

## Prime CAT 01 2022 DILR

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

Hockey teams from twelve nations – N1, N2, N3, ..., N12 participated in the recent Olympic Games. The teams were divided into two groups A and B of six nations each. N1 to N6 were in group A and N7 to N12 were in group B. The competition consisted of two stages; a group stage followed by a knockout stage. In group stage, each team initially played once with each team within their group. Following the completion of group stage, in knockout stage the top four teams from each group advanced to the quarter-finals. The four quarter-final winners played the semi-finals. The two semi-final winners met for the gold medal match, the winner got the gold medal and loser got the silver medal, while the semi-final losers played in the bronze medal match and the winner of this match got the bronze medal. Three points were awarded for a win, 1 for a draw and 0 for a loss.

Knockout matches decided in regular time count as wins and losses, while matches decided by penalty shoot-outs count as draws. Penalty shoot-outs is a method used to decide which team will advance (or win the game) to the next stage following a tie game.

The table given below shows the quarter-finals played between two teams.

	Group A	Group B
1st Quarter-final	Top scorer team	Lowest scorer team
2nd Quarter-final	Lowest scorer team	Top scorer team
3rd Quarter-final	Second top scorer team	Second lowest scorer team
4th Quarter-final	Second lowest scorer team	Second top scorer team

The 1st semi-final match was played between the winners of the 1st and 4th quarter finals. The second semi-final was played between the other two teams.

The table given below shows partial information on points awarded to hockey teams in the Olympic Games.

Team	Points in group stage matches	Final points
N1	13	
N2	12	
N3	7	7
N4		5
N5		4
N6		
N7	13	
N8	9	
N9	8	8
N10		8
N11		4
N12		

The following facts are also known.

- (i) The total number of final points awarded to hockey teams in the Olympic Games was 106.
- (ii) Out of 4 quarter-finals, only the 1st quarter-final match was decided by penalty shoot-outs and the group A team advanced to the semi-finals.
- (iii) The difference between the final points of N1 and N8 was 6. The final was not played between teams from the same group.

**Q 1.** How many hockey matches were played in the Olympic Games?

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**Q 2.** How many hockey matches were drawn in the Olympic Games?

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**Q 3.** Which of the following hockey teams were eliminated in quarter-finals?

- 1) N4, N5, N10, N11
- 2) N2, N4, N8, N10
- 3) N3, N5, N9, N11
- 4) N3, N4, N9, N10

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**Q 4.** The first semi-final match was played between which of the following two teams?

- 1) N1 and N8
- 2) N2 and N7
- 3) N1 and N2
- 4) N2 and N8

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**Q 5.** Which of the following hockey teams won the bronze medal?

- 1) N1
- 2) N2
- 3) N7
- 4) N8

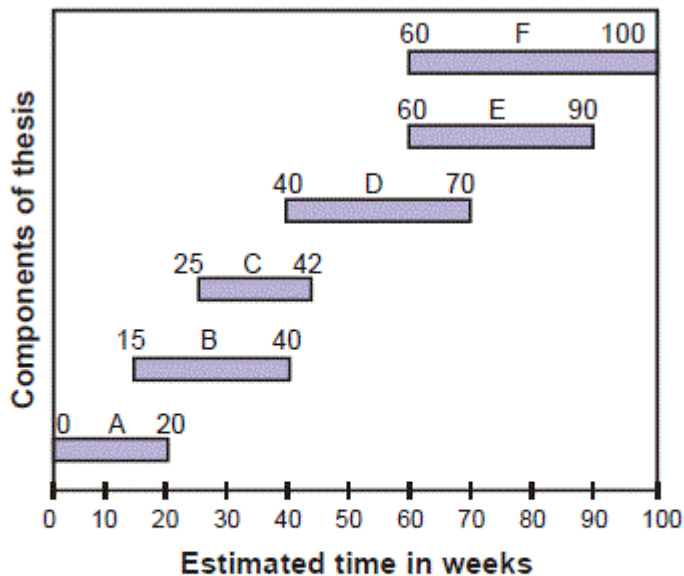
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**Q 6.** Which of the following teams had played the maximum number of drawn matches?

- 1) N4
  - 2) N10
  - 3) N1
  - 4) N7
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**Directions for questions 7 to 10:** Answer the questions on the basis of the information given below.

Kamal completed his Ph.D. thesis in 100 weeks. There are six components of a thesis: A, B, C, D, E and F. Each component has to be carefully designed and verified. The bar chart in the following figure shows the Estimated duration of each of the component done by Kamal in an order. During the review of the thesis, the Actual Duration of each component, as a percentage of the Estimated Duration is shown in the following table.



Component	A	B	C	D	E	F
Actual Duration (as a percentage of the Estimated Duration)	100	100	100	70	60	80

**Q 7.** If Kamal would have worked on any two of the components together at a time, then in minimum how many weeks he could have complete the thesis?

**Q 8.** In which of the following pairs of components is the ratio of the Actual Duration to the Estimated Duration, the minimum?

- 1) A and B
- 2) B and C
- 3) C and D
- 4) E and F

**Q 9.** In how many components is the difference between the Actual Duration of a component and that of its immediate predecessor not more than 6 weeks?

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**Q 10.** What is the ratio of the actual time taken by the largest component to that of its immediate predecessor?

- 1)  $(4/3)^2$
  - 2)  $(2/3)^2$
  - 3)  $(3/4)^2$
  - 4)  $(3/2)^2$
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**Directions for questions 11 to 16:** Answer the questions on the basis of the information given below.

