

Sports Based

PRACTICE EXERCISE

Level - 2

Directions for questions 1 to 5: Answer the questions on the basis of the information given below.

In a quiz competition, five students namely A, B, C, D and E are contesting. The quiz competition consists of three different rounds namely I, II and III. In each of these three mentioned rounds points are given to each student. Ranks (from 1 to 5) are awarded to each student in each round on the basis of the number of points given to them in that particular round. In each round no two students got the same rank and in no two rounds any student got the same rank. Between any two students, a numerically lesser rank is given to a student who has got more number of points. In each round the number of points given and the rank awarded to every student is an integer. For any particular round, (say round I), the product of the number of points given and the rank awarded to any student is same and this holds true for round II and III as well.

Additional Information for questions 1 and 2: The aggregate number of points given to all the students in round I is minimum possible.

1. If in each round, C got the same number of points, then find the minimum possible sum of product of number of points given and the rank awarded to C in all the three rounds.
(a) 240 (b) 300
(c) 360 (d) 480
(e) 600
2. If the aggregate number of points given to all the five students in round I, II and III is in the ratio 1:3:2, then find the minimum possible difference in the aggregate number of points obtained by D and E in all the three rounds.
(a) 0 (b) 1
(c) 2 (d) 3
(e) 4

Additional Information for questions 3 to 5: Maximum number of points given to any student in a particular round is 240.

3. Which of the following cannot be the ratio of the number of points given to a student who got numerically second lowest rank in a particular

round to the number of points given to a student who got numerically third lowest rank in some other round?

- (a) 3 : 4 (b) 1 : 1
(c) 3 : 1 (d) 9 : 4
(e) 8 : 3

4. If B did not get numerically third lowest rank in any round, then find minimum possible aggregate number of points obtained by B in all the three rounds.

- (a) 132 (b) 129
(c) 99 (d) 96
(e) None of these

5. The absolute difference between the aggregate number of points obtained by E in all the three rounds and 100 is at least

- (a) 3 (b) 2
(c) 1 (d) 0
(e) 10

Level - 3

Directions for questions 6 to 10: Answer the questions on the basis of the information given below:

In the game of Cricket Super Selector, a person can choose a group of 10 players for a month and then points are awarded to the chosen players according to their performance in the matches held during the month. All the chosen players participate in the matches played by their countries during that month. However, they represent the national team of their respective countries and play alongside other players from the same country only. The person whose chosen group earns maximum points in the month is termed as the winner.

Following rules are followed in awarding points to the players:

- i. 2 points for every 10 runs scored
- ii. 5 points for every wicket taken
- iii. 2 points for every run out
- iv. 2 points for every catch taken
- v. 10 points for being adjudged Man of the Match

- vi. Additional 5 points for scoring 50 or more runs but less than 100 runs in a single match
- vii. Additional 10 points for scoring 100 or more runs in a single match

Mr. What More selected the following team for the month of March in a particular year. Players can assume the role of a batsman, bowler or fielder in the same match as indicated in the following table. Only batsmen can score runs and only bowlers can take wickets. Similarly only a bowler and a fielder can take catches or make run outs. Any player can earn points through his performance in batting, bowling and fielding in the same match, according to the possible roles indicated in the table. For example, Sourav Ganguly can earn points through his performance in batting, bowling and fielding; but Graeme Smith can earn points to his performance in batting and fielding only.

Players	Countries	Batting	Bowling	Fielding
Graeme Smith	South Africa	✓	X	✓
Sourav Ganguly	India	✓	✓	✓
Ricky Ponting	Australia	✓	X	✓
Inzamam-ul Haq	Pakistan	✓	X	✓
Kevin Pieterston	England	✓	X	✓
Mahendra Dhoni	India	✓	X	✓
Irfan Pathan	India	✓	✓	✓
Shoaib Akhtar	Pakistan	✓	✓	✓
Muralitharan	Sri Lanka	✓	✓	✓
Anil Kumble	India	✓	✓	✓

During the month of March a four nation series involving India, Australia, Pakistan and England was played, in which each team played with each other once in the league matches and top two teams played each other in the final match. A tri-series involving Sri Lanka, West Indies and South Africa was also held in March that year, in which teams played each other in league matches once and then top two teams played the final match. However, final of the tri-series was scheduled in the month of April in the same year.

In the month of March, no player scored 100 or more runs in a single match. Moreover, in that month, no player took more than 4 wickets or made more than 4 runouts. Inzamam took 3 catches in March and all the other chosen players took lesser number of catches than Inzamam. Only one player was adjudged Man of the Match in each of the matches. Only 10 wickets of an opponent team can be taken in a match by a particular team. Each wicket can be taken either with the help of a catch or a run out but not both. In case of a catch, the player taking the catch earns the points and also the bowler earns the points for taking the same wicket, even if they happen to be the same player. But in case of a

run out, only the player making the run out earns the points. During the month of March, no country scored more than 349 runs in a single match.

6. What can be the maximum number of points that a player can earn from a match?
- (a) 62 (b) 69
(c) 65 (d) 60
(e) 67
7. What can be the maximum difference between the points earned by Muralitharan and Graeme Smith in a match between South Africa and Sri Lanka? [Given that they score maximum possible points individually in batting, bowling and fielding (whatever applicable)].
- (a) 20 (b) 25
(c) 0 (d) 30
(e) 35
8. What can be the maximum possible points that Indian players can fetch for Mr. What More from a match?
- (a) 164 (b) 156
(c) 168 (d) 160
(e) 172
9. What is the maximum sum of points earned by Pakistani and Sri Lankan players given that none of these teams make it to the finals of their respective series ?
- (a) 312 (b) 316
(c) 336 (d) 436
(e) 506
10. What can be the maximum total runs scored by Indian players in the month of March ?
- (a) 1047 (b) 1096
(c) 1360 (d) 1396
(e) 1596

Directions for questions 11 to 15: Answer the questions on the basis of the information given below.

Two brothers A and B are stationed at a point P on a very long road PQ. They start playing a game with a dice. The dice is in form of a cube with integers 1 to 6 written on the six faces of the cube with one number on each face. Each one of them throws the dice alternately and moves forward (towards point Q) the number of steps equal to the number that appears on the top face of the dice, if it is greater than the number appeared in the previous throw by the same brother.

If the number appearing on the top face of the dice in a particular throw by a brother is less than the number appearing on the top face of the dice in the previous

throw by the same brother, then that brother moves (6 –number appearing on the top face of dice) steps backwards towards point P.

If the number appearing on the top face of the dice in a particular throw by a brother is same as that in the previous throw by the same brother, then the throw is not considered and that brother throws the dice again till a different number appears on the top face of the dice.

If after a throw, someone needs to take certain number of backward steps which prompts him to go even behind P, that throw is considered as cancelled. In this case he has to throw the dice again.

