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# CDC 08 2022 DILR

Scorecard (procreview.jsp?sid=aaaN5tjtX0b7WgArBjowySun Jan 08 23:49:20 IST 2023&qsetId=d9LlLoMAsTk=&qsetName=CDC 08 2022 DILR)

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Qs Analysis (QsAnalysis.jsp?sid=aaaN5tjtX0b7WgArBjowySun Jan 08 23:49:20 IST 2023&qsetId=d9LlLoMAsTk=&qsetName=CDC 08 2022 DILR)

Video Attempt / Solution (VideoAnalysis.jsp?sid=aaaN5tjtX0b7WgArBjowySun Jan 08 23:49:20 IST 2023&qsetId=d9LlLoMAsTk=&qsetName=CDC 08 2022 DILR)

Solutions (Solution.jsp?sid=aaaN5tjtX0b7WgArBjowySun Jan 08 23:49:20 IST 2023&qsetId=d9LlLoMAsTk=&qsetName=CDC 08 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.

On 7th April, WORLD HEALTH DAY, the health department of Gautam Buddha Nagar Government Hospital sends two teams - P and Q to two housing societies - Tata Steel and ATS respectively for a checkup of the citizens. Each team has to visit 5 houses from 1 to 5 and come back to the hospital with the findings. In general, it takes 5 minutes to complete the health checkup of a kid, 3 minutes for an old person, and 1 minute for a young person. It is very important to check each and every person present in the house. It is known that the team Q took 2 hours 32 minutes to cover their respective 5 houses.

**Details of Team P's visit at Tata Steel:**

(i) Overall we met 19 old people, 15 kids and 18 young ones.

(ii) Except the 1st and the 4th house, all houses had more young people than old people. The 4th house has a total of 11 members. Also, the 4th and the 3rd house had the same number of kids.

(iii) The 1st house had less than 13 members in the house. The 5th house had half as many old people as the 2nd house. Overall there were 12 members in the 2nd house, including 1 kid.

(iv) Every house had at least 1 kid, 1 old, and 1 young person. The 1st house had 2 kids same as 5th house. The 1st, 5th and 3rd house had 3 young people each.

**Details of Team Q's visit at ATS:**

(A) The 1st and the 5th house took the same amount of time.

(B) The 4th house had the same number of members as the 2nd house but needed 18 more minutes. The 5th house had 3 kids. Their father had 5 young siblings and two old parents. The mother of the kids was not present when we went. No one else lived there.

(C) The 3rd, 4th and 1st house had 4 kids each. The 2nd house had 15 members including 2 kids, 1 old person and 12 young ones. The 3rd and the 1st house had a total of 8 young people. The 3rd house had 2 old people.

**Q.1 [11831809]**

What was the total time (in minutes) taken by Team P in Tata Steel to complete the health checkup of kids in 1st house, old persons in 3rd house and young persons in 5th house?

**Solution:**
**Correct Answer : 19**

Answer key/Solution

**Step 1:**
**Let's look at the details of Team P.**
From condition (iii), The 2nd house had 12 people in total. From condition (ii), To ensure that number of young people is greater than old people, the 2nd house could have had either 2 old people or 4 old people. Had it had 2 old people, then it would have had 9 young people (it has 1 kid). That is not possible since a total of 18 young people were present, and that would have meant that the 4th house has no young people.
So the 2nd house had 4 old people and 7 young people. It also means that the 4th house had 2 young people.
Based on given information, we can also find out all figures for the 5th house and the 4th house.
Finally, since the 1st house has less than 13 members, it means that the 3rd house has at least 10 members (total number of members checked is 52). That is possible only if exactly 2 old people were checked from the 3rd house. We can't have more than 2 to ensure that number of old people do not exceed young people (from condition (ii)).
**Step 2:**
**Let's look at the details of Team Q.**
From condition (A), The 5th house took 27 minutes (6 young, 3 kids, and 2 old people), the same as the 1st house.
The 4th house must have taken 43 minutes. Since it has 4 kids from 15 total people, the 11 other people (old + young) must have needed 23 minutes (20 minutes spent on 4 kids). That is only possible if the house had 6 old and 5 young people (make equations or solve using hit and trial method.)
A total of 152 minutes were spent by Team Q, out of which 27 minutes each were spent on the 1st and the 5th house.
25 minutes were spent on the 2nd house and 43 minutes were spent on the 4th house. Thus 30 minutes must have been spent on the 3rd house.
The 3rd house has 2 old people and 4 kids. It must have 4 young people to consume 30 minutes for a checkup.
From condition (C), Therefore, 1st house will also have 4 young people.
**Step 3:**
The final tables can be shown as:

| Tata Steel | | | | | | ATS | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Team P | Kids | Old | Young | No. of people | Time (in minutes) | Team Q | Kids | Old | Young | No. of people | Time (in minutes) |
| 1st House | 2 | 7 | 3 | 12 | 34 | 1st House | 4 | 1 | 4 | 9 | 27 |
| 2nd House | 1 | 4 | 7 | 12 | 24 | 2nd House | 2 | 1 | 12 | 15 | 25 |
| 3rd House | 5 | 2 | 3 | 10 | 34 | 3rd House | 4 | 2 | 4 | 10 | 30 |
| 4th House | 5 | 4 | 2 | 11 | 39 | 4th House | 4 | 6 | 5 | 15 | 43 |
| 5th House | 2 | 2 | 3 | 7 | 19 | 5th House | 3 | 2 | 6 | 11 | 27 |
| Total | 15 | 19 | 18 | 52 | 150 | Total | 17 | 12 | 31 | 60 | 152 |

**Required total time = 2 × 5 + 2 × 3 + 3 × 1 = 19 minutes.**

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**Details of Team P's visit at Tata Steel:**

(i) Overall we met 19 old people, 15 kids and 18 young ones.

(ii) Except the 1st and the 4th house, all houses had more young people than old people. The 4th house has a total of 11 members. Also, the 4th and the 3rd house had the same number of kids.

(iii) The 1st house had less than 13 members in the house. The 5th house had half as many old people as the 2nd house. Overall there were 12 members in the 2nd house, including 1 kid.

(iv) Every house had at least 1 kid, 1 old, and 1 young person. The 1st house had 2 kids same as 5th house. The 1st, 5th and 3rd house had 3 young people each.

**Details of Team Q's visit at ATS:**

(A) The 1st and the 5th house took the same amount of time.

(B) The 4th house had the same number of members as the 2nd house but needed 18 more minutes. The 5th house had 3 kids. Their father had 5 young siblings and two old parents. The mother of the kids was not present when we went. No one else lived there.

(C) The 3rd, 4th and 1st house had 4 kids each. The 2nd house had 15 members including 2 kids, 1 old person and 12 young ones. The 3rd and the 1st house had a total of 8 young people. The 3rd house had 2 old people.

**Q.2 [11831809]**

If all the young people would have not been present or would not have been covered, how much combined time (in minutes) would have been saved by both the teams P and Q?

1 ◯ 44

2 ◯ 47

3 ◯ 49

4 ◯ 50

**Solution:**
**Correct Answer : 3**

Answer key/Solution

**Step 1:**
**Let's look at the details of Team P.**
From condition (iii), The 2nd house had 12 people in total. From condition (ii), To ensure that number of young people is greater than old people, the 2nd house could have had either 2 old people or 4 old people. Had it had 2 old people, then it would have had 9 young people (it has 1 kid). That is not possible since a total of 18 young people were present, and that would have meant that the 4th house has no young people.
So the 2nd house had 4 old people and 7 young people. It also means that the 4th house had 2 young people.
Based on given information, we can also find out all figures for the 5th house and the 4th house.
Finally, since the 1st house has less than 13 members, it means that the 3rd house has at least 10 members (total number of members checked is 52). That is possible only if exactly 2 old people were checked from the 3rd house. We can't have more than 2 to ensure that number of old people do not exceed young people (from condition (ii)).
**Step 2:**
**Let's look at the details of Team Q.**
From condition (A), The 5th house took 27 minutes (6 young, 3 kids, and 2 old people), the same as the 1st house.
The 4th house must have taken 43 minutes. Since it has 4 kids from 15 total people, the 11 other people (old + young) must have needed 23 minutes (20 minutes spent on 4 kids). That is only possible if the house had 6 old and 5 young people (make equations or solve using hit and trial method.)
A total of 152 minutes were spent by Team Q, out of which 27 minutes each were spent on the 1st and the 5th house.
25 minutes were spent on the 2nd house and 43 minutes were spent on the 4th house. Thus 30 minutes must have been spent on the 3rd house.
The 3rd house has 2 old people and 4 kids. It must have 4 young people to consume 30 minutes for a checkup.
From condition (C), Therefore, 1st house will also have 4 young people.
**Step 3:**
The final tables can be shown as:

| Tata Steel | | | | | | ATS | | | | | |
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| Team P | Kids | Old | Young | No. of people | Time (in minutes) | Team Q | Kids | Old | Young | No. of people | Time (in minutes) |
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| 3rd House | 5 | 2 | 3 | 10 | 34 | 3rd House | 4 | 2 | 4 | 10 | 30 |
| 4th House | 5 | 4 | 2 | 11 | 39 | 4th House | 4 | 6 | 5 | 15 | 43 |
| 5th House | 2 | 2 | 3 | 7 | 19 | 5th House | 3 | 2 | 6 | 11 | 27 |
| Total | 15 | 19 | 18 | 52 | 150 | Total | 17 | 12 | 31 | 60 | 152 |

**The total number of young people = 49, so 49 minutes would have been saved.**

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**Details of Team Q's visit at ATS:**

(A) The 1st and the 5th house took the same amount of time.

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(C) The 3rd, 4th and 1st house had 4 kids each. The 2nd house had 15 members including 2 kids, 1 old person and 12 young ones. The 3rd and the 1st house had a total of 8 young people. The 3rd house had 2 old people.

