**1.5 GAMES AND SPORTS**

**Solution Exercise – Easy**

**Solutions for 1** – **2:**

In any knockout tournament

Number of matches = 2no. of rounds – 1

Number of players = 2no. of rounds

1. (b)

Number of matches = 28 – 1 = 255

2. (a)

Number of players = 28 = 256

**Solutions for 3** – **6:**

On basis of the give data, working backwards we can get the following table –

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1st Test Match** | | **2nd Test Match** | | **3rd Test Match** | | **4th Test Match** | |
| **Start** | **End** | **Start** | **End** | **Start** | **End** | **Start** | **End** |
| Alex | 99 | 6 | 6 | 12 | 12 | 24 | 24 | 48 |
| David | 51 | 102 | 102 | 12 | 12 | 24 | 24 | 48 |
| George | 27 | 54 | 54 | 108 | 108 | 24 | 24 | 48 |
| Smith | 15 | 30 | 30 | 60 | 60 | 120 | 120 | 48 |

3. (b)

The dollar with Alex at start of the test series are 99.

4. (c)

Lowest amount of dollars are with Smith.

5. (c)

Highest was with Alex.

6. (a)

George had 108 dollars at end of the 2nd test match.

7. (a)

Number of matches = 116 – 1 = 115

8. (c)

Number of matches =  = 552

9. (d)

Maximum points will be when a team wins all the matches.

Maximum points = 46 × 2 = 92 points.

10. (b)

If all the matches of the league are drawn, then all the team will have same number of points. Then by applying the rules of tournament, the winner can be decided.

**Solution Exercise – Medium**

**Solutions for 1** – **4:**

1. (d)

Matches in Group A =  = 28

Matches in Group B =  = 28

Matches in Quarterfinals = 4 × 2 = 8

Matches in Semi – finals = 3 + 2 + 1 = 6

Matches in Final = 2 or 3

Total number of matches = 28 + 28 + 8 + 6 + 2 or 3 = 72 or 73.

2. (a)

In the quarterfinals, any team plays only the teams of other groups and hence a match between 2 teams of the same group cannot take place.

3. (a)

A team can progress to the next round from round 1 by winning only 2 matches. If the top 3 teams win 7, 6 and 5 matches respectively then the remaining teams can have 2 victories each. A team with 2 wins by the complex rules move to the quarterfinals.

In the quarterfinals each team plays 2 matches with teams of other group. If all the 4 teams of group A lose all their matches, still 2 teams from group A will proceed to the semifinals. Hence a team with 0 wins can move to the next round.

In the semi-finals there are 4 teams and each team will play 3 matches with a total of 6 matches. If a team wins all the 3 matches and the remaining teams wins 1 match each, then the 2nd placed team will move to finals with only 1 win.

In the final the same team can win the tournament with minimum 2 wins in the but of 3 final matches.

Minimum number of wins = 2 + 0 + 1 + 2 = 5

4. (d)

The matches in the semi-final and their winners:

|  |  |  |
| --- | --- | --- |
| 1 | Bengaluru FC (1st) v/s Sporting Goa (4th) | Bengaluru FC |
| 2 | Bengaluru FC (1st) v/s Salgaocar (2nd) | Salgaocar |
| 3 | Bengaluru FC (1st) v/s Bharat FC (5th) | Bharat FC |
| 4 | Salgaocar (2nd) v/s Bharat FC (5th) | Salgaocar |
| 5 | Salgaocar (2nd) v/s Sporting Goa (4th) | Sporting Goa |
| 6 | Sporting Goa (4th) v/s Bharat FC (5th) | Bharat Fc |

So, Bharat FC and Salgaocar will play the final.

**Solutions for 5** – **8:**

5. (c)

Group Stages = 8 × 2 ×  = 96

Pre - Quarterfinals = 8 matches

Quarterfinals = 4 matches

Semifinals = 2 matches

Finals = 1 match

3rd place playoff = 1 match

Total number of matches = 96 + 8 + 4 + 2 + 1 + 1 = 112 matches.

6. (a)

A team can draw all its matches in the group stages and can still progress to the next round on basis of the FIFA Rankings. Now to win the tournament, the team will be required to win the matches of pre-quarterfinals, quarterfinals, semifinals and finals. So a minimum of 4 wins are required.

