MBA PIONEER 2024

Data Interpretation & Logical Reasoning

DPP: 7

Puzzles - 2

Directions (1-5) Read the following passage and answer the given questions.

Five shopkeeper - Anirudh, Sudheer, Manvendra, Suket and Raghav drive his car at different speed for different time interval among, 2 hrs., 3 hrs., 4 hrs., 5 hrs., and 6 hrs. at 20 km/hr, 30 km/hr, 40 km/hr, 45 km/hr and 60 km/hr not necessarily in the same order.

It is also known as :

1. Raghav and Suket travelled the same distance but Raghav drive his car for maximum hours.
2. Anirudh drive his car for least number of hours but not drive at least speed.
3. Manvendra drive his car at a speed of 45 km/hr for 3 hours.
4. Suket drive his car at a speed of 60 km/hr.

Q1 How much distance travelled by Sudheer?

(A) $60km$ (B) $100km$

(C) $135km$ (D) $240km$

Q2 Who drive at $40km/hr$?

(A) Raghav (B) Anirudh

(C) Sudheer (D) Suket

Q3 Who drive for 5 hrs?

(A) Sudheer (B) Suket

(C) Raghav (D) Manvendra

Q4 How much distance travelled by Suket?

(A) $135km$ (B) $100km$

(C) $240km$ (D) $60km$

Q5 Who covers the second highest distance?

(A) Raghav (B) Suket

(C) Manvendra (D) Sudheer

Directions (6-10) Read the following passage and answer the given questions.

For an interschool badminton championship, 7 players named as, Alex, Bob, Calieo, Danny, Eric, Federic and Genifer. They planned to form one team of three players and two teams of two player each.

Please note that :

1. Danny and Genifer can't be in the same team.
2. Bob and Calieo can't be in the same team.
3. Alex and Bob can't be in the same team.
4. Eric and Federic must be in the same team.

Q6 If Alex, Eric and Federic are the team of three players then which of the following can be the pair of team of two players.

(A) (Bob, Danny) and (Calieo, Genifer)

(B) (Bob, Genifer) and (Calieo, Danny)

(C) (Bob, Calieo) and (Danny, Genifer)

(D) Both (a) and (b)

Q7 If Bob, Eric and Federic are the member of a team of three player then which of the following can be the pair of team of two player.

(A) (Alex, Danny), (Calieo, Genifer)

(B) (Alex, Genifer), (Calieo, Danny)

(C) (Alex, Calieo), (Danny, Genifer)

(D) Both (a) and (b)

Q8 If Bob and Genifer cannot be in the same team then in how many ways a team of two player can be formed?

(A) 4 (B) 7

(C) 8 (D) 10

Q9 If (Danny, Eric and Federic) in the team of three players then which of the following can be the team of two players?

(A) (Bob, Genifer)
(B) (Alex, Calieo)
(C) (Alex, Genifer)
(D) Both (a) and (b)

Q10 If, Genifer, Eric and Federic are the members of a team of three player then which of the following can be the pair of team of two players.
(A) (Bob, Danny) and (Alex, Calieo)
(B) (Bob, Alex) and (Danny, Calieo)
(C) (Danny, Alex) and (Bob, Calieo)
(D) (Can't determine)

Directions (11-15) Read the following passage and answer the given questions.

From a class of CAT aspirants, five best batsman are chosen named as Vijay, Rakesh, Vinod, Ram, Akhil. Five bowlers are chosen named as Sujeet, Atul, Amal, Navin and Vishal. A team of best 4 is prepared then, Please note :

1. Exactly 2 batsman and 2 bowler must be chosen.
2. If Rakesh or Akhil is selected then none among Atul, Amal, Navin, Vishal are selected.
3. If Vijay is selected then neither Navin nor Vishal is selected.
4. Exactly one among Vijay and Vinod must be selected.
5. Atul is selected if and only if Sujeet is selected.