11. What can be the maximum possible distance between the two brothers after the first 4 rounds?
 - (a) 24 steps
 - (b) 18 steps
 - (c) 12 steps
 - (d) 10 steps
 - (e) 13 steps
12. If the number appearing on the top face of the dice in 6 consecutive throws by A are distinct and 6 appears in the third throw, then what can be the maximum possible distance covered by A in these 6 throws?
 - (a) 12 steps
 - (b) 14 steps
 - (c) 16 steps
 - (d) 18 steps
 - (e) 15 steps
13. In a particular throw by B, the number that appeared on the top face of the dice was 1 and after that throw B was 14 steps ahead of A. Find the minimum possible number of throws required such that the distance between the two brothers becomes zero.
 - (a) 3
 - (b) 6
 - (c) 5
 - (d) 4
 - (e) 2
14. If there was at least one throw which caused A to move backwards (towards P) and A traveled 27 steps in the forward direction (towards Q), then what can be the minimum possible number of times A threw the dice?
 - (a) 7
 - (b) 10
 - (c) 8
 - (d) 12
 - (e) 6
15. If A reaches Q without taking any backward step ever, what can be the maximum distance between P and Q?
 - (a) 27 steps
 - (b) 21 steps
 - (c) 15 steps
 - (d) 6 steps
 - (e) 23 steps

Directions for questions 16 to 20: Answer the questions on the basis of the information given below.

Game of "Tutu" is played with a six-faced unbiased dice and a board. The dice has numbers 1 to 6 written on the faces, such that each face contains one distinct digit. The board is consisting of 42 blocks in a single row, numbered consecutively from 1 to 42. A person throws the dice and moves ahead the number of blocks equal to the number appeared on the top face of the dice. However there are 10 'mines' A to J in 10 different blocks on the board. A is the first mine located at one of the first six blocks. If a person arrives on a block that contains a 'mine' then the game gets over. The following table gives the distances of the mines A, B, C, D and E with respect to the mines F, G, H, I and J. Distance between any two blocks is defined as the difference between their block numbers. Before the start of the game, the person is standing immediately to the left of block number 1. The game is said to be started when a person throws the dice for the first time and moves ahead the number of blocks equal to the number appeared on the face of the dice in the first throw.

	A	B	C	D	E
F	27	17	2	19	11
G	3	7	22	5	13
H	32	22	7	24	16
I	15	5	10	7	1
J	22	12	3	14	6

16. If a person gets 4 in his first throw and doesn't arrive on a mine, then which of these can never be the block number which contains mine D?
 - (a) 12
 - (b) 11
 - (c) 13
 - (d) 9
 - (e) 10
17. A person gets 5, 6 and 4 in first three consecutive throws and arrives at a particular block. There are mines present in both the blocks which are adjacent to that particular block. Which of the following cannot be the number of a block which contains a mine?
 - (a) 21
 - (b) 28
 - (c) 31
 - (d) 29
 - (e) 22
18. If mine A is present in block 4, then what is the minimum possible number of throws required to reach block number 42 from the start?
 - (a) 7
 - (b) 8
 - (c) 9
 - (d) 10
 - (e) 11

19. Using information from the question number 73, what can be the maximum possible number of throws required to reach block number 42 from the start?

- (a) 32 (b) 33
(c) 31 (d) 34
(e) 42

20. Which of the following can be the difference between the maximum possible number of the block that contains mine E, to the minimum possible number of the block that contains mine J?

- (a) 5 (b) 4
(c) 3 (d) 2
(e) 1

Directions for questions 21 to 25: Answer the questions on the basis of the information given below.

A limited overs cricket tournament was played between four teams. The first round was a round robin league, where each team plays every other team once. The top two teams proceeded to the finals of the tournament. The table below gives the net run rate of the teams at the end of their 1st, 2nd and 3rd matches in the first round.

	1 st Match	2 nd Match	3 rd Match
A	+ 0.8	A2	+ 0.6
B	B1	- 0.4	0.066
C	+ 1	+ 0.25	C3
D	D1	- 0.5	D3

Net run rate for any team at the end of any match is defined as $X - Y$, where

$$X = \left\{ \frac{\text{Total runs scored by the team till that match}}{\text{Total number of overs played}} \right\}$$

$$\text{and } Y = \left\{ \frac{\text{Total runs scored against that team till that match}}{\text{Total number of overs played by all the opponents}} \right\}$$

A team plays its second match only after every team has played its first match. Similarly, a team plays its third match only after every team has played its second match.

If a team was all out within the stipulated 50 overs, it was deemed to have batted for 50 overs.

All the matches ended in a victory, except for one that was a tie. In these victories, all the teams that batted first were the winners in all the matches except one which happened to be the last match played by C.

21. Which two teams were involved in a tie?

- (a) A and D (b) A and B
(c) B and C (d) B and D
(e) Cannot be determined

22. What is the value of A2?

- (a) + 1.3 (b) + 1.05
(c) + 0.65 (d) + 0.525
(e) Cannot be determined

23. Which of the following statements is true?

- (a) A won all the three matches.
(b) A played D in his first match.
(c) C did not win any match.
(d) D did not win any matches
(a) a and d (b) Only a
(c) a, b and c (d) a, b, c and d
(e) None

Additional information for questions 24 and 25:

C scored 300 runs but still lost its last match by one run, with the opponent reaching the target with 10 overs to spare.

24. What is the approximate value of C3?

- (a) - 0.15 (b) - 0.10
(c) - 0.85 (d) - 1.15
(e) Cannot be determined

25. How many runs (approximate) did A and D together score against B in its first two matches?

- (a) 450 (b) 440
(c) 425 (d) 400
(e) 380

Directions for questions 26 to 30: Answer the questions on the basis of the information given below.

The Selectors were meeting to select the Indian Cricket Team for the world cup in West Indies. The list of first 15 probables had been finalised. But the selectors wanted to select two more players. They had an available shortlist of 6 players to choose from which included 3 batsmen and 3 bowlers.

After a long debate it was decided to include an additional batsmen and bowler based on their performance in the last 9 matches and also the last match played a day earlier. The only problem was that the computer had been infected with a virus and therefore the details of the last match was not completely available.

The only information available was that India beat Sri Lanka in the last match by 6 Wickets. All 6 of the mentioned players batted and bowled with each scoring at least 20 runs. Nobody other than these 6 players, made runs or took wickets in the last match.

Score of the last match:

Sri Lanka: 232 all out in 50 overs.

India: 233 for 4 wickets in 47 overs.

The Table below gives the details of the player's performance in the last 9 matches along with the details available for the last match.

The first name of 2 of the 3 batsmen starts with the same alphabet. This is also true for the first name of 2 of the 3 Bowlers. The first name of the third batsman and the third bowler starts with different alphabets. All the 6 players played in these 10 matches and all of them got out in each match except for the last match.

Performance of six players in the reckoning

Name	Runs in last 9 matches	Wickets in last 9 matches	Details of last	
			Runs	Wickets
Mohd. Kaif	162	18	62	
Ramesh Power	180	2		2
VVS Laxman	270	15		3
Rajesh Powar	189	4	45	
Dinesh Kartik	288	11		2
Dinesh Mongia	306	10	42	

Additional information for Questions 26 and 27: Each of the questions has two statements which are true. Answer the questions in accordance with the given statements.

26. Statement 1: One of the three batsmen has the second highest average in runs scored after 9 matches.

Statement 2: One of the three bowlers is the highest wicket taker after 9 matches.

Which of the following is definitely true?

