

## Prime CAT 02 2022 DILR

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

The minimum Air Quality Index (AQI) pollution data of six cities in India were recorded during the period 2017 to 2021. Some data was initially missed due to some technical issue. The AQI values for some cities for one year and some other cities for two years were initially missing. The AQI value of each city was initially missing for a year or two.

Later it was found that if the AQI value of a city was initially missing for a year, that year's value was the average of the larger three of the city's four values available. And if a city's AQI value was initially missing for two years, then the values for these years were equal to the average of the larger two of the city's three values available.

The table given below shows the minimum AQI pollution data for six cities in the country during the period 2017 to 2021 after calculating the missing values.

City\Year	2017	2018	2019	2020	2021
Agra	100	95	90	95	80
Bhopal	120	110	75	115	115
Chandigarh	72	82	94	106	94
Durgapur	80	92	98	92	86
Emakulam	72	76	80	60	56
Faridabad	98	68	84	112	98

The following facts are also known.

(i) In 2019, the AQI value was initially missing for one city only.

(ii) Out of these cities, the AQI values of four cities for 2017, 2018, 2020 and 2021 each were not initially missing.

(iii) One city's AQI value was initially missing only in 2018. Another city's AQI value was initially missing in both 2018 and 2020.

**Q 1.** Which of the following statement(s) is/are true?

I. Agra's AQI value was not initially missing in 2018.

II. Durgapur's AQI value was initially missing in 2020 only.

1) I only

2) II only

3) Both I & II

4) Neither I nor II

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**Q 2.** In 2019, the AQI value of which city was initially missing?

- 1) Agra
- 2) Ernakulam
- 3) Chandigarh
- 4) Faridabad

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**Q 3.** The AQI values were initially missing for \_\_\_\_\_ cities in 2017.

- 1) Ernakulam and Faridabad
- 2) Durgapur and Faridabad
- 3) Durgapur and Ernakulam
- 4) Cannot be determined

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**Q 4.** The number of cities whose AQI values was initially missing in exactly two years was \_\_\_\_\_.

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**Q 5.** What can be the average of the initial missing values?

- 1) 86.78
- 2) 91.11
- 3) 96.78
- 4) 97.33

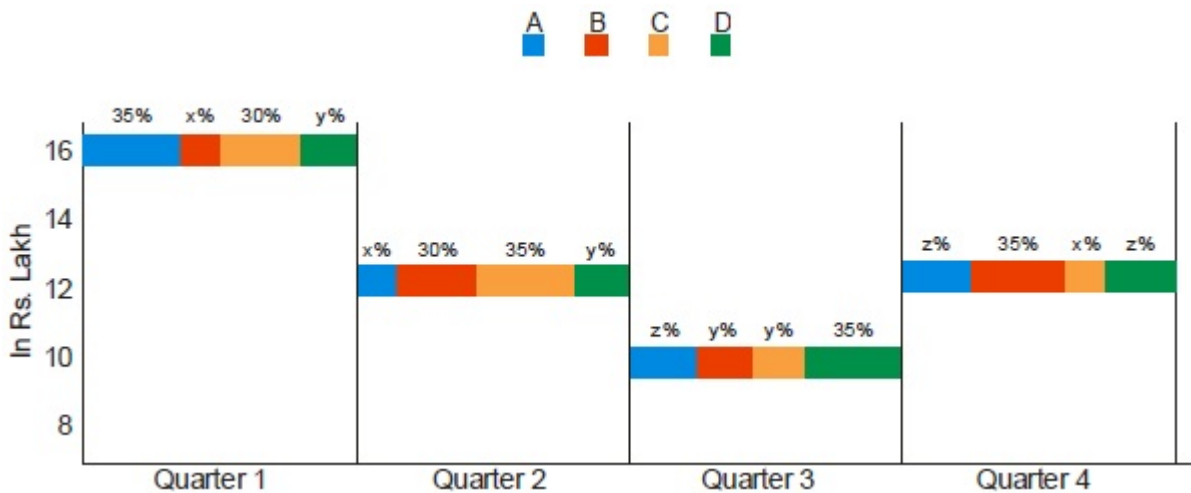
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**Q 6.** Which of the following statements is correct?

- 1) Bhopal's AQI values were initially missing in both 2018 and 2020.
- 2) The AQI values were initially missing for Bhopal and Agra or Durgapur in 2020.
- 3) The AQI values for Durgapur and Faridabad were initially missing in 2021.
- 4) An equal number of AQI values were initially missing in Agra and Bhopal.

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

Four friends - A, B, C and D - invest in a new business venture in the beginning of the financial year 2021 - 22. They do not invest all their capital in the beginning of the year but invest in parts at the beginning of every quarter. The following graph shows the total investment for each quarter and the percentage investments made by each of the four friends. Some values may be missing and these are required to be calculated in the course of solving the problems.



Further, it is also known that:

- (i) The value of  $x$  is 60% of  $z$ .
- (ii) The profit percentage made at the end of each quarter follows an AP which is reinvested.
- (iii) In the first quarter there was a profit of 10% and in the fourth quarter the profit was 25%.

**Q 7.** What was the total profit (in Rs. lakh) made at the end of the year?

- 1) 21.73
- 2) 19.82
- 3) 31.06
- 4) 29.11

**Q 8.** Which of the four friends make the maximum investment in the business during the whole financial year?

- 1) A
- 2) B
- 3) C
- 4) D

**Q 9.** If the business goes public at the end of the year and each investor gets shares of the company in proportion of their investments, then out of a total of 9900 units among them what is the total number of shares with B and C?

- 1) 4950
  - 2) 4380
  - 3) 5375
  - 4) 4965
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**Q 10.** What was the approximate percentage returns on the investment for the person who gets the highest share in the profit at the end of the year?