**Q.3 [11831809]**

How much time (in minutes) did it take for the Team Q to cover their 3rd house in ATS?

1 ◯ 30

2 ◯ 37

3 ◯ 43

4 ◯ 45

**Solution:**
**Correct Answer : 1**

Answer key/Solution

**Step 1:**
**Let's look at the details of Team P.**
From condition (iii), The 2nd house had 12 people in total. From condition (ii), To ensure that number of young people is greater than old people, the 2nd house could have had either 2 old people or 4 old people. Had it had 2 old people, then it would have had 9 young people (it has 1 kid). That is not possible since a total of 18 young people were present, and that would have meant that the 4th house has no young people.
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| 4th House | 5 | 4 | 2 | 11 | 39 | 4th House | 4 | 6 | 5 | 15 | 43 |
| 5th House | 2 | 2 | 3 | 7 | 19 | 5th House | 3 | 2 | 6 | 11 | 27 |
| Total | 15 | 19 | 18 | 52 | 150 | Total | 17 | 12 | 31 | 60 | 152 |

**The required time is 30 minutes.**

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**Q.4 [11831809]**

If each team ignored two houses each that took the minimum amount of time, then the difference in the time taken by the two Teams P and Q, in minutes, would be _____.

1 ◯ 16

2 ◯ 7

3 ◯ 18

4 ◯ 22

**Solution:**
**Correct Answer : 2**

Answer key/Solution

**Step 1:**
**Let's look at the details of Team P.**
From condition (iii), The 2nd house had 12 people in total. From condition (ii), To ensure that number of young people is greater than old people, the 2nd house could have had either 2 old people or 4 old people. Had it had 2 old people, then it would have had 9 young people (it has 1 kid). That is not possible since a total of 18 young people were present, and that would have meant that the 4th house has no young people.
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| 4th House | 5 | 4 | 2 | 11 | 39 | 4th House | 4 | 6 | 5 | 15 | 43 |
| 5th House | 2 | 2 | 3 | 7 | 19 | 5th House | 3 | 2 | 6 | 11 | 27 |
| Total | 15 | 19 | 18 | 52 | 150 | Total | 17 | 12 | 31 | 60 | 152 |

**Team P would have saved 43 minutes, finishing its checkup in 107 minutes.**
**Team Q would have saved 52 minutes, finishing in 100 minutes.**
**Hence, difference would have been 7 minutes.**

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(A) The 1st and the 5th house took the same amount of time.

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(C) The 3rd, 4th and 1st house had 4 kids each. The 2nd house had 15 members including 2 kids, 1 old person and 12 young ones. The 3rd and the 1st house had a total of 8 young people. The 3rd house had 2 old people.

**Q.5 [11831809]**

How many young people did Team Q check from 3rd and 4th houses combined?

**Solution:**
**Correct Answer : 9**

Answer key/Solution

**Step 1:**
**Let's look at the details of Team P.**
From condition (iii), The 2nd house had 12 people in total. From condition (ii), To ensure that number of young people is greater than old people, the 2nd house could have had either 2 old people or 4 old people. Had it had 2 old people, then it would have had 9 young people (it has 1 kid). That is not possible since a total of 18 young people were present, and that would have meant that the 4th house has no young people.
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| 3rd House | 5 | 2 | 3 | 10 | 34 | 3rd House | 4 | 2 | 4 | 10 | 30 |
| 4th House | 5 | 4 | 2 | 11 | 39 | 4th House | 4 | 6 | 5 | 15 | 43 |
| 5th House | 2 | 2 | 3 | 7 | 19 | 5th House | 3 | 2 | 6 | 11 | 27 |
| Total | 15 | 19 | 18 | 52 | 150 | Total | 17 | 12 | 31 | 60 | 152 |

**The required number of young people = 4 + 5 = 9.**

Bookmark FeedBack

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(C) The 3rd, 4th and 1st house had 4 kids each. The 2nd house had 15 members including 2 kids, 1 old person and 12 young ones. The 3rd and the 1st house had a total of 8 young people. The 3rd house had 2 old people.

**Q.6 [11831809]**

For which of the following houses was the absolute difference between total times taken by Team P and Team Q to complete the health check-up of all the persons in the house the largest?

1 ◯ 1st House

2 ◯ 3rd House

3 ◯ 4th House

4 ◯ 5th House

**Solution:**
**Correct Answer : 4**

Answer key/Solution

**Step 1:**
**Let's look at the details of Team P.**
From condition (iii), The 2nd house had 12 people in total. From condition (ii), To ensure that number of young people is greater than old people, the 2nd house could have had either 2 old people or 4 old people. Had it had 2 old people, then it would have had 9 young people (it has 1 kid). That is not possible since a total of 18 young people were present, and that would have meant that the 4th house has no young people.
So the 2nd house had 4 old people and 7 young people. It also means that the 4th house had 2 young people.
Based on given information, we can also find out all figures for the 5th house and the 4th house.
Finally, since the 1st house has less than 13 members, it means that the 3rd house has at least 10 members (total number of members checked is 52). That is possible only if exactly 2 old people were checked from the 3rd house. We can't have more than 2 to ensure that number of old people do not exceed young people (from condition (ii)).
**Step 2:**
**Let's look at the details of Team Q.**
From condition (A), The 5th house took 27 minutes (6 young, 3 kids, and 2 old people), the same as the 1st house.
The 4th house must have taken 43 minutes. Since it has 4 kids from 15 total people, the 11 other people (old + young) must have needed 23 minutes (20 minutes spent on 4 kids). That is only possible if the house had 6 old and 5 young people (make equations or solve using hit and trial method.)
A total of 152 minutes were spent by Team Q, out of which 27 minutes each were spent on the 1st and the 5th house.
25 minutes were spent on the 2nd house and 43 minutes were spent on the 4th house. Thus 30 minutes must have been spent on the 3rd house.
The 3rd house has 2 old people and 4 kids. It must have 4 young people to consume 30 minutes for a checkup.
From condition (C), Therefore, 1st house will also have 4 young people.
**Step 3:**
The final tables can be shown as:

| Tata Steel | | | | | | ATS | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Team P | Kids | Old | Young | No. of people | Time (in minutes) | Team Q | Kids | Old | Young | No. of people | Time (in minutes) |
| 1st House | 2 | 7 | 3 | 12 | 34 | 1st House | 4 | 1 | 4 | 9 | 27 |
| 2nd House | 1 | 4 | 7 | 12 | 24 | 2nd House | 2 | 1 | 12 | 15 | 25 |
| 3rd House | 5 | 2 | 3 | 10 | 34 | 3rd House | 4 | 2 | 4 | 10 | 30 |
| 4th House | 5 | 4 | 2 | 11 | 39 | 4th House | 4 | 6 | 5 | 15 | 43 |
| 5th House | 2 | 2 | 3 | 7 | 19 | 5th House | 3 | 2 | 6 | 11 | 27 |
| Total | 15 | 19 | 18 | 52 | 150 | Total | 17 | 12 | 31 | 60 | 152 |

**The required difference was largest for 5th House i.e., 27 – 19 = 8 minutes.**

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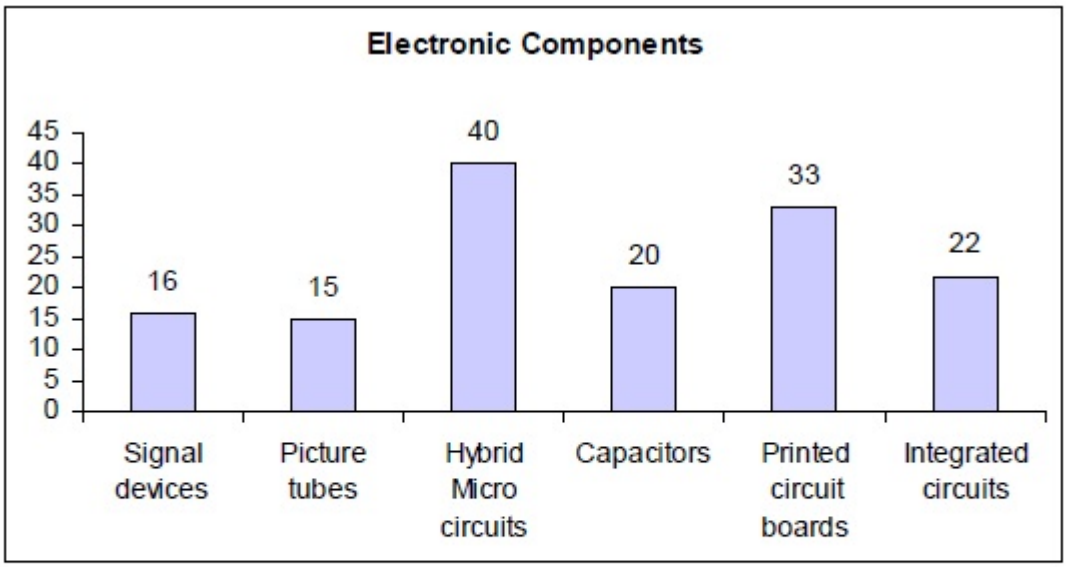
**Directions for questions 7 to 10:** Answer the questions on the basis of the information given below.

Tinu, an electrician, repairs the certain electronic components. The bar graph given below shows the various electronic components he repaired in last 4 weeks. The table given below shows the repair cost (in Rs.) per component charged by Tinu.




| Electronic Components | Signal Devices | Picture Tubes | Hybrid Micro Circuits | Capacitors | Printed Circuit Boards | Integrated Circuits |
|---|---|---|---|---|---|---|
| Repair cost (in Rs.) per component | 2,000 | 1,200 | 4,500 | 1,500 | 1,000 | 500 |

Further, it is also known that:
(i) In the 1st week, he repairs at most 5 of each type of electronic components.
(ii) In the 2nd week, he repairs at least 8 and at most 10 of each type of electronic components.
(iii) In the 3rd week, he repairs at least 7 and at most 8 of each type of electronic components.
(iv) In the 4th week, he repaired the minimum possible remaining number of electronic components of each type.