- (a) Mohd. Kaif can be one of the batsmen to be selected.
- (b) After 9 matches the bowlers have scored more than the batsmen.
- (c) The number of wickets taken at the end of 10 matches is more by the batsmen than the bowlers.
- (d) The number of wickets taken at the end of 10 matches is more by the bowlers than the batsmen.
- (e) VVS Laxman can be one of the bowlers to be selected.

27. Statement 1: One of the three batsmen scored the highest runs for India in the last match.

Statement 2: The second highest score in the last match was made by one of the bowlers.

Which of the following is definitely false?

- (a) VVS Laxman is one of the bowlers.
- (b) The batsmen have taken more wickets than the bowlers in the last match.
- (c) The bowlers have scored less runs than the batsmen in the last match.
- (d) Dinesh Mongia is one of the batsmen.
- (e) After 9 matches, the bowlers together have taken 21 wickets.

28. An award is constituted for the player having the maximum wickets in 10 matches. How many of the 6 players can possibly receive the award?

- (a) 2
- (b) 3
- (c) 1
- (d) 4
- (e) 5

Additional information for questions 29 and 30: It was decided to award individual points to each player for the last match as follows: 1 point will be given for every 20 runs scored and 2 points will be given for every wicket taken.

29. If Ramesh Power is one of the bowlers and the bowlers have together earned 8 bowling points in the last match, then which of the following is definitely true?

- (a) Mohd. Kaif has taken 2 wickets in the last match.
- (b) Dinesh Mongia has taken 1 wicket in the last match.
- (c) Rajesh Powar has taken 1 wicket in the last match.
- (d) The bowlers have taken more wickets than the batsmen in the last match.
- (e) Mohd. Kaif has taken 1 wicket in the last match.

30. If only 3 players scored over 39 in the last match and the 3 bowlers have together earned 4 points for batting, which of the following is definitely false?

- (a) Dinesh Kartik is one of the batsmen.
- (b) Rajesh Powar is one of the bowlers.
- (c) VVS Laxman is one of the batsmen.
- (d) Ramesh Power is one of the batsmen.
- (e) Dinesh Mongia is one of the bowlers.

ANSWERS

1. (c) 2. (b) 3. (e) 4. (e) 5. (c) 6. (c) 7. (d) 8. (a) 9. (a) 10. (d)
 11. (b) 12. (e) 13. (c) 14. (a) 15. (b) 16. (a) 17. (d) 18. (b) 19. (a) 20. (e)
 21. (d) 22. (c) 23. (a) 24. (e) 25. (c) 26. (c) 27. (b) 28. (a) 29. (b) 30. (c)

SOLUTIONS

Level - 2

For questions 1 to 5:

As in each round the product of rank and points awarded is equal for all participants, so when all participants get minimum possible points the participant getting highest rank must get the points equal to the LCM of five ranks i.e. LCM of (1, 2, 3, 4 and 5) LCM of (1, 2, 3, 4 and 5) = 60

For questions 61 and 62:

Sum of points of all participants is minimum in round 1. This is possible when all the participants get the minimum possible number of points in round 1. As found out above the participant having rank 1 must be having 60 points.

So in round 1 the distribution of points is be

Rank	Points
1	60
2	$60/2 = 30$
3	$60/3 = 20$
4	$60/4 = 15$
5	$60/5 = 12$

So in other rounds the number of points that can be awarded can be

Rank	Points	Points	Points
1	120	180	240
2	60	90	120
3	40	60	80
4	30	45	60
5	24	36	48

and so on....

1. c In 1st round C can get any of the points among 60, 30, 20, 15 and 12. But from the table above we find that only 60 can be repeated in the next rounds. For minimum sum we assume that C got rank 2 and rank 3 respectively in next two rounds such that in each round he gets 60 points.

The minimum sum of product of ranks and points awarded to C in three rounds could be

$$\begin{aligned}
 &= 60 \times 1 + 60 \times 2 + 60 \times 3 \\
 &= 60 + 120 + 180 \\
 &= 360
 \end{aligned}$$

2. b Total number of points awarded in 3 rounds is in ratio 1:3:2 so the points in three rounds are

Rank	Points	Points	Points
1	60	180	120
2	30	90	60
3	20	60	40
4	15	45	30
5	12	36	24

The minimum possible difference in the sum of number of points of D and E is possible when one of them have points in round I, round II and round III as 12, 45 and 40 respectively and other one have points in round I, round II and round III as 30, 36 and 30 respectively.

So minimum possible difference

$$\begin{aligned}
 &= (12 + 45 + 40) - (30 + 36 + 30) \\
 &= 97 - 96 \\
 &= 1
 \end{aligned}$$

For questions 3 to 5:

The possible points that can be awarded to different rankers in three rounds can only be

Rank	Points	Points	Points	Points
1	60	120	180	240
2	30	60	90	120
3	20	40	60	80
4	15	30	45	60
5	12	24	36	48

3. e A second ranker can have 30 or 60 or 90 or 120 points in three rounds and a third ranker can have 20 or 40 or 60 or 80 points in three rounds. So all the ratios are possible except 8:3.

4. e Please note that in one of the rounds first ranker must get 240 points. Under this condition, the minimum possible aggregate number of points got by B is 108. This is possible when B got 30, 30 and 48 points for ranks 2, 4 and 5 respectively.
5. c Minimum absolute difference between sum of points of E in three rounds and 100 will be when E has sum of points in three rounds closest to 100.
Sum of points of E closest to 100 can be 99 i.e. when E gets 60, 15 and 24 points (in any order) in three rounds. So the difference = $100 - 99 = 1$

Level - 3

6. c Consider a player scoring more than 90 but less than 100 runs (18 points), taking 4 wickets (20 points), making 4 run outs (8 points), taking 2 catches (4 points), being adjudged man of the match (10 points) and additional 5 points for scoring 50 or more runs.
Maximum total points = $18 + 20 + 8 + 4 + 10 + 5 = 65$ points
7. d We know that, Muralitharan can bat, bowl and field but Graeme Smith cannot bowl. From previous question, maximum points that a player can earn in a match = 65 points.
To find the maximum difference between Muralitharan and Graeme Smith such that both earn maximum possible points, let us consider that Muralitharan gets the man of the match award.
Muralitharan scores = 65 points.
Assume that Graeme Smith scores more than 90 runs, takes 2 catches, makes 4 run outs
So total points earned by Graeme Smith
= $18 + 4 + 8 + 5$
(for scoring more than 50 runs) = 35 points.
Difference = $65 - 35 = 30$
8. a There are 4 Indian players chosen in that group. Maximum of 349 runs can be scored in a match by a country.
Let us assume that 4 mentioned Indian players score 90, 90, 90 and 70 runs in a match. That will fetch $(18 + 18 + 18 + 14) = 68$ points. Also assume that only these 4 players take all 10 wickets among themselves, take 8 catches (2 catches each) and one of them is adjudged Man of the Match. Here we assume that there is no run outs as it will fetch just 2 points whereas if a wicket is taken with the help of a catch, then 7 points will be earned (5 by the bowler for taking a wicket and 2 for taking a catch)

So total points earned by Indian players = 68 (for scoring runs) + 50 (for taking wickets) + 16 (for taking catches) + 20 (for scoring more than 50 runs by 4 players) + 10 (for man of the match) = 164

9. a As none of the given teams make it to the finals, so Pakistan plays 3 matches and Sri Lanka plays 2 matches.