7. (d)

All of the statements provide a possibility but none of them need to be necessarily true.

8. (b)

A team wins all the 6 group matches it plays. It wins the pre quarterfinals, quarterfinals and also the semi-finals but loose in the finals. So, it will have 9 wins and will still not win the tournament.

9. (d)

|  |  |  |
| --- | --- | --- |
| **Round – 1** | | |
| **Player 1** | **Player 2** | **Winner** |
| 1 | 32 | 1 |
| 2 | 31 | 2 |
| 3 | 30 | 3 |
| 4 | 29 | 4 |
| 5 | 28 | 5 |
| 6 | 27 | 6 |
| 7 | 26 | 7 |
| 8 | 25 | 8 |
| 9 | 24 | 9 |
| 10 | 23 | 10 |
| 11 | 22 | 11 |
| 12 | 21 | 12 |
| 13 | 20 | 13 |
| 14 | 19 | 14 |
| 15 | 18 | 15 |
| 16 | 17 | 16 |

|  |  |  |
| --- | --- | --- |
| **Round – 2** | | |
| **Player 1** | **Player 2** | **Winner** |
| 1 | 16 | 1 |
| 2 | 15 | 2 |
| 3 | 14 | 3 |
| 4 | 13 | 4 |
| 5 | 12 | 5 |
| 6 | 11 | 11 |
| 7 | 10 | 10 |
| 8 | 9 | 9 |

So, in the quarterfinals 2 will play with 10 and hence Davenport will play with Venus Williams.

10. (c)

Elena is at number 6, Serena is at number 8. If they lose then matches would be

1 vs. 9

2 vs. 7

3 vs. 11

4 vs. 5

Maria is number 1 she will play Number 9, i.e. Nadia Petrova

11. (a)

|  |  |  |
| --- | --- | --- |
| **Round – 1** | | |
| **Player 1** | **Player 2** | **Winner** |
| 1 | 32 | 1 |
| 2 | 31 | 31 |
| 3 | 30 | 3 |
| 4 | 29 | 29 |
| 5 | 28 | 5 |
| 6 | 27 | 27 |
| 7 | 26 | 7 |
| 8 | 25 | 25 |
| 9 | 24 | 9 |
| 10 | 23 | 23 |
| 11 | 22 | 11 |
| 12 | 21 | 21 |
| 13 | 20 | 13 |
| 14 | 19 | 19 |
| 15 | 18 | 15 |
| 16 | 17 | 17 |

|  |  |  |
| --- | --- | --- |
| **Round – 2** | | |
| **Player 1** | **Player 2** | **Winner** |
| 1 | 17 | 1 |
| 31 | 15 | 15 |
| 3 | 19 | 3 |
| 29 | 13 | 13 |
| 5 | 21 | 5 |
| 27 | 11 | 11 |
| 7 | 23 | 7 |
| 25 | 9 | 9 |

|  |  |  |
| --- | --- | --- |
| **Quarter Finals** | | |
| **Player 1** | **Player 2** | **Winner** |
| 1 | 9 | 1 |
| 15 | 7 | 15/7 |
| 3 | 11 | 11/3 |
| 13 | 5 | 13/5 |

|  |  |
| --- | --- |
| **Semi Finals** | |
| **Player 1** | **Player 2** |
| 1 | 13/5 |
| 15/7 | 11/3 |

So, Sharapova plays against Anastasia Myskina.

12. (c)

Kim Clijster either not reaches the semifinal or she will play Maria in semifinal. Hence she cannot play Maria in final.

13. (d)

Par Score = 319 – 26% of 319 = 236.06 = 240 runs

Sri Lanka won by 248 – 240 = 8 runs

14. (c)

Par Score = 286 – 52% of 286 + 31% of 286 = 286 – 21% of 286 = 225.94

Par Score = 230

Runs required to win = 231 – 169 = 62

15. (b)

Par score after rain intervention in the 1st innings = 243 + 4.5% of 243 = 253.03 = 255 runs

Par score after rain intervention in the 2nd innings = 255 – 20% of 255 = 204 runs = 205 runs

Afghanistan has scored 179 runs but the par score is 205. Hence they lost the match by 205 – 179 = 26 runs.

**Solution Exercise – Difficult**

1. (d)

Dunk score about 39% of the total runs.