**Q.7 [11831809]**
What is the amount earned (in Rs.) by Tinu in 4th week?

**Solution:**
**Correct Answer : 86500**

Answer key/Solution

**Step 1:**
From condition (iv), in 4th week, he repaired the minimum possible number of electronic components of each type. Tinu repaired minimum possible number of Hybrid Micro circuits, and Printed circuit boards. Minimum values are obtained by maximising the number of Hybrid Micro circuits, and Printed circuit boards repaired in first three weeks.

| Electronic Components | 1st Week | 2nd Week | 3rd Week | 4th Week | Total |
|---|---|---|---|---|---|
| Signal devices | | | | 0 | 16 |
| Picture tubes | | | | 0 | 15 |
| Hybrid Micro circuits | 5 | 10 | 8 | 17 | 40 |
| Capacitors | | | | 0 | 20 |
| Printed circuit boards | 5 | 10 | 8 | 10 | 33 |
| Integrated circuits | | | | 0 | 22 |

**Step 2:**
Note picture tubes repaired are 15, which is possible only when 8 are repaired in 2nd week and 7 in 3rd week.
Hence, from the given conditions, the number of electronic components repaired in every week can be summarised as below:

| Electronic Components | 1st Week | 2nd Week | 3rd Week | 4th Week | Total |
|---|---|---|---|---|---|
| Signal devices | 0 or 1 | 8 or 9 | 7 or 8 | 0 | 16 |
| Picture tubes | 0 | 8 | 7 | 0 | 15 |
| Hybrid Micro circuits | 5 | 10 | 8 | 17 | 40 |
| Capacitors | 2/3/4/5 | 8 or 9 or 10 | 7 or 8 | 0 | 20 |
| Printed circuit boards | 5 | 10 | 8 | 10 | 33 |
| Integrated circuits | 5 | 10 or 9 | 7 or 8 | 0 | 22 |

**Amount earned by Tinu in 4th week = 17 × 4500 + 10 × 1000 = 76500 + 10000 = Rs. 86,500.**

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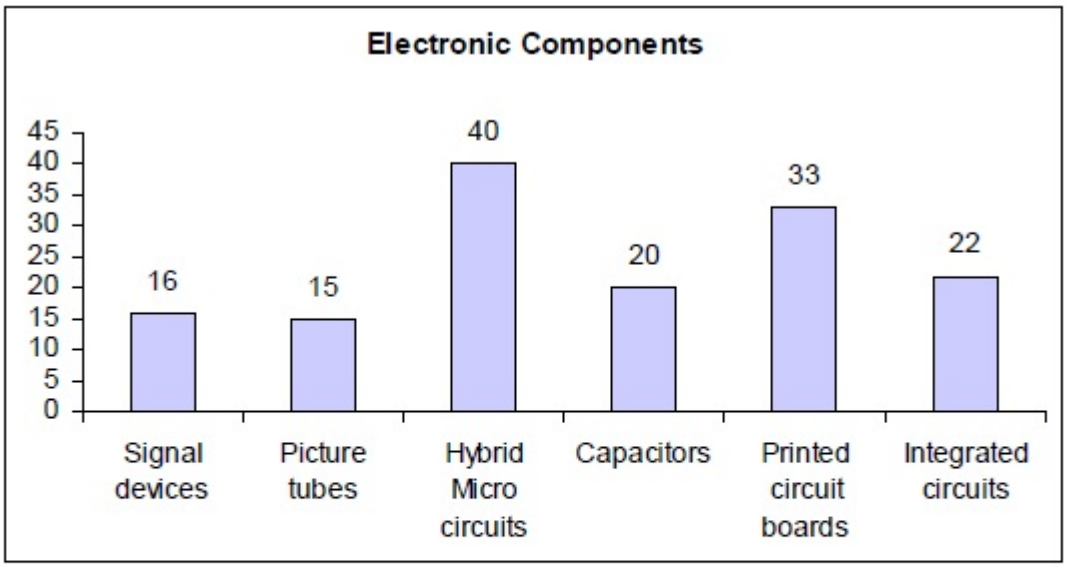
**Directions for questions 7 to 10:** Answer the questions on the basis of the information given below.

Tinu, an electrician, repairs the certain electronic components. The bar graph given below shows the various electronic components he repaired in last 4 weeks. The table given below shows the repair cost (in Rs.) per component charged by Tinu.




| Electronic Components | Signal Devices | Picture Tubes | Hybrid Micro Circuits | Capacitors | Printed Circuit Boards | Integrated Circuits |
|---|---|---|---|---|---|---|
| Repair cost (in Rs.) per component | 2,000 | 1,200 | 4,500 | 1,500 | 1,000 | 500 |

Further, it is also known that:
(i) In the 1st week, he repairs at most 5 of each type of electronic components.
(ii) In the 2nd week, he repairs at least 8 and at most 10 of each type of electronic components.
(iii) In the 3rd week, he repairs at least 7 and at most 8 of each type of electronic components.
(iv) In the 4th week, he repaired the minimum possible remaining number of electronic components of each type.

**Q.8 [11831809]**
Maximum what amount (in Rs.) did Tinu earn in 2nd week?

1 ◯ 96,800

2 ◯ 1,02,600

3 ◯ 1,00,240

4 ◯ 98,040

**Solution:**
**Correct Answer : 2**

Answer key/Solution

**Step 1:**
From condition (iv), in 4th week, he repaired the minimum possible number of electronic components of each type. Tinu repaired minimum possible number of Hybrid Micro circuits, and Printed circuit boards. Minimum values are obtained by maximising the number of Hybrid Micro circuits, and Printed circuit boards repaired in first three weeks.

| Electronic Components | 1st Week | 2nd Week | 3rd Week | 4th Week | Total |
|---|---|---|---|---|---|
| Signal devices | | | | 0 | 16 |
| Picture tubes | | | | 0 | 15 |
| Hybrid Micro circuits | 5 | 10 | 8 | 17 | 40 |
| Capacitors | | | | 0 | 20 |
| Printed circuit boards | 5 | 10 | 8 | 10 | 33 |
| Integrated circuits | | | | 0 | 22 |

**Step 2:**
Note picture tubes repaired are 15, which is possible only when 8 are repaired in 2nd week and 7 in 3rd week.
Hence, from the given conditions, the number of electronic components repaired in every week can be summarised as below:

| Electronic Components | 1st Week | 2nd Week | 3rd Week | 4th Week | Total |
|---|---|---|---|---|---|
| Signal devices | 0 or 1 | 8 or 9 | 7 or 8 | 0 | 16 |
| Picture tubes | 0 | 8 | 7 | 0 | 15 |
| Hybrid Micro circuits | 5 | 10 | 8 | 17 | 40 |
| Capacitors | 2/3/4/5 | 8 or 9 or 10 | 7 or 8 | 0 | 20 |
| Printed circuit boards | 5 | 10 | 8 | 10 | 33 |
| Integrated circuits | 5 | 10 or 9 | 7 or 8 | 0 | 22 |

**From the table, the maximum amount Tinu could have earned in 2nd week**
**= 9 × 2000 + 8 × 1200 + 10 × 4500 + 10 × 1500 + 10 × 1000 + 10 × 500**
**= 18000 + 9600 + 45000 + 15000 + 10000 + 5000 = Rs. 1,02,600.**

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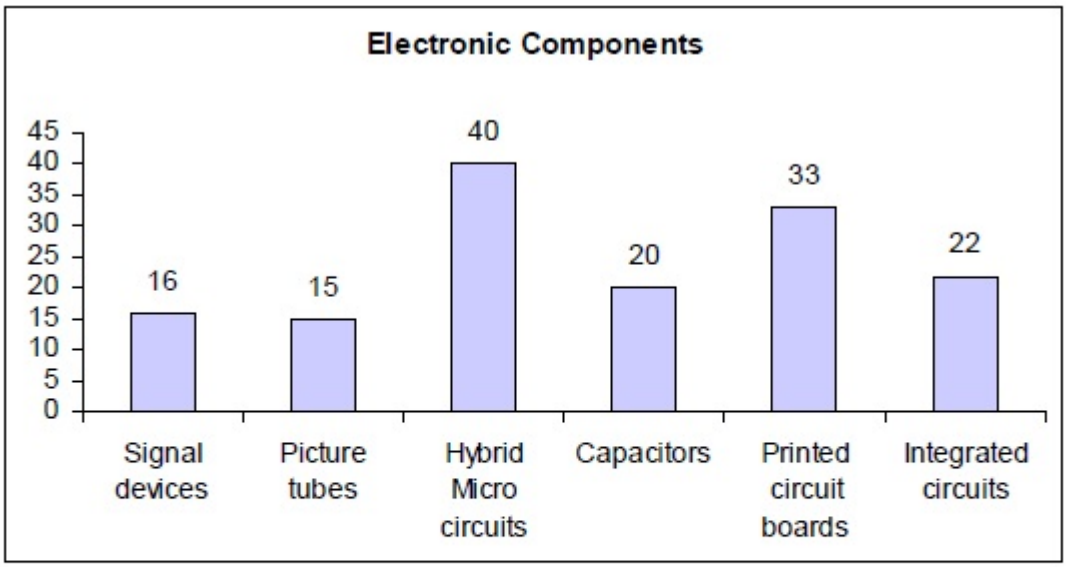
**Directions for questions 7 to 10:** Answer the questions on the basis of the information given below.

