**1.3 SELECTIONS**

**Solution Exercise – Easy**

**Solutions for 1 – 5:**

I. 2 faculty and 2 students

II. One out of Singhvi or Chopra must be there but both cannot be selected together.

III. Anshul’s selection will mean Arora’s selection but vice-versa may not be true.

IV. Kapil and Chopra cannot be selected together.

1. (b)

Anshul cannot be selected as Arora is not there. Kapil cannot be selected as Chopra is there. Arora cannot be selected as 2 faculty members are already there. So, Jaya is selected.

2. (a)

If Anshul is there then Arora must be there. Also one out of Singhvi or Chopra must be selected. Hence Gupta cannot be selected.

3. (b)

Kapil is a representative and hence Chopra cannot be selected. Also, if Chopra is not there then Singhvi must be there. Arora cannot be a part so Anshul cannot be there. Team so far Kapil, Singhvi, Gupta. Now, we are left with 1 student to choose out of Jaya and Hitu, so condition (b) will help.

4. (a)

Hitu and Jaya are not there and hence Kapil and Anshul are there. If Anshul is there Arora will be there. If Kapil is there Chopra cannot be the part of team and hence Singhvi has to be there.

5. (b)

If Chopra is there then Singhvi cannot be there, hence option (d) is eliminated. Anshul needs to be with Arora hence option (a) is eliminated. Kapil cannot be with Chopra so option (c) is eliminated. Hence (b) is a valid team.

**Solutions for 6 – 10:**

I. 3 managers and 2 SME’s are to be chosen.

II. 2 chosen SME’s will be P/R and Q.

6. (a)

R and L selected to be moved to the new office then K and J cannot be moved to the new office. Now we have R, Q and L as new office team. We need two more managers and we are left with M and N, so both have to be selected. Hence we have only 1 team.

7. (a)

If R is sent than the 2 SME’s will be R and Q. Now we need to have 3 managers but K cannot be chosen as R is going. We are left with J, L, M and N. If we choose J then L and M cannot go and we will not have 3 managers. Hence, J cannot go.

8. (b)

2 SME’s need to go and hence Q must go as only one out of P and R can go.

9. (a)

The teams are as follows:

PQJKN, PQKLM, PQKLN, PQLMN, PQKMN, RQLMN

10. (d)

J goes to the new office then M and L cannot go and hence

K and N will go. If K goes then R cannot go and hence P and Q will go. The team is P, Q, J, K, N.

**Solution Exercise – Medium**

**Solutions for 1 – 5:**

I. Young → M1, M2, F3

II. Middle Aged → M3, M4, F1, F2, F4

III. Old → M5, F5, F6

1. (b)

The team in option (b) contains all the required individuals

without violating any conditions.

2. (b)

The team in option (b) meets all the conditions.

3. (a)

Only team in option (a) meets all the conditions.

4. (c)

Team in option (c) meets the given conditions.

5. (a)

Team in option (a) meets all the given conditions.

**Solutions for 6 – 10:**

I. One out of Jadeja or Kumar must be in the team.

II. Kumar and Shikhar are always together.

III. Rohit and Akshar are always together.

IV. Ashwin cannot be selected with Akshar and vice versa is also true.

V. Virat and Suresh are not in the same team.

6. (d)

Team in option (a) is not valid as neither of Jadeja or Kumar is there. Ashwin cannot be selected with Akshar and hence option (b) is eliminated. Kumar and Shikhar are always together and hence option (c) is eliminated. Kumar & Shikhar and Rohit & Akshar are together and hence (d) is a valid team.

7. (d)

If Ashwin is selected then Akshar and Rohit cannot be selected, also Dhoni is not selected. Now, there are 4 places and we have Suresh, Shikhar, Virat, Jadeja, Kumar and Ishant. If Jadeja is selected then Shikhar and Kumar are ruled out. Now, we have 3 places and Suresh, Virat and Ishant. But Suresh and Virat cannot be together. Hence Jadeja cannot be selected.

8. (b)

If Jadeja is selected then Kumar and Shikhar are not selected. We are left with 4 places and players are Virat, Suresh, Akshar, Rohit, Ashwin, Dhoni & Ishant. If we do not select Rohit then Akshar is not there but we can still choose 4 more players as Ashwin, Dhoni, Ishant, Virat/Suresh. So, (a) may or may not be true.