Runs scored by Dunk = 39% of 343 = 133.77 runs

Only option (d) has total number of runs close to the 39% runs.

**Alternate Method:**

Working with given information, we can easily find Dunk's contribution.

2. (c)

If statement II is true, then I cannot be true as if Sammy scored a duck then he must be the one to get out as the 5th wicket in the 42nd over. In such case either Birt or Bailey was the 4th wicket to fall for Hurricanes. Sammy can only come to the crease after the fall of 4th wicket and he is the second batsmen to get out in 42nd over. So he can only be the 5th wicket to fall without scoring a run.

3. (b)

**Statement I:** Wells batted at no. 7, which means he came to crease after the fall of 5th wicket in 42nd over when score was 271. So, Wells was involved in a partnership of 72 runs for the 6th wicket, whereas either player coming at 5th or 6th was involved in partnerships of 74 and 72, so statement I cannot be true.

**Statement II:** 4th wicket partnership is the highest of 74 runs but Dunk was the 3rd wicket to fall. So, statement is true.

4. (b)

In a group at total of 28 matches are played and each team plays 7 matches. If we take 5 wins then there will be 5 teams who can 5 matches each. Hence, 6 matches will guarantee the advancement to the next round. A team can advance to the next round with less number of wins as well but to ‘guarantee’ 6 wins are required.

5. (d)

By using the logic of the previous question, it will be 5.

6. (b)

Statement in option (b) has to be true as any eliminated team can have same or less wins then the teams advancing to the next round.

7. (d)

If Delhi Waveriders wins with 4 goals, Kalinga Warriors cannot score more than 0, 1 or 2 goals.

8. (d)

If one match has a score of 5 – 5, then the scores by which Delhi Waveriders lost are 1 and 1. And for Kalinga Warriors the goals scored might be 6, 4 or 2.

9. (b)

If one of the matches had the score of 1 – 1, the scenario will be: Kalinga Warriors lost with a score of 5, so the score has to be 6 – 5 in favor of Delhi Waveriders. Again, Delhi Waveriders lost with the odd score of 5, so the score has to be 5 – 6 in favor of Kalinga Warriors. Now, Delhi Waveriders wins with goals of 4 and 2 in the other 2 games and the possible score for Kalinga Warriors in these two matches is 0, 2 and 4. For Delhi Waveriders to win with a score of 2, Kalinga Warriors has to score goals. That leaves the third win for Delhi Waveriders to have the score of 4 – 2.

10. (a)

There can be only 1 outcome as all the results have been mentioned in the information given.

**Solutions for 11** – **14:**

The total of scores is 39. Factors of 39 are 1, 3, 13 and 39. So, the number of rounds has to be 3. Hence the total of the numbers on balls is 13.

The highest score is 20, hence 6 cannot be the highest number else a maximum of 18 can be score. So the highest number is atleast 7.

Also a player has a score of 10 so the highest number cannot be more than 8.

The lowest number cannot be more than 2 else the condition will be violated.

If we see, there will be only possibility which will come up i.e. 1, 4 and 8.

The round wise score is:

Karan: 8, 8, 4

Aman: 1, 1, 8

Vijendar: 4, 4, 1

11. (d)

None of the players has received all the 3 balls in the first three rounds.

12. (c)

Vijendar receives the middle most number in the 1st round.

13. (c)

After six rounds it can be equal.

Karan = 8 + 8 + 4 + 1 + 1 + 4 = 26

Aman = 1 + 1 + 8 + 4 + 4 + 8 = 26

Vijendar = 4 + 4 + 1 + 8 + 8 + 1 = 26

14. (d)

Sarabjeet joined after 3rd round. Let the integer on Sarab jeet’s ball is ‘*n*’.

Then the score sheet after Sarabjeet joined will be:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Karan | Aman | Vijendar | Sarabjeet |
| After 3rd rounds | 20 | 10 | 9 | 0 |
| 4th round | 1 | 8/*n* | 8/*n* | 4 |
| 5th round | 1 | 8/*n* | 8/*n* | 4 |
| 6th round | 1 | 4/*n* | 4/*n* | 8 |
| 7th round | 1 | 4/*n* | 4/*n* | 8 |
| Total | 24 |  |  | 24 |