Tinu, an electrician, repairs the certain electronic components. The bar graph given below shows the various electronic components he repaired in last 4 weeks. The table given below shows the repair cost (in Rs.) per component charged by Tinu.




| Electronic Components | Signal Devices | Picture Tubes | Hybrid Micro Circuits | Capacitors | Printed Circuit Boards | Integrated Circuits |
|---|---|---|---|---|---|---|
| Repair cost (in Rs.) per component | 2,000 | 1,200 | 4,500 | 1,500 | 1,000 | 500 |

Further, it is also known that:
(i) In the 1st week, he repairs at most 5 of each type of electronic components.
(ii) In the 2nd week, he repairs at least 8 and at most 10 of each type of electronic components.
(iii) In the 3rd week, he repairs at least 7 and at most 8 of each type of electronic components.
(iv) In the 4th week, he repaired the minimum possible remaining number of electronic components of each type.

**Q.9 [11831809]**
In 1st week, Tinu repaired 25 less electronic components than what he did in 3rd week. Also, he repaired exactly 3 capacitors in 1st week, then what is the difference between the amount (in Rs.) earned by Tinu in 1st and 3rd week?

1 ○ 43,900

2 ○ 39,260

3 ○ 40,210

4 ○ 44,250

**Solution:**
**Correct Answer : 1**

Answer key/Solution

**Step 1:**
From condition (iv), in 4th week, he repaired the minimum possible number of electronic components of each type. Tinu repaired minimum possible number of Hybrid Micro circuits, and Printed circuit boards. Minimum values are obtained by maximising the number of Hybrid Micro circuits, and Printed circuit boards repaired in first three weeks.

| Electronic Components | 1st Week | 2nd Week | 3rd Week | 4th Week | Total |
|---|---|---|---|---|---|
| Signal devices | | | | 0 | 16 |
| Picture tubes | | | | 0 | 15 |
| Hybrid Micro circuits | 5 | 10 | 8 | 17 | 40 |
| Capacitors | | | | 0 | 20 |
| Printed circuit boards | 5 | 10 | 8 | 10 | 33 |
| Integrated circuits | | | | 0 | 22 |

**Step 2:**
Note picture tubes repaired are 15, which is possible only when 8 are repaired in 2nd week and 7 in 3rd week.
Hence, from the given conditions, the number of electronic components repaired in every week can be summarised as below:

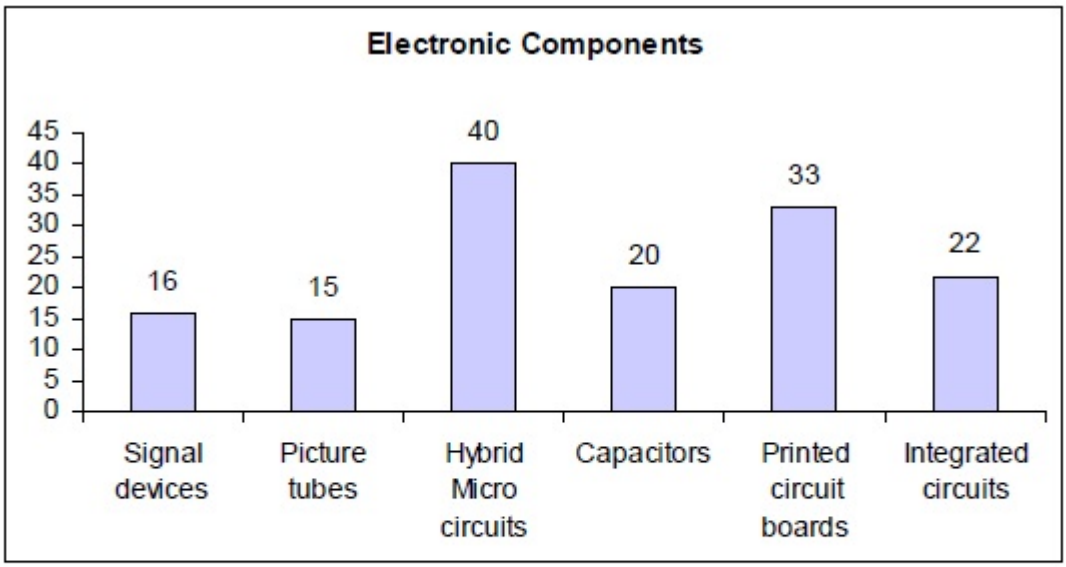
| Electronic Components | 1st Week | 2nd Week | 3rd Week | 4th Week | Total |
|---|---|---|---|---|---|
| Signal devices | 0 or 1 | 8 or 9 | 7 or 8 | 0 | 16 |
| Picture tubes | 0 | 8 | 7 | 0 | 15 |
| Hybrid Micro circuits | 5 | 10 | 8 | 17 | 40 |
| Capacitors | 2/3/4/5 | 8 or 9 or 10 | 7 or 8 | 0 | 20 |
| Printed circuit boards | 5 | 10 | 8 | 10 | 33 |
| Integrated circuits | 5 | 10 or 9 | 7 or 8 | 0 | 22 |

$(7 + 8 + 8 + a + b + c) - (5 + 3 + 5 + 5 + d) = 25$
$\Rightarrow a + b + c - d = 20$
Where a, b and c is either 7 or 8 and d is either 0 or 1.
$a + b + c - 20 = 0$ or 1
$\Rightarrow a + b + c = 19, 20$ or 21
Out of which only $a + b + c = 21$ is possible.
Therefore, $a = b = c = 7$ and $d = 1$.
Amount earned in 1st week $= 2000 + 4500 \times 5 + 1500 \times 3 + 1000 \times 5 + 500 \times 5 =$ Rs. 36,500
Amount earned in 3rd week $= 7 \times (2000 + 1200 + 1500 + 500) + 8 \times (4500 + 1000) =$ Rs. 80,400
Hence, required difference $= 80400 - 36500 =$ Rs. 43,900.

Bookmark FeedBack

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

Tinu, an electrician, repairs the certain electronic components. The bar graph given below shows the various electronic components he repaired in last 4 weeks. The table given below shows the repair cost (in Rs.) per component charged by Tinu.




| Electronic Components | Signal Devices | Picture Tubes | Hybrid Micro Circuits | Capacitors | Printed Circuit Boards | Integrated Circuits |
|---|---|---|---|---|---|---|
| Repair cost (in Rs.) per component | 2,000 | 1,200 | 4,500 | 1,500 | 1,000 | 500 |

Further, it is also known that:
(i) In the 1st week, he repairs at most 5 of each type of electronic components.
(ii) In the 2nd week, he repairs at least 8 and at most 10 of each type of electronic components.
(iii) In the 3rd week, he repairs at least 7 and at most 8 of each type of electronic components.
(iv) In the 4th week, he repaired the minimum possible remaining number of electronic components of each type.

**Q.10 [11831809]**

In 2nd week, Tinu repaired atleast 2 more electronic components of exactly 5 types than what he did in respective type of electronic components in 3rd week. Then for maximum how many types of electronic components in 2nd week did Tinu earn atleast 25% more than what he earned in 3rd week?

**Solution:**
**Correct Answer : 5**

Answer key/Solution

**Step 1:**
From condition (iv), in 4th week, he repaired the minimum possible number of electronic components of each type. Tinu repaired minimum possible number of Hybrid Micro circuits, and Printed circuit boards. Minimum values are obtained by maximising the number of Hybrid Micro circuits, and Printed circuit boards repaired in first three weeks.

| Electronic Components | 1st Week | 2nd Week | 3rd Week | 4th Week | Total |
|---|---|---|---|---|---|
| Signal devices | | | | 0 | 16 |
| Picture tubes | | | | 0 | 15 |
| Hybrid Micro circuits | 5 | 10 | 8 | 17 | 40 |
| Capacitors | | | | 0 | 20 |
| Printed circuit boards | 5 | 10 | 8 | 10 | 33 |
| Integrated circuits | | | | 0 | 22 |

**Step 2:**
Note picture tubes repaired are 15, which is possible only when 8 are repaired in 2nd week and 7 in 3rd week.
Hence, from the given conditions, the number of electronic components repaired in every week can be summarised as below:

| Electronic Components | 1st Week | 2nd Week | 3rd Week | 4th Week | Total |
|---|---|---|---|---|---|
| Signal devices | 0 or 1 | 8 or 9 | 7 or 8 | 0 | 16 |
| Picture tubes | 0 | 8 | 7 | 0 | 15 |
| Hybrid Micro circuits | 5 | 10 | 8 | 17 | 40 |
| Capacitors | 2/3/4/5 | 8 or 9 or 10 | 7 or 8 | 0 | 20 |
| Printed circuit boards | 5 | 10 | 8 | 10 | 33 |
| Integrated circuits | 5 | 10 or 9 | 7 or 8 | 0 | 22 |

| Electronic Components | 1st Week | 2nd Week | 3rd Week | 4th Week | Total |
|---|---|---|---|---|---|
| Signal devices | 0 | 9 | 7 | 0 | 16 |
| Picture tubes | 0 | 8 | 7 | 0 | 15 |
| Hybrid Micro circuits | 5 | 10 | 8 | 17 | 40 |
| Capacitors | 4 or 3 or 2 | 9 or 10 or 10 | 7 or 7 or 8 | 0 | 20 |
| Printed circuit boards | 5 | 10 | 8 | 10 | 33 |
| Integrated circuits | 5 | 10 | 7 | 0 | 22 |

)0

Other than picture tubes, he can earn 25% more in every other type of electronic component.