There are two Pakistani players and 1 Sri Lankan player.

The only Sri Lankan player Muralitharan can earn maximum 98 points in 2 matches in the following manner:

- $18 \times 2 = 36$ points for scoring 90 runs or more in 2 matches
- 20 points for taking 4 wickets (maximum possible) in 2 matches
- 8 points for 4 run outs (maximum possible) in 2 matches
- 4 points for 2 catches (maximum possible) in 2 matches
- 20 points for being adjudged man of the match in both the matches
- 10 additional points for scoring more than 50 runs in both the matches

Inzamam and Shoaib are the only 2 Pakistani players. Together they can earn a maximum of 214 points in 3 matches in the following manner:

- $36 \times 3 = 108$ points for scoring 90 runs or more by each of them in all 3 matches
 - 20 points for taking 4 wickets (maximum possible) in 2 matches by Shoaib only
 - 16 points for 4 run outs (maximum possible) in 2 matches by each of them
 - 10 points for catches (3 catches by Inzamam and 2 catches by Shoaib)
 - 30 points for being adjudged man of the match (either Inzamam or Shoaib being adjudged man of the match in each of the matches)
 - 30 additional points for scoring more than 50 runs by both of them in all 3 matches
- Total points earned = $98 + 214 = 312$

10. d Maximum runs that a team can score in a match = 349

Let us assume that all these runs are scored by 4 chosen Indian players only.

Also assume that India made it to the final and hence they played 4 matches, in total.

Total runs scored by the chosen Indian players in March = $4 \times 349 = 1396$

11. b Maximum possible distance between the two brothers is when one brother moves maximum possible distance in 4 rounds and the other brother moves minimum possible distance in those 4 rounds.

Maximum possible distance that a brother can move in 4 rounds is equal to 18 steps. This is possible when the number appearing on the top face of the dice is 3, 4, 5 and 6 in the four rounds in that particular order.

Therefore the distance moved by the brother in first, second, third and a fourth round is 3, 4, 5 and 6 steps respectively.

Minimum possible distance that a brother can move in 4 rounds from start is equal to 0 steps. This is possible when the number appearing on the top face of the dice is 4, 2, 4 and 2 respectively or 5, 1, 5 and 1 respectively in those four rounds in that particular order.

Therefore maximum possible difference between the brothers after 4 rounds = 18 steps.

12. e Maximum possible distance covered by A after 6 consecutive throws in which the number appearing on the top face of the dice are distinct and 6 appears in the third throw is 15 steps.

This can be achieved if the number appearing on the top face of the dice in these 6 consecutive rounds is 1, 2, 6, 3, 4 and 5 in that order.

Therefore the distance covered in these 6 rounds = $1 + 2 + 6 - 3 + 4 + 5 = 15$ steps.

13. c At least 5 throws are required in order to make the distance between the two brothers 'zero'.

Initial distance between the two brothers = 14 steps.

- I. The number that appeared on the top face of the dice when A threw the dice is 6, then the distance between the brothers becomes = $14 - 6 = 8$ steps.
- II. The number that appeared on the top face of the dice when B threw the dice is 2, then the distance between the brothers becomes = $8 + 2 = 10$ steps.
- III. The number that appeared on the top face of the dice when A threw the dice is 5, then the distance between the brothers becomes = $10 + (6 - 5) = 11$ steps.
- IV. The number that appeared on the top face of the dice when B threw the dice is 1, then the distance between the brothers becomes = $11 - (6 - 1) = 6$ steps.

- V. The number that appeared on the top face of the dice when A threw the dice is 6, then the distance between the brothers becomes = $6 - 6 = 0$.

14. a This can be achieved in seven throws.

If the number appearing on the top face of the dice in the seven throws is 4, 5, 6, 3, 4, 5 and 6 in that particular order.

Distance moved forward after these seven throws = $4 + 5 + 6 - 3 + 4 + 5 + 6 = 27$ steps.

15. b The sequence will be 1, 2, 3, 4, 5, 6. So the answer is 21 steps.

For questions 16 to 20:

Let the block number which contains the mine A be x. So from the table given in the question, we can determine the block numbers that contain the other mines.

Mine	Block Number
B	$x + 10$
C	$x + 25$
D	$x + 8$
E	$x + 16$
F	$x + 27$
G	$x + 3$
H	$x + 32$
I	$x + 15$
J	$x + 22$

16. a Mine A is not on 4th block, so mine A can be at block 1 or 2 or 3 or 5 or 6.

So mine D can be at block 9 or 10 or 11 or 13 or 14. But it cannot be at block 12.

17. d Two mines with a gap of 1 block in between are either (B,D) or (C,F).

Mine C is 25 blocks away from A. So after getting only 5, 6 and 4 in first 3 throws, the person definitely arrives between mines B and D. Mine D is at block 14 and mine B is at block 16.

So location of other mines are as follows: C(31), E(22), F(33), G(9), H(38), I(21), J(28).

So, no mine is present at block 29.

18. b If mine A is in block 4 then the location of other mines is B(14), C(29), D(12), E(20), F(31), G(7), H(36), I(19), J(26)

Minimum throws will be required if the number appearing on the dice is maximum.

So a minimum of 8 throws are required.

1st throw = 6

2nd throw = 5 (because there is mine at block 12)

3rd throw = 6

4th throw = 6

5th throw = 5 (because there is mine at block 29)

6th throw = 6

7th throw = 6

8th throw = 2

19. a Maximum number of throws can be 42 such that in each throw 1 appears. But since there are mines which have to be crossed (else the game will get over) in some moves, 2 has to appear to cross those mines. For 8 mines (excluding mine I and E), 2 appearing on the face of the dice will enable the person to cross the mines. But mines I and E are consecutive so 3 has to appear in one particular throw to cross these two mines.

So maximum number of throws required

$$= 42 - 8 - 2 = 32$$

20. e The maximum numerical value of any block that mine E can take = 22 (when $x = 6$)

Minimum numerical value that mine J can take = 23 (when $x = 1$)

So difference = $23 - 22 = 1$

For questions 21 to 25:

It is given that except for last match played by C, every other match is either played or deemed to have been played for 50 overs.

At the end of first match we get that A won by $\{50 \times 0.8\} = 40$ runs and C won by $\{50 \times 1\} = 50$ runs, and B and D lost by 40 runs and 50 runs in any order.

Let run difference = Total runs scored by the team till that match – Total runs scored against that team till that match.

At the end of second match C is having a run difference of $\{0.25 \times 100\} = 25$ runs. [100 overs are considered because two matches of 50 overs each is played by C.]

Hence, we can say that C lost its second match by $50 - 25 = 25$ runs.

Similarly at the end of second match B has a run difference of – 40 runs and D has a run difference of – 50 runs. So C cannot lose its match against either B or C because their respective run difference is either 0 or 10.

Hence, we can say that A played its second match against C and won by 25 runs. So, his run difference at the end of second match will be 65 and the net run rate will be

$$\frac{65}{100} = 0.65 \text{ i.e. } A2 = 0.65.$$

So now we can have only two combinations:

Case I:

1 st match	2 nd match	3 rd match
A vs D	A vs C	A vs B
C vs B	B vs D	C vs D

Case II:

1 st match	2 nd match	3 rd match
A vs B	A vs C	A vs D
C vs D	B vs D	C vs B

Case I is not possible because we see that net run rate of both A and B are increasing and hence, A and B cannot play against each other in this round.

