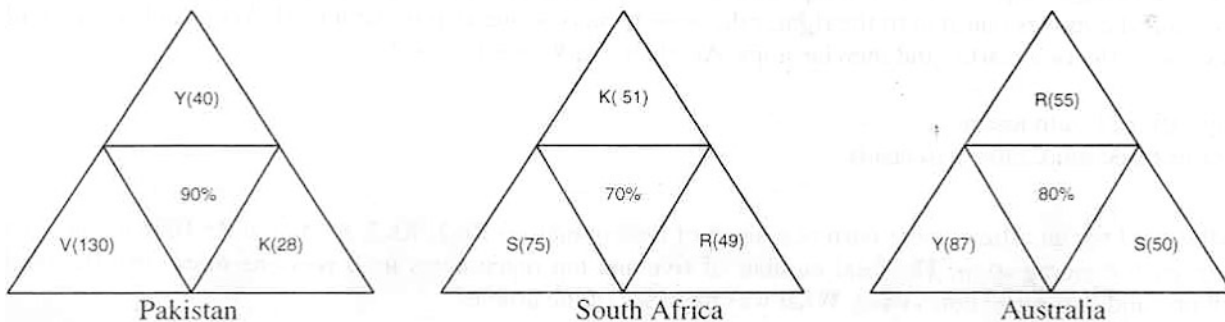# Sub-section I-B: Number of Questions = 12

Note: Questions 27 to 38 carry two marks each.

Directions for Questions 27 to 30: Answer the questions on the basis of the information given below.

Coach John sat with the score cards of Indian players from the 3 games in a one-day cricket tournament where the same set of players played for India and all the major batsmen got out. John summarized the batting performance through three diagrams, one for each game. In each diagram, the three outer triangles communicate the number of runs scored by the three top scorers from India, where K, R, S, V, and Y represent Kaif, Rahul, Saurav, Virender, and Yuvraj respectively. The middle triangle in each diagram denotes the percentage of total score that was scored by the top three Indian scorers in that game. No two players score the same number of runs in the same game. John also calculated two batting indices for each player based on his scores in the tournament; the R-index of a batsman is the difference between his highest and lowest scores in the 3 games while the M-index is the middle number, if his scores are arranged in a non-increasing order.

| Pakistan | South Africa | Australia |

27. Which of the players had the best M-index from the tournament?

1. Rahul
2. Saurav
3. Virender
4. Yuvraj

We summarise the match data in the this table

Match 1 Vs. Pakistan	Match 2 Vs. South Africa	Match 3 Vs. Australia
V + Y + K = 198 runs and this is 90% of total runs scored.	K + S + R = 175 runs and this is 70% of total runs scored	R + Y + S = 192 runs and this is 80% of total runs scored.
So total runs = 220	So total runs = 250	So total runs = 240
Runs scored by remaining 8 batsmen = 22	Runs scored by remaining 8 batsmen = 75	Runs scored by remaining 8 batsmen = 48

Now, we compile the possible runs scored by the 5 listed players [K, R, S, V, Y]

	K	R	S	V	Y
Highest	51	55	75	130	87
2nd Possible	28	49	50	0 - 75	40
3rd Possible	0 - 48 (anything)	0 - 22 (anything)	0 - 22 (anything)	0 - 48 (anything)	0 - 75 (anything)

Now, if we want to calculate M-index, it is only possible for R & S, because K's third score can be greater than or less than 28 (his second score). Same for Y, his third score can also be greater than or less than 40 (his second score). Obviously, V does not have either a possible 2nd or 3rd score. So, its not possible to determine his M-index

Sol. Option (2) is the correct option. Saurav at 50 is better than Rahul at 49. **Ans.(2)**

28. Among the players mentioned, who can have the lowest R-index from the tournament?

1. Only Kaif, Rahul or Yuvraj
2. Only Kaif or Rahul
3. Only Kaif or Yuvraj
4. Only Kaif

Sol. The R – indices of the players will be as given.