As in the previous case if Jadeja is selected and Rohit is not then Dhoni and Ishant are to be selected. If Rohit is selected then Akshar will also be. So now we are left with 2 places and players are Virat, Suresh, Ashwin, Dhoni & Ishant. Ahswin cannot be with Akshar and Virat cannot be with Suresh, so one out of Dhoni & Ishant must be there. Hence (b) must be true.

9. (c)

According to option (a) the team will be Jadeja, Ashwin, Dhoni, Virat, Rohit. As Rohit and Akshar are always together this is an invalid team. According to option (b)

the team will be Jadeja, Ashwin, Rohit, Akshar and Virat1 but Ashwin and Akshar cannot be together. According to option (d) the team will be Jadeja, Shikhar, Akshar, Rohit and Ishant but Shikhar has to be with Kumar and hence it is an invalid team. If we see option (c) the team will be Jadeja, Virat, Rohit, Akshar and Ishant and the team satisfies all the given conditions.

10. (b)

Jadeja is not selected means Shikhar and Kumar must be there. Ashwin is selected means Akshar and Rohit cannot be selected. Team has Shikhar, Kumar and Ashwin with 2 more players to be selected.

Can be selected → Suresh, Virat, Dhoni, Ishant

Cannot be selected → Jadeja, Rohit, Akshar.

Possible selections are → Dhoni-Ishant, Dhoni-Virat, Dhoni-Suresh, Ishant-Suresh, Ishant-Virat 5 possible selections are true.

**Solutions for 11 – 14:**

11. (b)

He selected Fruit Ice Cream and hence he cannot select Cookie-crumbs ice cream. Also he cannot select the Tutti-Fruti ice- cream. Now he can select one out of chocolate and Hot choco fudge. Now we are left with 5 ice creams and 4 ice creams are to be selected more. If he doesn’t select strawberry then he cannot select Vanila and we will have only 3 choices to pick.

12. (d)

Bitto doesn’t select Cookie-Crumb and Kesar-Pista means he cannot select the Tutti-Fruti as well. We have 5 ice- creams and 5 are to be selected. So, Chocolate can be rejected.

13. (c)

Option (a) is eliminated as one out of Chocolate or Hot Choco fudge is to be selected. Option (b) is eliminated as Fruit and Cookie Crumbs cannot be selected together. Option (d) is eliminated as both Chocolate and Hot Choco fudge are selected. Option (c) is a valid choice.

14. (c)

If Vanila and Chocolate are not selected then Hot Choco fudge will be selected and we can get the choice of ice- creams as Hot Choco fudge, Tutti-Fruti, Cookie Crumbs, Butter Scotch, Belgian Chocolate, Kesar-Pista.

**Solutions for 15 – 20:**

15. (d)

One of Naga & Smith must be selected; hence option (a) is eliminated. Ranga and Prasad cannot be selected together and hence option (b) is eliminated. Smith and Peter must be selected together and hence option (c) is eliminated. The team in (d) meets all the conditions.

16. (c)

If Prasad is selected then Ranga and Swamy cannot be selected. Also Murali is not selected. Now out of the left overs Naga/Smith must be selected. We are left with 3 places and Peter, Anna, Ashwin, and Shyam. If we select Naga then Peter cannot be selected and we will not have a complete team.

17. (b)

All other statements will not give valid team selections.

18. (b)

If Naga is selected then Smith and Peter are out of the team. We are left with Swamy, Anna, Ashwin Murali, Ranga, Shyam and Prasad. If we fit in the conditions then Smith, Anna, Ashwin, Prasad and Peter cannot be selected.

19. (b)

Naga is not selected that means Smith must be selected and hence Peter, Prasad is also selected. We have the following teams

Smith, Peter, Prasad, Shyam, Murali

Smith, Peter, Prasad, Shyam, Anna

Smith, Peter, Prasad, Shyam, Ashwin

Smith, Peter, Prasad, Murali, Anna

Smith, Peter, Prasad, Murali, Ashwin

20. (d)

None of the team is a valid selection.

**Solution Exercise – Difficult**

**Solutions for 1 – 5:**

1. (d)

P12 will not be selected.

2. (c)

The possible teams are (P1, P5, P8, P7); (P1, P6, P7, P8) and (P5, P6, P7, P8)

3. (a)

The possible team is – P5, P6, P11, P10.

4. (a)

P2 must be selected with P9.

5. (a)

(P3, P4, P9, P12) is the possible team.  
**Solutions for 6 – 10:**

I. Team would include P or R or S.

II. Team would include M but not Q or Q but not M.

III. K and L always together in the team.

IV. S, U and W are always together.

V. L and N are never together.

VI. L and U are never together.

6. (a)

From statements one and two; one of P, R, S and one of M, Q are to be selected. We require one more member. But from statement three; (K, L) are always together. Hence ‘L’ cannot be included in a team of 3 members.