In both the combinations we see that A has not played with C so we can surely say that by the end of third match A has played full 150 matches and hence its run difference by then is equal to $150 \times 0.6 = 90$ runs. Hence, it won the match by 25 runs.

Hence the second match of B and D ended up in tie.

21. d

22. c

23. a

Let the number of runs scored by B and C by the end of their respective second matches be x and y respectively.

So, total number of runs scored by the opponents of B and C by the end of their respective second matches will be $x + 40$ and $y + 50$ respectively.

$$C3 = \frac{(y + 300)}{150} - \frac{(y + 50 + 301)}{140}$$

Since we have one equation with two variables unknown the value of C3 cannot be determined.

$$B3 = \frac{(x + 301)}{140} - \frac{(x + 40 + 300)}{150}$$

$$\Rightarrow 0.066 = \frac{(x + 300)}{140} - \frac{(x + 40 + 300)}{150}$$

$$\Rightarrow x = 385$$

24. e

25. c Runs scored against B till second match
 $= x + 40 = 385 + 40 = 425$

For questions 26 to 30:

The two batsmen can be either Dinesh Kartik and Dinesh Mongia or Ramesh Power and Rajesh Powar. Same is true with two of the bowlers. Apart from this, one of the batsmen and one of the bowlers has to be out of Mohd. Kaif and VVS Laxman. This data will vary from question to question.

26. c From statement 1, it is clear that Dinesh Kartik who has the second highest average in runs scored after 9 matches is one of the batsmen. Therefore the second batsman is obviously Dinesh Mongia.

From statement 2, it is clear that Kaif is one of the bowlers. Therefore according to the conditions, we have:

Batsmen : Dinesh Kartik, Dinesh Mongia and VVS Laxman.

Bowlers : Kaif, Ramesh and Rajesh.

At the end of 9 matches the total number of wickets taken by the 3 batsmen is 36 while the three bowlers have together taken 24 wickets. Therefore even if the bowlers manage to take all the 10 wickets in the last match, (which is not true from the table given) they will end up with only 34 wickets and therefore 2 wickets in total fewer than the batsmen. Therefore option (c) is definitely true.

27. b From statement 1, we can infer that Kaif scored the highest runs in the last match. Total runs scored by these 6 players = 233. 3 of the players have together scored 149 runs. Therefore, the remaining 3 players can score a maximum 84 runs. Even if we allocate the minimum 20 runs to the remaining 2 players each, the highest runs that can be scored by the third player can be 44. Therefore the highest runs scored are by Kaif and he is one of the Batsmen.

From statement 2, the second highest score is 45 by Rajesh Powar who is one of the bowlers.

For this question compiled data will be as follows:

Batsmen : Kaif, Dinesh Kartik, Dinesh Mongia.

Bowlers : Rajesh Powar, Ramesh Power and VVS Laxman.

If we look at all the options, we can check that except for option b, all other options are definitely true.

If we look at option 2, we see that two of the three bowlers, VVS Laxman and Ramesh Power have already taken 5 wickets in the last match. Therefore, even if Rajesh Powar was not to take even a single wicket, the number of wickets taken by the batsmen can at best be equal to the bowlers but certainly not more than them.

28. a If Kaif does not take any wicket in the last match, the total number of wickets at the end of 10 matches will be 18 for both Kaif and VVS Laxman. Therefore 2 of the 6 players can possibly receive the award.

29. b If the bowlers have together earned 8 bowling points, the number of wickets taken by the 3 Bowlers must be = 4. This means that VVS Laxman cannot be a bowler otherwise the number of wickets taken by him and Ramesh Power is equal to 5 which is more than 4 and therefore not possible. VVS Laxman therefore must be a batsman which in turn means that Mohd. Kaif is a bowler.

For this Question, the details are as follows:

Batsmen : VVS Laxman, Dinesh Mongia, Dinesh Kartik.

Bowlers : Kaif, Ramesh Power and Rajesh Powar.

Since the bowlers have taken 4 wickets, the remaining 6 wickets will be taken by the batsmen. Also, since it is given that two of the three batsmen have taken 5 wickets (Laxman and Dinesh Kartik), the 6th wicket must have been taken by Dinesh Mongia.

30. c Since the 3 bowlers earned only 4 points for batting and each bowler earned at least 1 batting point (everybody scored at least 20 runs) therefore the maximum point earned by a bowler can be 2 which means that Mohd. Kaif cannot be a bowler since he has scored more than 60 runs and therefore would have earned 3 points for batting. This means that VVS Laxman has to be a Bowler.

PREVIOUS YEARS QUESTIONS

LEVEL - 2

2000

Directions for Questions 1 to 5: Answer the questions based on the following information.

Sixteen teams have been invited to participate in the ABC Gold Cup cricket tournament. The tournament is conducted in two stages. In the first stage, the teams are divided into two groups. Each group consists of eight teams, with each team playing every other team in its group exactly once. At the end of the first stage, the top four teams from each group advance to the second stage while the rest are eliminated. The second stage comprises of several rounds. A round involves one match for each team. The winner of a match in a round advances to the next round, while the loser is eliminated. The team that remains undefeated in the second stage is declared the winner and claims the Gold Cup.

The tournament rules are such that each match results in a winner and a loser with no possibility of a tie. In the first stage, a team earns one point for each win and no points for a loss. At the end of the first stage, teams in each group are ranked on the basis of total points to determine the qualifiers advancing to the next stage. Ties are resolved by a series of complex tie-breaking rules so that exactly four teams from each group advance to the next stage.

1. What is the total number of matches played in the tournament?
(a) 28 (b) 55
(c) 63 (d) 35
2. The minimum number of wins needed for a team in the first stage to guarantee its advancement to the next stage is
(a) 5 (b) 6
(c) 7 (d) 4
3. What is the highest number of wins for a team in the first stage in spite of which it would be eliminated at the end of first stage?
(a) 1 (b) 2
(c) 3 (d) 4
4. What is the number of rounds in the second stage of the tournament?
(a) 1 (b) 2
(c) 3 (d) 4

5. Which of the following statements is true?

- (a) The winner will have more wins than any other team in the tournament.
- (b) At the end of the first stage, no team eliminated from the tournament will have more wins than any of the teams qualifying for the second stage.
- (c) It is possible that the winner will have the same number of wins in the entire tournament as a team eliminated at the end of the first stage.
- (d) The number of teams with exactly one win in the second stage of the tournament is 4.

2008

Directions for Questions 6 to 9: Answer the following questions based on the information given below:

In a sports event, six teams (A, B, C, D, E and F) are competing against each other. Matches are scheduled in two stages. Each team plays three matches in stage – I and two matches in Stage – II. No team plays against the same team more than once in the event. No ties are permitted in any of the matches. The observations after the completion of Stage – I and Stage – II are as given below.

Stage-I:

- One team won all the three matches.
- Two teams lost all the matches.
- D lost to A but won against C and F.
- E lost to B but won against C and F.
- B lost at least one match.
- F did not play against the top team of Stage-I.