Bookmark FeedBack

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

The eight children wearing jerseys numbered 1 to 8 were from three teams A, B and C, such that each team had at least 2 children. All of them were playing a game in which they had to draw a total of 20 balls from each of the 5 baskets. Each basket contains balls of exactly one color i.e., red, yellow, white, black and orange. Each child had drawn balls of at least three colors, and balls of each color were drawn by exactly six children. The total number of balls drawn by 8 children was 100.
The table given below shows partial information regarding the number of balls of each color each child has drawn.

| Jersey No. | Red balls | Yellow balls | White balls | Black balls | Orange balls |
|---|---|---|---|---|---|
| 1 | 1 | 2 | | | |
| 2 | | × | 4 | | × |
| 3 | × | | | 5 | 6 |
| 4 | 2 | | | | 3 |
| 5 | 6 | | 7 | | |
| 6 | 3 | 1 | | | 2 |
| 7 | | 10 | 1 | 1 | |
| 8 | 4 | | × | 4 | |

In the above table "×" indicates that the concerned child did not draw the ball of the respective color. Additional information is also given below.
(i) Only one child, wearing Team C's jersey number 5, had drawn balls of all colors, out of which an even number of balls of only one color was drawn.
(ii) The total number of balls drawn was an even number of exactly 4 children.
(iii) The children wearing jersey number 3 and jersey number 1, who must draw the black balls, were from team A.
(iv) Total balls drawn by each child in team B was 8 and each child drew white balls. Exactly two children of team C had drawn the same number of balls in total. No other pair of children had drawn the same number of balls in total.
(v) Each child who drew an odd number of total balls had drawn more than 10 balls.
(vi) A total of 11 balls were drawn by the child wearing the jersey number 8.
(vii) No two children had the same combination of the number of balls drawn, regardless of colors.
(viii) The child wearing jersey number 3 had drawn the largest number of black and orange balls among all the children. Also, he draws 2 yellow balls and no white balls.

**Q.11 [11831809]**
The number of black balls drawn by the child wearing jersey number 5 was _____.

1 ◯ 1

2 ◯ 3

3 ◯ 5

4 ◯ Either (2) or (3)

**Solution:**
**Correct Answer : 2**

Answer key/Solution

**Step 1:**
From the given information, each child must draw balls of at least 3 colors. So, child wearing jersey number 2 must have drawn 4 red balls. And, child wearing jersey number 7 would not have drawn any red ball.
Now, there are two possible children who have drawn 8 balls. These two are children wearing jersey number 4 and 6.
From condition (iv), we can say that team B had two children i.e., jersey number 4 and 6.
From condition (vii), we can say that child wearing jersey number 4 and 6 had drawn (2 + 3 + 3) and (3 + 1 + 2 + 2) balls. Now, we can say that black balls must have been drawn by children wearing jersey number 1, 2, 3, 5, 7 and 8.
From condition (i), it is clear that the child wearing jersey number 5 must have drawn each color ball except red in odd numbers. We can say that total balls drawn by child wearing jersey number 5 was an even number.

| Jersey No. | Team | Red | Yellow | White | Black | Orange |
|---|---|---|---|---|---|---|
| 1 | A | 1 | 2 | | ✓ | |
| 2 | | 4 | × | 4 | ✓ | × |
| 3 | A | × | | | 5 | 6 |
| 4 | B | 2 | | | × | 3 |
| 5 | C | 6 | ✓Odd | 7 | ✓Odd | ✓Odd |
| 6 | B | 3 | 1 | 2 | × | 2 |
| 7 | | × | 10 | 1 | 1 | |
| 8 | | 4 | | × | 4 | |

**Step 2:**
From condition (iv), each child from team B must draw white balls. So the child wearing jersey number 4 had drawn 3 White balls. So the child wearing jersey number 1 had drawn 3 white balls.
From condition (viii), the child wearing jersey number 3 draws 2 yellow balls and no white balls.
Therefore, the child wearing jersey number 5 had drawn 3 yellow balls. So the child wearing jersey number 8 had drawn 2 yellow balls and 1 orange ball.
From condition (iv), exactly two children of team C had drawn the same number of balls in total. So the child wearing jersey number 2 had drawn 3 black balls. Hence, the child wearing jersey number 1 had drawn 4 black balls.
Hence, from the given information, the final table can be shown as:

| Jersey No. | Team | Red | Yellow | White | Black | Orange | Total |
|---|---|---|---|---|---|---|---|
| 1 | A | 1 | 2 | 3 | 4 | × | 10 |
| 2 | C | 4 | × | 4 | 3 | × | 11 |
| 3 | A | × | 2 | × | 5 | 6 | 13 |
| 4 | B | 2 | × | 3 | × | 3 | 8 |
| 5 | C | 6 | 3 | 7 | 3 | 3/5 | 22/24 |
| 6 | B | 3 | 1 | 2 | × | 2 | 8 |
| 7 | A/C | × | 10 | 1 | 1 | 5/3 | 15/17 |
| 8 | C | 4 | 2 | × | 4 | 1 | 11 |

**The child wearing jersey number 5 had drawn 3 black balls.**

Bookmark FeedBack

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

The eight children wearing jerseys numbered 1 to 8 were from three teams A, B and C, such that each team had at least 2 children. All of them were playing a game in which they had to draw a total of 20 balls from each of the 5 baskets. Each basket contains balls of exactly one color i.e., red, yellow, white, black and orange. Each child had drawn balls of at least three colors, and balls of each color were drawn by exactly six children. The total number of balls drawn by 8 children was 100.
The table given below shows partial information regarding the number of balls of each color each child has drawn.

| Jersey No. | Red balls | Yellow balls | White balls | Black balls | Orange balls |
|---|---|---|---|---|---|
| 1 | 1 | 2 | | | |
| 2 | | × | 4 | | × |
| 3 | × | | | 5 | 6 |
| 4 | 2 | | | | 3 |
| 5 | 6 | | 7 | | |
| 6 | 3 | 1 | | | 2 |
| 7 | | 10 | 1 | 1 | |
| 8 | 4 | | × | 4 | |

In the above table "×" indicates that the concerned child did not draw the ball of the respective color. Additional information is also given below.
(i) Only one child, wearing Team C's jersey number 5, had drawn balls of all colors, out of which an even number of balls of only one color was drawn.
(ii) The total number of balls drawn was an even number of exactly 4 children.
(iii) The children wearing jersey number 3 and jersey number 1, who must draw the black balls, were from team A.
(iv) Total balls drawn by each child in team B was 8 and each child drew white balls. Exactly two children of team C had drawn the same number of balls in total. No other pair of children had drawn the same number of balls in total.
(v) Each child who drew an odd number of total balls had drawn more than 10 balls.
(vi) A total of 11 balls were drawn by the child wearing the jersey number 8.
(vii) No two children had the same combination of the number of balls drawn, regardless of colors.
(viii) The child wearing jersey number 3 had drawn the largest number of black and orange balls among all the children. Also, he draws 2 yellow balls and no white balls.

**Q.12 [11831809]**
The child, wearing the jersey number 8, drew 1 ball of color_____.

1 ◯ Yellow

2 ◯ Orange

3 ◯ Either (1) or (2)

4 ◯ None of these

**Solution:**
**Correct Answer : 2**

Answer key/Solution

**Step 1:**
From the given information, each child must draw balls of at least 3 colors. So, child wearing jersey number 2 must have drawn 4 red balls. And, child wearing jersey number 7 would not have drawn any red ball.
Now, there are two possible children who have drawn 8 balls. These two are children wearing jersey number 4 and 6.
From condition (iv), we can say that team B had two children i.e., jersey number 4 and 6.
From condition (vii), we can say that child wearing jersey number 4 and 6 had drawn (2 + 3 + 3) and (3 + 1 + 2 + 2) balls. Now, we can say that black balls must have been drawn by children wearing jersey number 1, 2, 3, 5, 7 and 8.
From condition (i), it is clear that the child wearing jersey number 5 must have drawn each color ball except red in odd numbers. We can say that total balls drawn by child wearing jersey number 5 was an even number.

| Jersey No. | Team | Red | Yellow | White | Black | Orange |
|---|---|---|---|---|---|---|
| 1 | A | 1 | 2 | | ✓ | |
| 2 | | 4 | × | 4 | ✓ | × |
| 3 | A | × | | | 5 | 6 |
| 4 | B | 2 | | | × | 3 |
| 5 | C | 6 | ✓Odd | 7 | ✓Odd | ✓Odd |
| 6 | B | 3 | 1 | 2 | × | 2 |
| 7 | | × | 10 | 1 | 1 | |
| 8 | | 4 | | × | 4 | |

**Step 2:**
From condition (iv), each child from team B must draw white balls. So the child wearing jersey number 4 had drawn 3 White balls. So the child wearing jersey number 1 had drawn 3 white balls.
From condition (viii), the child wearing jersey number 3 draws 2 yellow balls and no white balls.
Therefore, the child wearing jersey number 5 had drawn 3 yellow balls. So the child wearing jersey number 8 had drawn 2 yellow balls and 1 orange ball.
From condition (iv), exactly two children of team C had drawn the same number of balls in total. So the child wearing jersey number 2 had drawn 3 black balls. Hence, the child wearing jersey number 1 had drawn 4 black balls.
Hence, from the given information, the final table can be shown as:

| Jersey No. | Team | Red | Yellow | White | Black | Orange | Total |
|---|---|---|---|---|---|---|---|
| 1 | A | 1 | 2 | 3 | 4 | × | 10 |
| 2 | C | 4 | × | 4 | 3 | × | 11 |
| 3 | A | × | 2 | × | 5 | 6 | 13 |
| 4 | B | 2 | × | 3 | × | 3 | 8 |
| 5 | C | 6 | 3 | 7 | 3 | 3/5 | 22/24 |
| 6 | B | 3 | 1 | 2 | × | 2 | 8 |
| 7 | A/C | × | 10 | 1 | 1 | 5/3 | 15/17 |
| 8 | C | 4 | 2 | × | 4 | 1 | 11 |

**The child wearing jersey number 8 had drawn 1 ball of orange color.**

Bookmark FeedBack

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

The eight children wearing jerseys numbered 1 to 8 were from three teams A, B and C, such that each team had at least 2 children. All of them were playing a game in which they had to draw a total of 20 balls from each of the 5 baskets. Each basket contains balls of exactly one color i.e., red, yellow, white, black and orange. Each child had drawn balls of at least three colors, and balls of each color were drawn by exactly six children. The total number of balls drawn by 8 children was 100.
The table given below shows partial information regarding the number of balls of each color each child has drawn.