	Highest	2nd score	lowest		R-index range
			best	worst	
K	51	28	48	0	23-51
R	55	49	22	0	33-55
S	75	50	22	0	53-75
V	130				
Y	87	40	75	0	47-87

As obvious from this table the correct answer is option (4). **Ans.(4)**

29. For how many Indian players is it possible to calculate the exact M-index?

1. 0
2. 1
3. 2
4. More than 2

Sol. As explained before, it is possible to calculate the exact M index for R and S

Therefore, answer is option (3). **Ans.(3)**

30. How many players among those listed definitely scored less than Yuvraj in the tournament?

1. 0
2. 1
3. 2
4. More than 2

Sol. V has scored 130 (one match) against Y's 127 + possible 3rd.

S has scored 125 (+possible 3rd) against Y's 127 + possible 3rd

K if scores 48 in 3rd match would be tied with Y (if he scores 0 in 2nd match)

R has scored 104 in two matches. Now in the third match he can score max. 22. Even then he will definitely be behind Y (127) even if Y scores 0 in 2nd match. **Ans.(2)**

Directions for Questions 31 to 34: Answer the questions on the basis of the information given below.

Twenty one participants from four continents (Africa, Americas, Australasia, and Europe) attended a United Nations conference. Each participant was an expert in one of four fields, labour, health, population studies, and refugee relocation. The following five facts about the participants are given.

(a) The number of labour experts in the camp was exactly half the number of experts in each of the three other categories.

(b) Africa did not send any labour expert. Otherwise, every continent, including Africa, sent at least one expert for each category.

(c) None of the continents sent more than three experts in any category.

(d) If there had been one less Australasian expert, then the Americas would have had twice as many experts as each of the other continents.

(e) Mike and Alfanso are leading experts of population studies who attended the conference. They are from Australasia.

31. Which of the following numbers cannot be determined from the information given?

    1. Number of labour experts from the Americas
    2. Number of health experts from Europe
    3. Number of health experts from Australasia
    4. Number of experts in refugee relocation from Africa

Sol. For Q.31 to Q.34 :

We will interpret the information given in the form of a table shown below :

	Labour	Health	PS	RR	Total
Africa	X				b
Americas					2b
Australasia			Mike, Alfanso		b+1
Europe					b
Total	a	2a	2a	2a	21

Now solving for a and b, we get 7a = 21 and 5b + 1 = 21

$\Rightarrow$ **a = 3 and b = 4**

Now we will complete the table and get all answers

	Labour	Health	PS	RR	Total
Africa	X				4
Americas	1				8
Australasia	1	1	Mike, Alfanso	1	5
Europe	1	1	1	1	4
Total	3	6	6	6	21

    Now all the answer can be obtained

Sol.Ans.(4).

32. Which of the following combinations is NOT possible?

    1. 2 experts in population studies from the Americas and 2 health experts from Africa attended the conference.
    2. 2 experts in population studies from the Americas and 1 health expert from Africa attended the conference.
    3. 3 experts in refugee relocation from the Americas and 1 health expert from Africa attended the conference.
    4. Africa and America each had 1 expert in population studies attending the conference.

Sol.Ans.(4).

33. If Ramos is the lone American expert in population studies, which of the following is NOT true about the numbers of experts in the conference from the four continents?

    1. There is one expert in health from Africa.
    2. There is one expert in refugee relocation from Africa.
    3. There are two experts in health from the Americas.
    4. There are three experts in refugee relocation from the Americas.

Sol.Ans.(3).

34. Alex, an American expert in refugee relocation, was the first keynote speaker in the conference. What can be inferred about the number of American experts in refugee relocation in the conference, excluding Alex?
i. At least one
ii. At most two

    1. Only i and not ii
    2. Only ii and not i
    3. Both i and ii
    4. Neither i nor ii

Sol.Ans.(3).

A easy question, lots of similar sets were asked in PT's Praccats, a good student should be able to solve this in less than 4 min