Stage-II:

- The leader of Stage-I lost the next two matches.
 - Of the two teams at the bottom after Stage-I, one team won both matches, while the other lost both matches.
 - One more team lost both matches in Stage-II.
6. The two teams that defeated the leader of Stage-I are:
(a) F & D (b) E & F
(c) B & D (d) E & D
(e) F & D
 7. The only team(s) that won both matches in Stage-II is (are):
(a) B (b) E & F
(c) A, E & F (d) B, E & F
(e) B & F

8. The teams that won exactly two matches in the event are:

- (a) A, D & F (b) D & E
(c) E & F (d) D, E & F
(e) D & F

9. The team(s) with the most wins in the event is (are):

- (a) A (b) A & C
(c) F (d) E
(e) B & E

MEMORY BASED QUESTIONS

2013

Directions for questions 10 to 12: Answer the questions on the basis of the information given below.

Four teams—T1, T2, T3 and T4— participated in a tournament of 'Bat and trap', an English bat-and-ball pub game. In the tournament, each team played exactly one match with each of the other teams. The matches were played on six consecutive days of a week from Monday to Saturday. Two points were awarded to the winner of a match and no points to the loser. No match in the tournament resulted in a tie/draw. It is also known that:

- I. T1 won only one match in the tournament and it was played on Monday.
- II. The match played on Thursday was won by T4.
- III. T3 won against T2 on Tuesday.
- IV. T2, T3 and T4 definitely did not play on Wednesday, Monday and Saturday respectively.
- V. T2 and T3 ended up with the same number of points at the end of the tournament.

10. How many points did T4 score in the tournament?

- (a) 2 (b) 4
(c) 6 (d) Cannot be determined

11. T3 lost its match against

- (a) T1 (b) T2
(c) T4 (d) Both T1 and T2

12. The match played on Friday was between

- (a) T1 and T2 (b) T2 and T3
(c) T1 and T4 (d) T2 and T4

2015

Directions for questions 13 to 16: Answer the questions on the basis of the information given below.

In a given season of F1 racing, 9 races are to be held. There are 8 teams with two drivers in each team and the points are awarded to the drivers in each race as per to the following table.

Rank	1st	2nd	3rd	4th	5th	6th	7th	8th	9th to 16th
Points	10	8	6	5	4	3	2	1	0

Two championships viz. 'Driver's Championship' and 'Constructor's Championship' take place simultaneously. 'Driver's Championship' is given to the player who has the maximum number of points at the end of the season. 'Constructor's Championship' is given to the team for which the sum of the points of two its drivers is the maximum. A driver is said to get the podium finish only when he is among the top 3 rankers in a race.

After the first 6 races, the point standings of the 16 drivers is as follows:

Driver	Team	Points
Alonso	Renault	54
Schumacher	Ferrari	39
Kimi	Mclaren	29
Fisichella	Renault	27
Montoya	Mclaren	22
Massa	Ferrari	22
Button	Honda	21
Barichello	Honda	10
Villeneuve	Red Bull	4
Webber	Williams	3
Roseberg	Williams	2
Coulthard	BMW Soubers	1
Heidfeld	Red Bull	0
Klien	BMW Soubers	0
Liuzzi	Toro Rosso	0
Scott Speed	Toro Rosso	0

13. If Alonso got the podium finish in each of the first 6 races, then what was the maximum number of races in which he had 2nd rank?

- (a) 4
(b) 3
(c) 2
(d) 1

14. Apart from the first six races, Alonso got the podium finish in the 7th race as well. However, he was not allowed to participate in the subsequent races due to mechanical failure. At the end of the season, if Schumacher won the 'Driver's Championship', then which of the following could have been his lowest rank in any of the last three races?

- (a) 5th (b) 6th
(c) 7th (d) 4th

15. Which of the following statements CANNOT be true?

- (a) Renault and Ferrari had a tie for the 'Constructor's Championship'.
- (b) Alonso got the podium finish in each of the first 6 races out of which he did not have rank 1st in the 6th race.
- (c) Fisichella got the podium finish in the 9th race and Honda won the 'Constructor's Championship'.
- (d) Barichello got the podium finish in the 3rd race but he did not score any point in the 1st race.

16. If Schumacher ranked 9th in one of the first six races, then which of the following CANNOT be the points scored by him in any one of the first six races?

- (a) 3
- (b) 2
- (c) 1
- (d) 0

LEVEL - 3

2004

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

The year was 2006. All six teams in Pool A of World Cup hockey, play each other exactly once. Each win earns a team three points, a draw earns one point and a loss earns zero points. The two teams with the highest points qualify for the semifinals. In case of a tie, the team with the highest goal difference (Goal For - Goals Against) qualifies.

In the opening match, Spain lost to Germany. After the second round (after each team played two matches), the pool table looked as shown below.

Pool A

Teams	Games Played	Won	Drawn	Lost	Goals For	Goals Against	Points
Germany	2	2	0	0	3	1	6
Argentina	2	2	0	0	2	0	6
Spain	2	1	0	1	5	2	3
Pakistan	2	1	0	1	2	1	3
New Zealand	2	0	0	2	1	6	0
South Africa	2	0	0	2	1	4	0

In the third round, Spain played Pakistan, Argentina played Germany, and New Zealand played South Africa. All the third round matches were drawn. The following are some results from the fourth and fifth round matches

- (a) Spain won both the fourth and fifth round matches.
- (b) Both Argentina and Germany won their fifth round matches by 3 goals to 0.
- (c) Pakistan won both the fourth and fifth round matches by 1 goal to 0.

17. Which one of the following statements is true about matches played in the first two rounds?

- (a) Germany beat New Zealand by 1 goal to 0.
- (b) Spain beat New Zealand by 4 goals to 0.
- (c) Spain beat South Africa by 2 goals to 0.
- (d) Germany beat South Africa by 2 goals to 1.

18. Which one of the following statements is true about matches played in the first two rounds?

- (a) Pakistan beat South Africa by 2 goals to 1.
- (b) Argentina beat Pakistan by 1 goal to 0.
- (c) Germany beat Pakistan by 2 goals to 1.
- (d) Germany beat Spain by 2 goals to 1.

19. If Pakistan qualified as one of the two teams from Pool A, which was the other team that qualified?

- (a) Argentina
- (b) Germany
- (c) Spain
- (d) Cannot be determined

20. Which team finished at the top of the pool after five rounds of matches?

- (a) Argentina
- (b) Germany
- (c) Spain
- (d) Cannot be determined

MEMORY BASED QUESTIONS

2014

Directions for questions 21 to 24: Answer the questions on the basis of information given below.

Volleyball is a sport played by two teams on a playing court divided by a net.

The object of the game is to send the ball over the net in order to ground it on the opponent's court, and to prevent the same effort by the opponent.

The team has three hits for returning the ball.

The rally continues until the ball is grounded on the playing court, goes "out" or a team fails to return it properly. In Volleyball, the team winning a rally scores a point (Rally Point System).

There are six players on court in a volleyball team.

Matches are played in five sets. The first four sets are played to 25 points, with the final set being played to 15 points. A team must win a set by at least two points. There is no ceiling, so a set continues until one of the teams gains a two-point advantage.