| Jersey No. | Red balls | Yellow balls | White balls | Black balls | Orange balls |
|---|---|---|---|---|---|
| 1 | 1 | 2 | | | |
| 2 | | × | 4 | | × |
| 3 | × | | | 5 | 6 |
| 4 | 2 | | | | 3 |
| 5 | 6 | | 7 | | |
| 6 | 3 | 1 | | | 2 |
| 7 | | 10 | 1 | 1 | |
| 8 | 4 | | × | 4 | |

In the above table "×" indicates that the concerned child did not draw the ball of the respective color. Additional information is also given below.
(i) Only one child, wearing Team C's jersey number 5, had drawn balls of all colors, out of which an even number of balls of only one color was drawn.
(ii) The total number of balls drawn was an even number of exactly 4 children.
(iii) The children wearing jersey number 3 and jersey number 1, who must draw the black balls, were from team A.
(iv) Total balls drawn by each child in team B was 8 and each child drew white balls. Exactly two children of team C had drawn the same number of balls in total. No other pair of children had drawn the same number of balls in total.
(v) Each child who drew an odd number of total balls had drawn more than 10 balls.
(vi) A total of 11 balls were drawn by the child wearing the jersey number 8.
(vii) No two children had the same combination of the number of balls drawn, regardless of colors.
(viii) The child wearing jersey number 3 had drawn the largest number of black and orange balls among all the children. Also, he draws 2 yellow balls and no white balls.

**Q.13 [11831809]**
Which of the following statements are necessarily correct?
I. A total of 22 balls were drawn by the child wearing the number 5 jersey.
II. Children wearing jersey numbers 2 and 8 had drawn the same number of balls in total.
III. The child wearing the number 8 jersey was from team C.
IV. Team A had 3 children.

1 ◯ II & III only

2 ◯ II, III & IV only

3 ◯ I, III & IV only

4 ◯ I & II only

**Solution:**
**Correct Answer : 1**

Answer key/Solution

**Step 1:**
From the given information, each child must draw balls of at least 3 colors. So, child wearing jersey number 2 must have drawn 4 red balls. And, child wearing jersey number 7 would not have drawn any red ball.
Now, there are two possible children who have drawn 8 balls. These two are children wearing jersey number 4 and 6.
From condition (iv), we can say that team B had two children i.e., jersey number 4 and 6.
From condition (vii), we can say that child wearing jersey number 4 and 6 had drawn (2 + 3 + 3) and (3 + 1 + 2 + 2) balls. Now, we can say that black balls must have been drawn by children wearing jersey number 1, 2, 3, 5, 7 and 8.
From condition (i), it is clear that the child wearing jersey number 5 must have drawn each color ball except red in odd numbers. We can say that total balls drawn by child wearing jersey number 5 was an even number.

| Jersey No. | Team | Red | Yellow | White | Black | Orange |
|---|---|---|---|---|---|---|
| 1 | A | 1 | 2 | | ✓ | |
| 2 | | 4 | × | 4 | ✓ | × |
| 3 | A | × | | | 5 | 6 |
| 4 | B | 2 | | | × | 3 |
| 5 | C | 6 | ✓Odd | 7 | ✓Odd | ✓Odd |
| 6 | B | 3 | 1 | 2 | × | 2 |
| 7 | | × | 10 | 1 | 1 | |
| 8 | | 4 | | × | 4 | |

**Step 2:**
From condition (iv), each child from team B must draw white balls. So the child wearing jersey number 4 had drawn 3 White balls. So the child wearing jersey number 1 had drawn 3 white balls.
From condition (viii), the child wearing jersey number 3 draws 2 yellow balls and no white balls.
Therefore, the child wearing jersey number 5 had drawn 3 yellow balls. So the child wearing jersey number 8 had drawn 2 yellow balls and 1 orange ball.
From condition (iv), exactly two children of team C had drawn the same number of balls in total. So the child wearing jersey number 2 had drawn 3 black balls. Hence, the child wearing jersey number 1 had drawn 4 black balls.
Hence, from the given information, the final table can be shown as:

| Jersey No. | Team | Red | Yellow | White | Black | Orange | Total |
|---|---|---|---|---|---|---|---|
| 1 | A | 1 | 2 | 3 | 4 | × | 10 |
| 2 | C | 4 | × | 4 | 3 | × | 11 |
| 3 | A | × | 2 | × | 5 | 6 | 13 |
| 4 | B | 2 | × | 3 | × | 3 | 8 |
| 5 | C | 6 | 3 | 7 | 3 | 3/5 | 22/24 |
| 6 | B | 3 | 1 | 2 | × | 2 | 8 |
| 7 | A/C | × | 10 | 1 | 1 | 5/3 | 15/17 |
| 8 | C | 4 | 2 | × | 4 | 1 | 11 |

**From the given statements only statements II and III are correct.**

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

The eight children wearing jerseys numbered 1 to 8 were from three teams A, B and C, such that each team had at least 2 children. All of them were playing a game in which they had to draw a total of 20 balls from each of the 5 baskets. Each basket contains balls of exactly one color i.e., red, yellow, white, black and orange. Each child had drawn balls of at least three colors, and balls of each color were drawn by exactly six children. The total number of balls drawn by 8 children was 100.
The table given below shows partial information regarding the number of balls of each color each child has drawn.

| Jersey No. | Red balls | Yellow balls | White balls | Black balls | Orange balls |
|---|---|---|---|---|---|
| 1 | 1 | 2 | | | |
| 2 | | × | 4 | | × |
| 3 | × | | | 5 | 6 |
| 4 | 2 | | | | 3 |
| 5 | 6 | | 7 | | |
| 6 | 3 | 1 | | | 2 |
| 7 | | 10 | 1 | 1 | |
| 8 | 4 | | × | 4 | |

In the above table "×" indicates that the concerned child did not draw the ball of the respective color. Additional information is also given below.
(i) Only one child, wearing Team C's jersey number 5, had drawn balls of all colors, out of which an even number of balls of only one color was drawn.
(ii) The total number of balls drawn was an even number of exactly 4 children.
(iii) The children wearing jersey number 3 and jersey number 1, who must draw the black balls, were from team A.
(iv) Total balls drawn by each child in team B was 8 and each child drew white balls. Exactly two children of team C had drawn the same number of balls in total. No other pair of children had drawn the same number of balls in total.
(v) Each child who drew an odd number of total balls had drawn more than 10 balls.
(vi) A total of 11 balls were drawn by the child wearing the jersey number 8.
(vii) No two children had the same combination of the number of balls drawn, regardless of colors.
(viii) The child wearing jersey number 3 had drawn the largest number of black and orange balls among all the children. Also, he draws 2 yellow balls and no white balls.

**Q.14 [11831809]**
How many children had drawn the balls of exactly four colors?

1 ◯ 2

2 ◯ 3

3 ◯ 4

4 ◯ Either (2) or (3)

**Solution:**
**Correct Answer : 3**

Answer key/Solution

**Step 1:**
From the given information, each child must draw balls of at least 3 colors. So, child wearing jersey number 2 must have drawn 4 red balls. And, child wearing jersey number 7 would not have drawn any red ball.
Now, there are two possible children who have drawn 8 balls. These two are children wearing jersey number 4 and 6.
From condition (iv), we can say that team B had two children i.e., jersey number 4 and 6.
From condition (vii), we can say that child wearing jersey number 4 and 6 had drawn (2 + 3 + 3) and (3 + 1 + 2 + 2) balls. Now, we can say that black balls must have been drawn by children wearing jersey number 1, 2, 3, 5, 7 and 8.
From condition (i), it is clear that the child wearing jersey number 5 must have drawn each color ball except red in odd numbers. We can say that total balls drawn by child wearing jersey number 5 was an even number.

| Jersey No. | Team | Red | Yellow | White | Black | Orange |
|---|---|---|---|---|---|---|
| 1 | A | 1 | 2 | | ✓ | |
| 2 | | 4 | × | 4 | ✓ | × |
| 3 | A | × | | | 5 | 6 |
| 4 | B | 2 | | | × | 3 |
| 5 | C | 6 | ✓Odd | 7 | ✓Odd | ✓Odd |
| 6 | B | 3 | 1 | 2 | × | 2 |
| 7 | | × | 10 | 1 | 1 | |
| 8 | | 4 | | × | 4 | |

**Step 2:**
From condition (iv), each child from team B must draw white balls. So the child wearing jersey number 4 had drawn 3 White balls. So the child wearing jersey number 1 had drawn 3 white balls.
From condition (viii), the child wearing jersey number 3 draws 2 yellow balls and no white balls.
Therefore, the child wearing jersey number 5 had drawn 3 yellow balls. So the child wearing jersey number 8 had drawn 2 yellow balls and 1 orange ball.
From condition (iv), exactly two children of team C had drawn the same number of balls in total. So the child wearing jersey number 2 had drawn 3 black balls. Hence, the child wearing jersey number 1 had drawn 4 black balls.
Hence, from the given information, the final table can be shown as:

| Jersey No. | Team | Red | Yellow | White | Black | Orange | Total |
|---|---|---|---|---|---|---|---|
| 1 | A | 1 | 2 | 3 | 4 | × | 10 |
| 2 | C | 4 | × | 4 | 3 | × | 11 |
| 3 | A | × | 2 | × | 5 | 6 | 13 |
| 4 | B | 2 | × | 3 | × | 3 | 8 |
| 5 | C | 6 | 3 | 7 | 3 | 3/5 | 22/24 |
| 6 | B | 3 | 1 | 2 | × | 2 | 8 |
| 7 | A/C | × | 10 | 1 | 1 | 5/3 | 15/17 |
| 8 | C | 4 | 2 | × | 4 | 1 | 11 |