7. (c)

Again, from statement one; one of P, R, S has to be selected. To make a team of ‘5’, ‘S’ will be chosen (which leaves out P and R). If ‘S’ is chosen ‘U’ and ‘W’ have to be chosen. If ‘U’ is chosen ‘L’ cannot be chosen. Which means K cannot be chosen and one of M or Q has to be chosen.

8. (c)

From statements one and two, 2 members are to be selected. Of the remaining seven, to maximize the size of the team we would chose S, U and W. We cannot include K or L because we would then have to leave out N and U.

9. (d)

If ‘K’ is included ‘L’ has to be included. If ‘L’ is chosen then neither N nor U can be chosen. S and W are also not included because S, U and W have to be always together. Hence one of P or R would be selected and M or Q would be selected. K, L and two of the above five have to be included.

10. (d)

If a team includes N, it cannot include ‘L’. And therefore not even ‘K’. One of P/R/S has to be included. One of M or Q has to be selected. So the following cases are possible: P Q N, R Q N, P M N, R M N. If ‘S’ is selected: S U W M N, S U W Q N. Hence in all 4 + 2 = 6 ways can be constituted.

**Solutions for 11 – 15:**

I. Each counter must have 2 wine varieties.

II. Each of Grost, Sula, Seagram and Royal must be on a different counter.

III. Each of Bollinger, Crop, Pinna and Prianka must be on a different counter.

IV. Rene, Casto and Neelo must on the same counter.

V. Hoff and Riviera must be on the same counter.

VI. Grost cannot be kept on the same counter with any of Crop, Pinna and Shalt.

VII. Sula cannot be kept on the same counter with Shalt and Pinna.

VIII. Seagram cannot be kept on the same table with Shalt and Yardly.

The counters should have 2, 3, 4 and 5 varieties of wine as each counter should have different number of wines. Each counter should have one wine out of Grost, Sula, Seagram, Royal and one out of Bollinger, Crop, Pinna and Shalt. Crop, Casto and Neelo must be on the same bar counter but since all the counters already have 2 wines, these three can be kept on the counter with 5 varieties. We know one each of Grost, Sula, Padha and Royal must be kept with one each of Bollinger, Crop, Pinna and Shalt. Also, Shalt cannot be kept with Royal. Using a similar logic we find that Grost and Bollinger, Sula and Crop, Seagram and Pinna are kept together. As, Yardly is one of the variety and it can only be placed on the counter where there are a total of 3 wine varieties.

|  |  |
| --- | --- |
| **Counter** | **Wines** |
| 1 (2 wines) |  |
| 2 (3 wines) | Yardly |
| 3 (4 wines) | Hoff, Riviera |
| 4 (5 wines) | Rene, Casto, Neelo |

11. (a)

There are 4 pairs i.e. Royal – Shalt, Grost – Bollinger, Sula – Pardma, Seagram – Pinna who must be kept on 4 different counters which can be done in 4! ways = 24 ways

12. (d)

Bollinger is with Riviera, means that Bollinger, Hoff, Riviera and Grost are on the counter with 4 wines. The remaining pairs i.e. Sula – Crop, Seagram – Pinna, Shalt – Royal have to be placed on 3 different tables which can be done in 3! = 6 ways.

13. (d)

We can see that statements made in choices (a), (b) and (c) are true as per the above discussion. Hoff is in the group of 4 wines and hence option (d) is definitely not true.

14. (a)

As per option (a), If Bollinger is kept on the table with 5 wines then Grost will be kept on the same table. Crop is on the table with 4 wines means that Sula is on the same table and Seagram is not kept on the table with 3 wines means it is kept on the table with 2 wines. This leaves us with Shalt and Royal on the table with 3 wine.

15. (c)

Rene is on the table where 5 wines have been kept.

**Solutions for 16 – 20:**

It is given that Dhawan, Vijay, Dhoni, Jadeja, Binny, Yadav, Kumar, Ashwin and Rayudu as batsmen. Sharma, Samson, Jadeja, Patel, Ashwin, Kumar and Kohli are bowlers. So, Jadeja, Kumar and Ashwin are all rounders.