A match was played between Brazil and Russia in which-

- (i) Only three sets finished with the minimum threshold points.
- (ii) The final score of Russia was same in two of the sets in which it won one of the sets.
- (iii) In one of the sets, the final score of Brazil was less than half of Russia.
- (iv) The score of Brazil in one of the sets is same as the score of Russia in one of the other set. Both of them lost their respective sets with a different margin.
- (v) The total score of five sets of Brazil and Russia were 108 and 116 respectively. Also, Brazil won 3 sets.
- (vi) The maximum score by any team in the five sets was 30 and the minimum was 12. Russia scored 23 points in one of the sets.

(vii) There were only three sets in which a team won by exactly two-point advantage.

- 21. What was the maximum difference by which a team won the set?
 - (a) 2 points
 - (b) 12 points
 - (c) 13 points
 - (d) 3 points
- 22. What was the score of Russia in the fifth set?
 - (a) 12 points
 - (b) 13 points
 - (c) 15 points
 - (d) Cannot be determined
- 23. In how many sets, the score of Brazil was an even number?
 - (a) 2
 - (b) 3
 - (c) 4
 - (d) 5
- 24. What was the score which was common with both the teams, and in which both won their respective sets?
 - (a) 28
 - (b) 12
 - (c) 25
 - (d) No such score

ANSWERS

- | | | | | | | | | | |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1. (c) | 2. (b) | 3. (*) | 4. (c) | 5. (c) | 6. (b) | 7. (d) | 8. (e) | 9. (e) | 10. (a) |
| 11. (c) | 12. (d) | 13. (b) | 14. (c) | 15. (c) | 16. (b) | 17. (d) | 18. (b) | 19. (d) | 20. (d) |
| 21. (c) | 22. (a) | 23. (b) | 24. (c) | | | | | | |

SOLUTIONS

LEVEL - 2

1. c. There shall be 8 teams in each group. Each team in a group shall be playing with every other team. Hence, total number of matches shall be $\frac{(7 \times 8)}{2} = 28$ in one group. Hence, in both the groups, there shall be 56 matches. This is for the first stage. Thereafter, there are 8 teams in knockout rounds from which one winner emerges, or 7 losers are identified. Hence, 7 more matches, i.e. in all 63 matches.

2. b In the first stage, there are 28 matches to be played by each group of 8 teams and eventually 4 from each group moved into second stage. 7 teams can win 4 matches each. Then, three of them will be eliminated on the basis of tiebreak rules. This doesn't assure any team a place in the second stage. 5 teams can win 5 matches each and there can be 3 more matches won by the remaining teams. Then, one of the teams winning 5 matches will be eliminated on the basis of tiebreak rules. This also doesn't assure any team a place in the second stage.

4 teams can win 6 matches and there can be 4 matches won by the remaining teams. This will guarantee a place for each team winning 6 matches a place in the second round.

3. * In order to maximize the number of wins of a team which would be eliminated at the end of first stage, we minimize the number of wins in the bottom 3 teams. The bottom 3 teams will play ${}^3C_2 = 3$ matches among themselves (i.e. there will be 3 wins). So the remaining wins $(28 - 3) = 25$ must be divided among top 5 teams, such that the 5th ranked team wins the maximum and yet fail to qualify for the second round. This is possible if each of the top 5 teams

win an equal number of matches, i.e. $\frac{25}{5} = 5$.

Hence, the 5th ranked team can win a maximum of 5 matches and would get eliminated at the end of first stage on the basis of tiebreak rules.

* **Note:** The answer given in the answer key of 'CAT 2001 Bulletin' is incorrect. Ideal answer should be 5 wins.

4. c There are 8 teams. Hence, there would be 7 matches in 3 rounds.
5. c Statement 1 is false. Consider a case where the points scored by the top three teams were 7, 6 and 5. Rest of the 10 points were distributed equally among the remaining five teams with 2 points to each. Any one of these five teams could have won the tournament with total of 5 wins.
- Statement 2 is false, as only the top four teams were advanced to the stage II.
- Statement 3 is true. Consider a case where five different teams of the same group got 5 points each. Also, a team with 2 points in the different group of stage I won could have won the tournament with total of 5 points.
- Statement 4 is false as the number of teams with exactly one win in stage II is 2.

For questions 6 to 9:

The given basic information can be collated as below:

- Six teams – A, B, C, D, E, F.
- Matches scheduled in two stages – I & II.
- No team plays against the same team more than once.
- No ties permitted.

As per the instructions given for stage – I, we can reach the following conclusions:

- As B lost at least one match, A won all the 3 matches.
- The two teams who lost all the matches cannot be A (as explained above), cannot be B (E lost to B), cannot be D (D won against C & F). Hence, the two teams must be C and F.
- F did not play against the top team (i.e. A).

We get the following table for stage – I.

(To be read from rows)

	A	B	C	D	E	F
A	X	W	W	W		
B	L	X			W	W
C	L		X	L	L	
D	L		W	X		W
E		L	W		X	W
F		L		L	L	X

As per the instructions given for Stage-II, we can reach the following conclusions.

- A lost both its matches against E and F.
- F won against A, hence is the bottom team (out of C & F) which won both the matches \Rightarrow F won against C as well.

This also means that C lost both its matches against B and F.

- Apart from A and C, one more team lost both the matches in Stage-II.

That team can neither be E (A lost to E), nor B (as C lost to B), nor F (as F won both its matches). Hence, the team must be D.

We get the following table for Stage-II.

(To be read from rows)

	A	B	C	D	E	F
A	X				L	L
B		X	W	W		
C		L	X			L
D		L		X	L	
E	W			W	X	
F	W		W			X

- b E and F defeated A. **[Please note that in this question, options (a) and (e) were the same.]**
- d B, E and F won both the matches in Stage-II.
- e D and F won exactly two matches in the event.
- e B and E have most wins, 4 each.

For questions 10 to 12 :

From statements (III) and (V), it can be concluded that both T2 and T3 ended up with either 2 or 4 points.

Case 1: When T2 and T3 scored 2 points each.

Since T3 won against T2, T3 must have lost its remaining matches and T4 must have won all its matches. Thus, T1 must have played on Monday against T3, but this was not the case as per the statement (IV). Hence, this case is invalid.

Case 2: When T2 and T3 scored 4 points each.

Since T2 lost against T3 on Tuesday, it must have won against T1 and T4. From statement (IV), T2 and T4 did not play on Wednesday and Saturday respectively. So T2 must have won its matches against T4 and T1 on Friday and Saturday respectively.

Further analysis leads to the following table.

Day	Match played between	Winner
Monday	T1 & T4	T1
Tuesday	T2 & T3	T3
Wednesday	T1 & T3	T3
Thursday	T3 & T4	T4
Friday	T2 & T4	T2
Saturday	T1 & T2	T2

10. a T4 scored 2 points.

11. c T3 lost against T4.

12. d The match played on Friday was between T2 and T4.

13. b Alonso finished on podium in each of the first six races and scores 54 points.

He can score 54 points as

10, 10, 10, 8, 8, 8 [in any order]

10, 10, 10, 10, 8, 6

So, he can get 2nd rank in at most 3 races.

14. c Alonso finishes the next race on podium.

⇒ his total points are 60 or 62 or 64.

For finding lowest rank obtained by Schumacher, we take Alonso's score as 60 (lowest among 60, 62, 64)

To win the championship Schumacher needs 61 points.

