and green colour can be 1, 2, 3, 4 or 5.
Hence, 5 values of x are possible.

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Directions for questions 17 to 20: Answer the questions on the basis of the information given below.

A cube is painted on all its six faces such that each face is painted with one color only which is then cut into 343 smaller identical cubes. There are only 4 colours available - Red, Green, Blue, and Yellow for painting of the cube and no four faces of the cube are painted with the same color. Atleast one of the faces is painted Blue and atleast one of the faces is painted Green.

Q.20 [11831809]
When the number of faces of the bigger cube painted in green color is maximum possible, then what can be the maximum number of smaller cubes with no face painted in green color?

Answer key/Solution

Solution:

Correct Answer : 216

To maximize the number of smaller cubes which do not have green colour when the number of faces of the bigger cube painted in green is maximum possible, paint any 3 mutually adjacent faces of the bigger cube in green color, one of the remaining faces in blue color and the rest of the two faces in either one or two of the 3 colours – Blue, Red, and Yellow. Then number of smaller cubes with green color would be 127 (as counted in solution to question 42, for blue color).

Hence, the number of smaller cubes which do not have green color = 343 – 127 = 216.

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