**The children wearing jersey numbers 1, 6, 7 and 8 had drawn balls of exactly 4 colors.**

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

The eight children wearing jerseys numbered 1 to 8 were from three teams A, B and C, such that each team had at least 2 children. All of them were playing a game in which they had to draw a total of 20 balls from each of the 5 baskets. Each basket contains balls of exactly one color i.e., red, yellow, white, black and orange. Each child had drawn balls of at least three colors, and balls of each color were drawn by exactly six children. The total number of balls drawn by 8 children was 100.
The table given below shows partial information regarding the number of balls of each color each child has drawn.

| Jersey No. | Red balls | Yellow balls | White balls | Black balls | Orange balls |
|---|---|---|---|---|---|
| 1 | 1 | 2 | | | |
| 2 | | × | 4 | | × |
| 3 | × | | | 5 | 6 |
| 4 | 2 | | | | 3 |
| 5 | 6 | | 7 | | |
| 6 | 3 | 1 | | | 2 |
| 7 | | 10 | 1 | 1 | |
| 8 | 4 | | × | 4 | |

In the above table "×" indicates that the concerned child did not draw the ball of the respective color. Additional information is also given below.
(i) Only one child, wearing Team C's jersey number 5, had drawn balls of all colors, out of which an even number of balls of only one color was drawn.
(ii) The total number of balls drawn was an even number of exactly 4 children.
(iii) The children wearing jersey number 3 and jersey number 1, who must draw the black balls, were from team A.
(iv) Total balls drawn by each child in team B was 8 and each child drew white balls. Exactly two children of team C had drawn the same number of balls in total. No other pair of children had drawn the same number of balls in total.
(v) Each child who drew an odd number of total balls had drawn more than 10 balls.
(vi) A total of 11 balls were drawn by the child wearing the jersey number 8.
(vii) No two children had the same combination of the number of balls drawn, regardless of colors.
(viii) The child wearing jersey number 3 had drawn the largest number of black and orange balls among all the children. Also, he draws 2 yellow balls and no white balls.

**Q.15 [11831809]**
Orange colored balls were not drawn by children wearing jersey number _____.

1 ◯ 1 & 7

2 ◯ 7 & 8

3 ◯ 1 & 8

4 ◯ 1 & 2

**Solution:**
**Correct Answer : 4**

Answer key/Solution

**Step 1:**
From the given information, each child must draw balls of at least 3 colors. So, child wearing jersey number 2 must have drawn 4 red balls. And, child wearing jersey number 7 would not have drawn any red ball.
Now, there are two possible children who have drawn 8 balls. These two are children wearing jersey number 4 and 6.
From condition (iv), we can say that team B had two children i.e., jersey number 4 and 6.
From condition (vii), we can say that child wearing jersey number 4 and 6 had drawn (2 + 3 + 3) and (3 + 1 + 2 + 2) balls. Now, we can say that black balls must have been drawn by children wearing jersey number 1, 2, 3, 5, 7 and 8.
From condition (i), it is clear that the child wearing jersey number 5 must have drawn each color ball except red in odd numbers. We can say that total balls drawn by child wearing jersey number 5 was an even number.

| Jersey No. | Team | Red | Yellow | White | Black | Orange |
|---|---|---|---|---|---|---|
| 1 | A | 1 | 2 | | ✓ | |
| 2 | | 4 | × | 4 | ✓ | × |
| 3 | A | × | | | 5 | 6 |
| 4 | B | 2 | | | × | 3 |
| 5 | C | 6 | ✓Odd | 7 | ✓Odd | ✓Odd |
| 6 | B | 3 | 1 | 2 | × | 2 |
| 7 | | × | 10 | 1 | 1 | |
| 8 | | 4 | | × | 4 | |

**Step 2:**
From condition (iv), each child from team B must draw white balls. So the child wearing jersey number 4 had drawn 3 White balls. So the child wearing jersey number 1 had drawn 3 white balls.
From condition (viii), the child wearing jersey number 3 draws 2 yellow balls and no white balls.
Therefore, the child wearing jersey number 5 had drawn 3 yellow balls. So the child wearing jersey number 8 had drawn 2 yellow balls and 1 orange ball.
From condition (iv), exactly two children of team C had drawn the same number of balls in total. So the child wearing jersey number 2 had drawn 3 black balls. Hence, the child wearing jersey number 1 had drawn 4 black balls.
Hence, from the given information, the final table can be shown as:

| Jersey No. | Team | Red | Yellow | White | Black | Orange | Total |
|---|---|---|---|---|---|---|---|
| 1 | A | 1 | 2 | 3 | 4 | × | 10 |
| 2 | C | 4 | × | 4 | 3 | × | 11 |
| 3 | A | × | 2 | × | 5 | 6 | 13 |
| 4 | B | 2 | × | 3 | × | 3 | 8 |
| 5 | C | 6 | 3 | 7 | 3 | 3/5 | 22/24 |
| 6 | B | 3 | 1 | 2 | × | 2 | 8 |
| 7 | A/C | × | 10 | 1 | 1 | 5/3 | 15/17 |
| 8 | C | 4 | 2 | × | 4 | 1 | 11 |

**The children wearing jersey number 1 and 2 had not drawn orange colored balls.**

Bookmark FeedBack

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

The eight children wearing jerseys numbered 1 to 8 were from three teams A, B and C, such that each team had at least 2 children. All of them were playing a game in which they had to draw a total of 20 balls from each of the 5 baskets. Each basket contains balls of exactly one color i.e., red, yellow, white, black and orange. Each child had drawn balls of at least three colors, and balls of each color were drawn by exactly six children. The total number of balls drawn by 8 children was 100.
The table given below shows partial information regarding the number of balls of each color each child has drawn.

| Jersey No. | Red balls | Yellow balls | White balls | Black balls | Orange balls |
|---|---|---|---|---|---|
| 1 | 1 | 2 | | | |
| 2 | | × | 4 | | × |
| 3 | × | | | 5 | 6 |
| 4 | 2 | | | | 3 |
| 5 | 6 | | 7 | | |
| 6 | 3 | 1 | | | 2 |
| 7 | | 10 | 1 | 1 | |
| 8 | 4 | | × | 4 | |

In the above table "×" indicates that the concerned child did not draw the ball of the respective color. Additional information is also given below.
(i) Only one child, wearing Team C's jersey number 5, had drawn balls of all colors, out of which an even number of balls of only one color was drawn.
(ii) The total number of balls drawn was an even number of exactly 4 children.
(iii) The children wearing jersey number 3 and jersey number 1, who must draw the black balls, were from team A.
(iv) Total balls drawn by each child in team B was 8 and each child drew white balls. Exactly two children of team C had drawn the same number of balls in total. No other pair of children had drawn the same number of balls in total.
(v) Each child who drew an odd number of total balls had drawn more than 10 balls.
(vi) A total of 11 balls were drawn by the child wearing the jersey number 8.
(vii) No two children had the same combination of the number of balls drawn, regardless of colors.
(viii) The child wearing jersey number 3 had drawn the largest number of black and orange balls among all the children. Also, he draws 2 yellow balls and no white balls.

**Q.16 [11831809]**
The maximum possible difference between the total number of balls drawn by the children in teams A and C is equal to _____.

1 ◯ 42

2 ◯ 36

3 ◯ 38

4 ◯ 40

**Solution:**
**Correct Answer : 3**

Answer key/Solution

**Step 1:**
From the given information, each child must draw balls of at least 3 colors. So, child wearing jersey number 2 must have drawn 4 red balls. And, child wearing jersey number 7 would not have drawn any red ball.
Now, there are two possible children who have drawn 8 balls. These two are children wearing jersey number 4 and 6.
From condition (iv), we can say that team B had two children i.e., jersey number 4 and 6.
From condition (vii), we can say that child wearing jersey number 4 and 6 had drawn (2 + 3 + 3) and (3 + 1 + 2 + 2) balls. Now, we can say that black balls must have been drawn by children wearing jersey number 1, 2, 3, 5, 7 and 8.
From condition (i), it is clear that the child wearing jersey number 5 must have drawn each color ball except red in odd numbers. We can say that total balls drawn by child wearing jersey number 5 was an even number.

| Jersey No. | Team | Red | Yellow | White | Black | Orange |
|---|---|---|---|---|---|---|
| 1 | A | 1 | 2 | | ✓ | |
| 2 | | 4 | × | 4 | ✓ | × |
| 3 | A | × | | | 5 | 6 |
| 4 | B | 2 | | | × | 3 |
| 5 | C | 6 | ✓Odd | 7 | ✓Odd | ✓Odd |
| 6 | B | 3 | 1 | 2 | × | 2 |
| 7 | | × | 10 | 1 | 1 | |
| 8 | | 4 | | × | 4 | |

**Step 2:**
From condition (iv), each child from team B must draw white balls. So the child wearing jersey number 4 had drawn 3 White balls. So the child wearing jersey number 1 had drawn 3 white balls.
From condition (viii), the child wearing jersey number 3 draws 2 yellow balls and no white balls.
Therefore, the child wearing jersey number 5 had drawn 3 yellow balls. So the child wearing jersey number 8 had drawn 2 yellow balls and 1 orange ball.
From condition (iv), exactly two children of team C had drawn the same number of balls in total. So the child wearing jersey number 2 had drawn 3 black balls. Hence, the child wearing jersey number 1 had drawn 4 black balls.
Hence, from the given information, the final table can be shown as:

| Jersey No. | Team | Red | Yellow | White | Black | Orange | Total |
|---|---|---|---|---|---|---|---|
| 1 | A | 1 | 2 | 3 | 4 | × | 10 |
| 2 | C | 4 | × | 4 | 3 | × | 11 |
| 3 | A | × | 2 | × | 5 | 6 | 13 |
| 4 | B | 2 | × | 3 | × | 3 | 8 |
| 5 | C | 6 | 3 | 7 | 3 | 3/5 | 22/24 |
| 6 | B | 3 | 1 | 2 | × | 2 | 8 |
| 7 | A/C | × | 10 | 1 | 1 | 5/3 | 15/17 |
| 8 | C | 4 | 2 | × | 4 | 1 | 11 |