⇒ in the last three races he has to score $61 - 39 = 22$ points.

For lowest rank 22 can be scored as 10, 10, 2 (in any order).

Hence, the lowest rank obtained by Schumacher is 7th (corresponding to 2 points).

15. c If Fisichella finishes on podium in race 9 (or in any of the last 3 races), the points scored by Renault will be 87 (or more).

Hence, even if Honda drivers take top two ranks in all three races they will end up with 85 points.
i.e. $31 + 3(8 + 10) = 31 + 54 = 85$ points.

Hence, in this case Honda won't be able to win the 'Constructor's Championship'.

16. b After first six races Schumacher's total points are 39.

He didn't score any point in 1 race. Hence effectively, he scored 39 points in 5 races and 0 points in 1 race.

If in any of the 5 races he scores 7th rank or 2 points, then in other four races he has to score 37 points, which is not possible in any combination.

LEVEL - 3**For questions 17 to 20:**

Germany has won both their matches, so possible winning combinations in first two rounds is

R1 : Won 1 - 0 and R2: Won 2 - 1

Or

R1 : Won 2 - 1 and R2: Won 1 - 0.

Argentina must have won R1 and R2 by 1 - 0.

If Germany won by 2 - 1 in R1 vs Spain, Spain won in R2 by 4 - 0, and if Germany won 1 - 0 in R1, then Spain won 5 - 1 in R2.

Since only New Zealand and South Africa conceded 4 or more than 4 goals, then Spain must have played either one in R2.

If Spain won 4 - 0 in R2 vs South Africa, then South Africa must win R1 by 1 - 0, which is a contradiction to the fact that South Africa has lost both R1 and R2. Also, Spain can never win 5 - 1 vs South Africa in R2 (goals conceded by South Africa is 4).

Therefore, Spain won against New Zealand in R2.

Germany:

R1	vs	Spain	Won 2 - 1	or	1 - 0
R2	vs	SA/Pak	Won 1 - 0	or	2 - 1
R3	vs	Arg	Draw		

Spain:

R1	vs	Germany	Lost 1 - 2	or	0 - 1
R2	vs	NZ	Won 4 - 0	or	5 - 1
R3	vs	Pak	Draw		

New Zealand:

R1	vs	Arg/Pak	Lost 1 - 2	or	0 - 1
R2	vs	Spain	Lost 0 - 4	or	1 - 5
R3	vs	SA	Draw		

Looking at the table, the only possible outcomes for Pakistan in the first two rounds are 2 - 0 win and 0 - 1 loss.

In R1, New Zealand cannot lose 1 - 2 since Argentina conceded no goals and Pakistan's only loss was by a margin 0 - 1.

Therefore, NZ lost R1 0 - 1. This score is possible only if its opponent is Argentina. Consequently, NZ lost 1 - 5 in R2 vs Spain. Hence, Spain must have lost 0 - 1 to Germany.

The above information can be finally summarised as:

Germany:	R1	vs	Spain	Won 1 - 0
	R2	vs	SA	Won 2 - 1
	R3	vs	Arg	Draw
Spain:	R1	vs	Germany	Lost 0 - 1
	R2	vs	NZ	Won 5 - 1
	R3	vs	Pak	Draw
New Zealand:	R1	vs	Arg	Lost 0 - 1
	R2	vs	Spain	Lost 1 - 5
	R3	vs	SA	Draw
Pakistan:	R1	vs	SA	Won 2 - 0
	R2	vs	Arg	Lost 0 - 1
	R3	vs	Spain	Draw
Argentina:	R1	vs	NZ	Won 1 - 0
	R2	vs	Pak	Won 1 - 0
	R3	vs	Germany	Draw
South Africa:	R1	vs	Pak	Lost 0 - 2
	R2	vs	Germany	Lost 1 - 2
	R3	vs	NZ	Draw

17. d

18. b

Additional information for Q. 19 to 20:

* The given data set for rounds 4 and 5 appears to be inconsistent because from statements (a), (b) and (c) it is evident that four teams namely Spain, Argentina, Germany and Pakistan won their fifth round matches whereas the maximum possible wins in any round is only 3.

19. d

20. d

For questions 21 to 24 :

According to the given conditions, the minimum score that a winning team can score in the first four sets is 25 and in the last set is 15.

From statements (iii) and (vi), it can be inferred that in one of the sets the score of Brazil and Russia were 12 and 25 respectively.

From statements (ii), (v) and (vi), there are two possibilities-

Case I: Russia scored the maximum score 30. In this case Russia cannot win any other set as it can win only two sets. In this scenario, Russia must lose a set with a score of either 25 or 30. With a score of 30 it cannot lose a set as 30 is the maximum score, thus it must have lost a set with a score of 25. In that case, Brazil must have scored 27.

Also, Russia scored 23 points in one of sets, which means Brazil must have scored 25 points (as Russia lost the set). Now, to make the total of Russia as 116, it must have scored 13 and to make the total of Brazil as 108, it must have scored 16 in the final set, which is not possible. Brazil can reach a score of 16 only when Russia scored 14 otherwise Brazil must have won at the score of 15. Thus, it can be said that Russia did not score 30 points.

	Brazil	Russia
Set 1	12	25
Set 2	28	30
Set 3	27	25
Set 4	25	23
Set 5	16	13
Total Score	108	116

(Not possible)

Case II: Brazil scored 30 points and Russia scored 28. Also, in one of the sets Russia scored 23 points. Now, there are again two possibilities - either Russia won the set as Brazil scored 21 points then it must be the fifth set or Russia lost the set as Brazil scored 25 points and it is one of the first four sets. If the first possibility is considered, in that case, Brazil must win the remaining two sets as Russia has already won two sets (12-25, 21-23) and to win two sets the minimum score of Brazil must be 25 in each set. But in this case, the total score of Brazil in all the five sets will become more than 108. Hence, Russia lost the set with the score of 23.

So the scores of three sets are tabulated below-

	Brazil	Russia
Set 1	12	25
Set 2	30	28
Set 3	25	23
Set 4		
Set 5		
Total Score	108	116

Now, the sum of the scores of Russia in the remaining two sets is $116 - (25 + 28 + 23) = 40$.

Also, from statement (ii) one of the scores of the remaining two sets of Russia must be one of 23 or 25 or 28.

So, the possible scores of Russia in the remaining two sets are (23, 17), (25, 15) and (28, 12). Also, the sum of the scores of Brazil in the remaining two sets must be $108 - (12 + 30 + 25) = 41$. The various possibilities are-

	Brazil	Russia
Set 4	23	25
Set 5 (NP)	18	15

	Brazil	Russia
Set 4	21	23
Set 5 (NP)	20	17

	Brazil	Russia
Set 4	30	28
Set 5 (NP)	11	12

	Brazil	Russia
Set 4	27	25
Set 5 (NP)	14	15

	Brazil	Russia
Set 4	25	23
Set 5 (NP)	16	17

	Brazil	Russia
Set 4	26	28
Set 5	15	12

* NP - Not Possible

21. c The maximum difference by which a team won a set is 13 points.
22. a The score of Russia in the fifth set is 12 points.
23. b In three of the sets the score of Brazil was an even number.
24. c The required common score was 25.

■ ■