- 1) 58%
  - 2) 69%
  - 3) 45%
  - 4) 61%
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**Directions for questions 11 to 16:** Answer the questions on the basis of the information given below.

There are 15 wooden blocks of different weights – 1, 2, 3, 4, 5, 7, 9, 10, 11, 13, 14, 15, 17, 19 and 20 (in kg). These are divided into 3 piles – P1, P2 and P3. The number of wooden blocks in the three piles are 3, 5 and 7, not necessarily in the given order and the sum of the weights of the wooden blocks in the three piles are 30 kg, 50 kg and 70 kg, again, not necessarily in the given order. In each pile, the wooden blocks are kept one above the other.

Following is the additional information given about the distribution and the arrangement of the wooden blocks in the 3 piles:

- (i) The pile with the maximum number of wooden blocks is not the same as the pile with the maximum sum of the weights of the wooden blocks.
- (ii) One of the wooden blocks in the pile, with the minimum number of wooden blocks, weighs 17 kg.
- (iii) In one of the piles, a wooden block weighing 15 kg is just above the wooden block weighing 20 kg, which is the bottom block in the pile.
- (iv) The weight of the 3rd block from the bottom in pile P1 is equal to the sum of the weight of the 3rd block from the bottom in each of the other two piles – P2 and P3.
- (v) Wooden blocks weighing 11 kg and 2 kg are in piles P2 and P3 respectively.
- (vi) The sum of weights of all the wooden blocks above the wooden block of weight 2 kg is equal to the sum of weight of all the wooden blocks below it. Further, the wooden block of weights 2 kg is the only wooden block with weight as an even number (in kg) in its pile.
- (vii) In pile P3, the weight of the 4th block from the bottom is equal to the sum of the weights of the next two blocks above it.
- (viii) In each of the piles P1 and P3, the lightest wooden block is at the bottom most position; while in pile P2, the heaviest wooden block is at the bottom most position and the lightest wooden block is at the top most position.

**Q 11.** In which of the following piles is there maximum difference in the weights of any two wooden blocks?

- 1) Pile P1
  - 2) Pile P2
  - 3) Pile P3
  - 4) Either pile P2 or pile P3
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**Q 12.** What is the sum of the weights (in kg) of the 3 wooden blocks at the top most position in the three piles?

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**Q 13.** Which pile has the wooden block of weights 10 kg?

- 1) Pile P1
- 2) Pile P2
- 3) Pile P3
- 4) Cannot be determined

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**Q 14.** Which of the following is the weight (in kg) of one of the wooden blocks in pile P3?

- 1) 4
- 2) 14
- 3) 15
- 4) 7

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**Q 15.** What is the sum of the weights (in kg) of the wooden blocks at the top most position in pile P2 and at the bottom most position in pile P3?

- 1) 11
- 2) 13
- 3) 30
- 4) 21

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**Q 16.** What is the sum of the weights (in kg) of the three heaviest wooden blocks in pile P3?

- 1) 46
- 2) 39
- 3) 30
- 4) 54

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

In a village survey it was found that out of 750 farmer families, 40% owned land of 2 or less than 2 acres. These families were benefitted from four Government Schemes –FBY, KSY, KSN and KCC.

The following information is available about the farmer families benefiting from the above four schemes.

(i) 60% of the families benefitted from scheme FBY and 56% of the families benefitted from scheme KSN.

(ii) 5% of the families benefitted from scheme FBY only. 4% of the families benefitted from scheme KSN only. 12% of the families benefitted from scheme KCC only.

(iii) 7% of the families benefitted from scheme FBY and scheme KCC only. 6% of the families benefitted from scheme FBY and scheme KSY only. 3% of the families benefitted from scheme FBY and scheme KSN only. 5% of the families benefitted from scheme KSN and scheme KCC only.

(iv) 8% of the families benefitted from schemes FBY, KSY and KSN, but not from scheme KCC. 4% of the families benefitted from schemes FBY, KSN and KCC but not from scheme KSY.

(v) 20% of the families benefitted from exactly three schemes. 25% of the families benefitted from all the four schemes. 25% of the families benefitted from exactly one scheme.

**Q 17.** What was the ratio of the number of families benefited from KSY scheme only and, KSY and KCC schemes only?

- 1) 2 : 3
  - 2) 3 : 4
  - 3) 4 : 5
  - 4) 1 : 2
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**Q 18.** What percentage of families got benefited from KSY scheme?

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The following information is available about the farmer families benefiting from the above four schemes.

- (i) 60% of the families benefitted from scheme FBY and 56% of the families benefitted from scheme KSN.
- (ii) 5% of the families benefitted from scheme FBY only. 4% of the families benefitted from scheme KSN only. 12% of the families benefitted from scheme KCC only.
- (iii) 7% of the families benefitted from scheme FBY and scheme KCC only. 6% of the families benefitted from scheme FBY and scheme KSY only. 3% of the families benefitted from scheme FBY and scheme KSN only. 5% of the families benefitted from scheme KSN and scheme KCC only.
- (iv) 8% of the families benefitted from schemes FBY, KSY and KSN, but not from scheme KCC. 4% of the families benefitted from schemes FBY, KSN and KCC but not from scheme KSY.
- (v) 20% of the families benefitted from exactly three schemes. 25% of the families benefitted from all the four schemes. 25% of the families benefitted from exactly one scheme.

**Q 19.** The difference between the number of families benefited from KCC scheme and KSN scheme was \_\_\_\_\_.

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**Q 20.** The number of families benefitted from KSY, KSN and KCC schemes, but not from FBY scheme was \_\_\_\_\_.

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