Neither Jadeja nor Kumar is the captain means Ashwin is the captain. Five batsmen are to be selected from Dhawan, Vijay, Dhoni, Binny, Yadav and Rayudu. Given that if Dhoni is selected, then Dhawan and I cannot be selected leaving us with less than five batsmen. Hence Dhoni should not be selected. So, the selected batsmen are Dhawan, Vijay, Binny, Yadav and Rayudu. It is given that three bowlers are to be selected from Sharma, Rahane, Samson, Patel and Kohli. It is also give that if Rahane is selected, Kohli and Patel cannot be selected and the bowlers selected would be Sharma, Rahane and Samson which is not a feasible combination. Therefore, Rahane is not selected. We already know that Vijay is selected hence Sharma cannot be selected. The bowlers who are selected are Samson, Patel and Kohli. Ashwin and Sami cannot be selected. As Ashwin is already selected as the captain, hence Sami cannot be selected into the team. Therefore, Aaron is selected as the wicket-keeper.

The team of 11 selected to play the match are: Ashwin (Captain), Kumar (Vice-Captain), Aaron (Wicket-Keeper), Rayudu, Samson, Patel, Kohli, Dhawan, Vijay, Binny and Yadav.

16. (c)

Ashwin and Kumar are the captain and the vice-captain of the team respectively.

17. (a)

Samson, Patel and Kohli are the three bowlers are selected

in the team.

18. (d)

Vijay, Samson, Patel, Binny, Ashwin and Yadav are selected is the only statement that is true.

19. (b)

Aaron, Rayudu, Samson, Patel and Vijay are not selected in definitely false.

20. (a)

In the 2nd match Ashwin is the vice-captain and Kumar is the captain. As, final is the 10th match that India is playing and it is an even numbered match, Ashwin will be the vice-captain in that match.

**Solutions for 20 – 24:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **MBA** | | **Graduates** | |
|  | **Managers** | **Consultants** | **Managers** | **Consultants** |
| **Operations** | MM1 | MC1, MC2, MC2 | GM1 | GC1, GC2 |
| **Marketing** | MM2, MM3 | MC4, MC5 | GM2 | GC3, GC4 |
| **Consulting** | MM4, MM5 | MC6, MC7 | GM3 | GC5 |

● MC1, MC2, MC3 cannot be with GC5.

● GM1, GM2, GM3 cannot be with MC1, MC2, MC3, MC4, MC5, MC6 and MC7.

21. (b)

GM2 cannot be grouped with MC1 hence option (a) is eliminated. There is no consultant from the Marketing department and Operations and hence option (c) is eliminated. There is no manager from Marketing and hence option (d) is eliminated.

22. (d)

GM2 and MC3 cannot be together and hence option (a) is eliminated. As there are only 2 managers in option (b) and hence it is eliminated. MM2, MC5 and Mc7all are MBA’s and hence option (c) is eliminated.

23. (a)

MC1 and Gc5 cannot be together and hence option (b) is eliminated. There is only 1 graduate in the selections and hence option (c) is eliminated. MM3 is from the Marketing department and hence option (d) is eliminated.

24. (d)

MC5 and GM2 cannot go together and hence option (a) is eliminated. MM2 must be present and hence option (b) is eliminated. GM2 and MC4 cannot go together and hence option (c) is eliminated.

**Solutions for 25 – 29:**

25. (c)

Maximum possible strength of a team will be 7 when Kevin, Gayle, Williamson, Smith, Kohli, Sharma, and Maxwell are in the same team.

**For question 37 – 38:**

The possible teams whose strength is 4 are as follows

Team 1: Kohli, Maxwell, Sharma and Williamson

Team 2: Kevin, Gayle, Smith and Williamson

Team 3: Finch, Sharma, Kohli and Maxwell

Team 4: Finch, Williamson, Kohli and Maxwell

Team 5: Kevin, Gayle, Smith and Sharma

Team 6: Devilliers, Cory, Finch and Williamson

26. (d)

There can be six such teams formed whose strength is 4.

27. (a)

Each of the mentioned players can be part of the team of strength. 4.

28. (d)

Maximum possible strength of a team that has both Finch and Sharma is 5.

This team will have Finch, Sharma, Kohli, Maxwell, Williamson.

29. (d)

The teams whose strength is 3 are as follows:

Team 1: Devilliers, Cory and Finch,

Team 2: Devilliers, Cory and Williamson

Team 3: Kohli, Maxwell and Finch

Team 4: Kohli, Maxwell and Sharma

Team 5: Kohli, Maxwell and Williamson w

Tea m 6: Kevin, Gayle, and Smith

Tea m 7: Finch, Sharma and Williamson