Navjot, 12th class HRT, scheduled 16 online revision classes for board students, which were taken by 7 teachers A, B, C, D, E, F and G, on Monday, Wednesday, Friday and Sunday of a week. Each class was taken by exactly one of the seven teachers. Five classes each were taken on Monday and Sunday, while three classes each were taken on Wednesday and Friday. Every teacher took at least one class and at most three classes. The total number of classes taken by B, D and G was two more than the total number of classes taken by the other four teachers. Three of the teachers were from Noida and two each were from Gurgaon and Delhi. Each teacher took classes on exactly one of three subjects - Mathematics, Physics and Chemistry. Three teachers were from Mathematics and two from Physics. No teacher could take more than one class in a day.

The following facts are also known.

- (i) Mathematics teacher F from Noida took only one class. It was scheduled on Sunday.
- (ii) A was a Chemistry teacher and did not take a class on Sunday.
- (iii) No Physics teacher was from Noida and no Chemistry teacher was either from Delhi or Gurgaon.
- (iv) Equal number of classes was scheduled for both C and E. These teachers were from Gurgaon and belonged to different subjects.
- (v) Consecutive classes were scheduled for C in the week but not for E. None of their classes were scheduled on the same day of the week.
- (vi) Mathematics teacher B had a class scheduled on Wednesday. B and G belonged to the same city.
- (vii) D did not have a class scheduled on Friday. E and G belonged to different subjects.

**Q 11.** What was the total number of classes scheduled for A, E and G in the week?

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**Q 12.** The correct order of the number of Mathematics classes scheduled on Monday, Wednesday, Friday and Sunday in the week respectively was \_\_\_\_\_.

- 1) 2, 1, 1, 2
  - 2) 2, 1, 0, 3
  - 3) 1, 2, 1, 2
  - 4) 2, 0, 1, 3
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**Q 13.** Which of the following statement(s) must be CORRECT?

- I. At least one class was scheduled for teacher(s) from each city on each day of the week.
- II. At most two classes were scheduled for teacher(s) of each subject on each day of the week.

- 1) I only
- 2) II only

- 3) Both I and II  
4) Neither I nor II
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**Q 14.** Which of the following statements is FALSE?

- 1) On Wednesday, exactly one teacher from Gurgaon had a class scheduled.  
2) Exactly two classes of Physics were scheduled on Friday.  
3) Exactly one and two classes for Delhi teachers were scheduled on Monday and Sunday respectively.  
4) Exactly two classes of Chemistry were scheduled on Monday.
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**Q 15.** What was the correct sequence of the total number of Chemistry, Mathematics and Physics classes scheduled in the week respectively?

- 1) 6, 5, 5  
2) 5, 6, 5  
3) 5, 5, 6  
4) 6, 6, 4
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**Q 16.** Which of the following combinations of Teacher – Subject – City is TRUE?

- 1) E – Physics - Gurgaon  
2) D – Mathematics – Noida  
3) B – Mathematics – Noida  
4) G – Physics – Delhi
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**Directions for questions 17 to 20:** Answer the questions on the basis of the information given below.

Six persons - Ash, Ben, Chad, Dan, Erel and Finn - live in different houses on a street that has six houses numbered 1 to 6 in sequence from left to right. Each one travels to his workplace in a different car from among Alto, Ciaz, Polo, Ritz, Xylo and Zen. They leave at half an hour time intervals from 7:00 AM to 9:30 AM such that no two persons leave at the same time. The distance traveled by each one is also different.

The following facts are also known.

- (i) The one who lives in house no. 2 is the 4th to leave and he travels 15 km in his Ciaz whereas the one who travels 12 km leaves the earliest but not in a Xylo.  
(ii) Erel, who travels 20 km, lives to the immediate right of Finn but does not leave before him for work.  
(iii) The ones living at the ends of the row have a Zen and a Polo, also they leave second and second last for work, in any order.  
(iv) Ash, who is the third to leave for work travels 10 km less than Finn, in his Ritz.  
(v) Chad lives two houses away from Erel, who does not live at any end of the street. Dan is an immediate neighbor of both Ash and Ben.

**Q 17.** Which of the following can be the correct order of the cars parked from left to right?

- 1) Alto, Ciaz, Xylo, Polo, Ritz, Zen  
2) Zen, Ciaz, Xylo, Ritz, Alto, Polo  
3) Ciaz, Xylo, Ritz, Alto, Polo, Zen  
4) Ritz, Alto, Polo, Zen, Ciaz, Xylo

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**Q 18.** Which of the following could be the correct order of house numbers of the persons leaving first to last for work?

- 1) 5 - 6 - 4 - 2 - 1 - 3
- 2) 5 - 4 - 2 - 6 - 1 - 3
- 3) 2 - 6 - 4 - 5 - 3 - 1
- 4) 6 - 4 - 2 - 1 - 3 - 5

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**Q 19.** If the person who leaves after Dan travels 5 km less than him, then which of the following statements can be true?

- 1) The one traveling by Zen covers 15 km to go to work.
- 2) Chad's office is at a distance of 7 km from his house.
- 3) Ben's office is 5 km away from his house.
- 4) The one traveling by Polo covers 20 km to go to work.

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**Q 20.** Ben reaches his office when Erel leaves home and he travels at 20 km/hr, then which of the following can be the distance of his office from home?

- 1) 60 km
  - 2) 80 km
  - 3) 20 km
  - 4) 10 km
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