**The required difference would be maximum when the children from team C and team A had drawn maximum and minimum possible balls respectively.**
**Hence, the required difference = (11 + 24/22 + 15/17 + 11) – (10 + 13) = 61 – 23 = 38.**

**Alternate solution: The minimum possible number of balls that the children from team A could draw be equal to 23 i.e., (10 + 13).**
**Total number of balls drawn by team C = 100 – 23 – 16 = 61.**
**Hence, the required difference = 61 – 23 = 38.**

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

Rasiklal is a jeweler who specializes in designing diamond pendants. Diamonds that are used by Rasiklal are of different types - A, B, C, D, E, F and G - which are weighed in carats and the table given below shows the value of the diamonds that the jeweler uses in his designs. His latest wedding collection of signature pendants have diamonds set in concentric circles.
Further, it is also known that:
(i) At the center of the pendant is placed a single diamond of Type A, which is followed by concentric circles having diamonds of Type B, followed by Type C and so on.
(ii) Starting from the center, the number of diamonds in each concentric circle is equal to or more than double the number of diamonds in the previous circle.
(iii) The number of concentric circles may vary according to the customer's requirement but each signature pendant in his wedding collection always has a total of 130 diamonds.

| Diamond weight (in carat) | Type | Value (in Rs. lakh) |
|---|---|---|
| 1.50 | A | 4 |
| 1.25 | B | 2.50 |
| 1 | C | 1.50 |
| 0.75 | D | 1.25 |
| 0.50 | E | 1 |
| 0.25 | F | 0.75 |
| 0.15 | G | 0.50 |

**Q.17 [11831809]**
What is the difference between the maximum and minimum number of Type C diamonds used in a pendant with three concentric circles?

**Solution:**
**Correct Answer : 41**

Answer key/Solution

There are a total of 130 diamonds and there is exactly one diamond of type A. Also, the diamonds in each circle are at least double that of the immediate inner circle. We know that the total number of type B and type C diamonds is 129.
The maximum number of diamonds of type C is 129 – 2 = 127.
When the number of type B diamonds is maximum, we get the minimum number of type C diamonds.
Let the number of type B diamonds be x.
So $3x = 129 \Rightarrow x = 43 \Rightarrow 2x = 86$ (which is the minimum number of type C diamonds for the given design)
Hence, required difference = 127 – 86 = 41.

Bookmark FeedBack

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

Rasiklal is a jeweler who specializes in designing diamond pendants. Diamonds that are used by Rasiklal are of different types - A, B, C, D, E, F and G - which are weighed in carats and the table given below shows the value of the diamonds that the jeweler uses in his designs. His latest wedding collection of signature pendants have diamonds set in concentric circles.
Further, it is also known that:
(i) At the center of the pendant is placed a single diamond of Type A, which is followed by concentric circles having diamonds of Type B, followed by Type C and so on.
(ii) Starting from the center, the number of diamonds in each concentric circle is equal to or more than double the number of diamonds in the previous circle.
(iii) The number of concentric circles may vary according to the customer's requirement but each signature pendant in his wedding collection always has a total of 130 diamonds.

| Diamond weight (in carat) | Type | Value (in Rs. lakh) |
|---|---|---|
| 1.50 | A | 4 |
| 1.25 | B | 2.50 |
| 1 | C | 1.50 |
| 0.75 | D | 1.25 |
| 0.50 | E | 1 |
| 0.25 | F | 0.75 |
| 0.15 | G | 0.50 |

**Q.18 [11831809]**
If a pendant has five types of diamonds, then which of the following statements can be true?
I. There are 18 Type C diamonds.
II. The value of Type B diamonds is Rs.22.5 lakh.
III. The number of Type C diamonds is five times the number of Type B diamonds.

1 ◯ I only

2 ◯ II only

3 ◯ I & III only

4 ◯ II & III only

**Solution:**
**Correct Answer : 3**

Answer key/Solution

Let us go by the options:
From statement I: If there are 18 Type C diamonds, there will definitely be 36 Type D diamonds and 72 Type E diamonds. So the number of type B diamonds = 130 – (18 + 36 + 72) – 1 = 2, which is a possible combination.
From statement II: If the value of Type B diamonds is Rs. 22.5 lakh, the number of Type B diamonds = 9.
Then, the number of Type C, D and E diamonds will be 18, 36 and 72.
The total number of diamonds then is = 1 + 9 + 18 + 36 + 72 = 136 > 130. This is not a possible combination.
From statement III: If the number of Type C diamonds is five times the number of Type B diamonds.
Type B diamonds can be 2 or more in number.
In case we have 2 Type B diamonds, according to statement III there will be at least 10 Type C diamonds, at least 20 Type D diamonds and so on, which is a possible combination.
We can see that statements I and III are true.
Hence, option (3) is correct.

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

Rasiklal is a jeweler who specializes in designing diamond pendants. Diamonds that are used by Rasiklal are of different types - A, B, C, D, E, F and G - which are weighed in carats and the table given below shows the value of the diamonds that the jeweler uses in his designs. His latest wedding collection of signature pendants have diamonds set in concentric circles.
Further, it is also known that:
(i) At the center of the pendant is placed a single diamond of Type A, which is followed by concentric circles having diamonds of Type B, followed by Type C and so on.
(ii) Starting from the center, the number of diamonds in each concentric circle is equal to or more than double the number of diamonds in the previous circle.
(iii) The number of concentric circles may vary according to the customer's requirement but each signature pendant in his wedding collection always has a total of 130 diamonds.

| Diamond weight (in carat) | Type | Value (in Rs. lakh) |
|---|---|---|
| 1.50 | A | 4 |
| 1.25 | B | 2.50 |
| 1 | C | 1.50 |
| 0.75 | D | 1.25 |
| 0.50 | E | 1 |
| 0.25 | F | 0.75 |
| 0.15 | G | 0.50 |

**Q.19 [11831809]**
What is the difference between the maximum and minimum value of a pendant designed with the above specifications?

1 ◯ Rs. 64 lakh

2 ◯ Rs. 98.5 lakh

3 ◯ Rs. 1.22 crore

4 ◯ Rs. 2.28 crore

**Solution:**
**Correct Answer : 4**

Answer key/Solution

The maximum value of a pendant with the given specifications will be when there is 1 type A diamond and 129 diamonds of type B.
The value of this pendant will be = 1 × 4 + 129 × 2.5 = Rs.326.5 lakh
The minimum value of a pendant with the given specifications will have 1 Type A, 2 Type B, 4 Type C, 8 Type D, 16 Type E, 32 Type F and 67 Type G diamonds.
The value of this pendant will be
= 1 × 4 + 2 × 2.5 + 4 × 1.5 + 8 × 1.25 + 16 × 1 + 32 × 0.75 + 67 × 0.5
= 4 + 5 + 6 + 10 + 16 + 24 + 33.5 = Rs.98.5 lakh
Hence, required difference = 326.5 – 98.5 = Rs.228 lakh = Rs.2.28 crore.

Bookmark FeedBack

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

Rasiklal is a jeweler who specializes in designing diamond pendants. Diamonds that are used by Rasiklal are of different types - A, B, C, D, E, F and G - which are weighed in carats and the table given below shows the value of the diamonds that the jeweler uses in his designs. His latest wedding collection of signature pendants have diamonds set in concentric circles.
Further, it is also known that:
(i) At the center of the pendant is placed a single diamond of Type A, which is followed by concentric circles having diamonds of Type B, followed by Type C and so on.
(ii) Starting from the center, the number of diamonds in each concentric circle is equal to or more than double the number of diamonds in the previous circle.
(iii) The number of concentric circles may vary according to the customer's requirement but each signature pendant in his wedding collection always has a total of 130 diamonds.

| Diamond weight (in carat) | Type | Value (in Rs. lakh) |
|---|---|---|
| 1.50 | A | 4 |
| 1.25 | B | 2.50 |
| 1 | C | 1.50 |
| 0.75 | D | 1.25 |
| 0.50 | E | 1 |
| 0.25 | F | 0.75 |
| 0.15 | G | 0.50 |

**Q.20 [11831809]**
Which of the following is not possible for a signature pendant of Rasiklal?

1 ◯ There are exactly 43 diamonds of Type B.

2 ◯ There are exactly 75 diamonds of Type E.

3 ◯ There are exactly 60 diamonds of Type D.

4 ◯ There are exactly 35 diamonds of Type C.

**Solution:**
**Correct Answer : 3**

Answer key/Solution

Let us go by the options:
Option (1): If there are exactly 43 Type B diamonds, then there has to be at least 86 Type C diamonds, which makes the total number of diamonds = 1 + 43 + 86 = 130, which satisfies all the requirements.
Option (2): If there are exactly 75 diamonds of Type E, then the following combinations of {A, B, C, D, E} are possible such that there are a total of 130 diamonds : {1, 2, 14, 37, 75}, {1, 3, 15, 36, 75}, {1, 4, 16, 34, 75}, ... and so on. This satisfies all the requirements.
Option (3): If there are exactly 60 diamonds of Type D, then the maximum number of diamonds of Type B and Type C are 15 and 30 respectively. Now, the total number of diamonds for Types A, B, C and D will be = 1 + 15 + 30 + 60 = 106. Now, if there are Type E diamonds in the pendant then the number has to be at least 120, if not then the total number of diamonds is not 106, which does not satisfy all the requirements.
Option (4): If there are exactly 35 diamonds of Type C, then there can be a maximum of 17 Type B diamonds. If there are 77 Type D diamonds, then all the requirements will be satisfied.
Hence, we can see that option (3) cannot be possible.

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