Q11 If one of the Batsmen is Vijay then which bowler can't be a part of the team.
(A) Sujeet (B) Atul
(C) Amal (D) None of these

Q12 What is the total number of ways by which one can form a team?
(A) 3 (B) 4
(C) 5 (D) 6

Q13 If Amal and Vishal are a part of bowling team then which player is not a part of team?
(A) Vijay (B) Rakesh
(C) Akhil (D) All of these

Q14 If Vinod is one of the member of the team then in how many ways one can form the team?
(A) 3 (B) 4
(C) 6 (D) 8

Q15 If Atul and Sujeet are the part of the team then which pair of player will also be the part of the team?
(A) (Vinod, Ram)
(B) (Vijay, Ram)
(C) (Rakesh, Akhil)
(D) Both (a) and (b)

Directions (16-20) Read the following passage and answer the given questions.

Eight people, Abhishek, Anand, Ashwani, Arpit, Amal, Atul, Avinash, and Ankit are participated to be a part of fantastic four.

It is also known that :

1. Exactly one out of Ashwani and Arpit must be selected.
2. If Ashwani is selected then Abhishek and Anand are not selected.
3. If Avinash is selected then Arpit and Ankit are not selected.
4. Arpit is selected if and only if Amal is selected.
5. Atul and Anand cannot be selected together.

Q16 In how many ways a team of fantastic four is formed?
(A) 4 (B) 5
(C) 6 (D) 7

Q17 If Anand is a part of the team, then which of the following can't be in the team?
(A) Arpit (B) Amal
(C) Ankit (D) AvinashV

Q18 Which of the following surely can't be a part of fantastic four?
(A) Ashwani
(B) Avinash

(C) Both (a) and (b)
(D) Can't be determined

Q19 If Arpit is a part of the team then which of the following must be a part of the team?
(A) Amal (B) Ankit
(C) Anand (D) Atul

Q20 Which pair of players must be a part of team?
(A) Arpit, Amal
(B) Ashwani, Avinash
(C) Abhishek, Anand
(D) None of these

Directions (21-25) Read the following passage and answer the given questions.

Flying Beast is an Indian food vlogger who travel around the world and wrote down some name of the hotel, plate in which these hotel serves food. On the basis of his experience in these hotels he rate them out of 5 .

None of them receive ' 0 ' as a rating. The hotels are, Taj hotel, Windham hotel, Amar hotel, City palace, Nawab ghar. The plate in which hotel serves food are Ceramic, Board, Crystal, Melanin, Porcelain not necessarily in the same order.

It is also known that :

1. Melanin plate got the minimum rating.
2. Taj hotel serves food in Porcelain plate and the rating received by them is the first even prime number.
3. City palace serves food in board plate and rating received by them is not least nor maximum.
4. The hotel which receive rating as 4 serves food in crystal plates.
5. Windham palace, doesn't serve food in Melanin and Crystal.

Q21 Which hotel receive 5 rating?
(A) Taj hotel (B) Windham hotel
(C) Amar hotel (D) City palace

Q22 Which hotel receive 1 rating?
(A) Taj hotel (B) Windham hotel
(C) Amar hotel (D) City palace

Q23 What is the difference of rating received by Taj hotel and City palace?
(A) 1 (B) 2
(C) 3 (D) 4

Q24 Which statement is absolutely correct?
(A) Amar hotel - Melanin
(B) Nawab ghar - Melanin
(C) Amar hotel-Crystal
(D) City palace - Board

Q25 If Amar hotel serves food in Melanin plate, then which hotel serves food in Crystal plates?
(A) Amar hotel
(B) City palace
(C) Windham hotel
(D) Nawab ghar

Directions (26-30) Read the following passage and answer the given questions.

Ten friends $P, Q, R, S, T, U, V, W, X$, and Y are all engineers working in three different sectors - IT, Pharma, and Automobile. It is known that only the 2 couples present among the ten friends work in IT. The following information is also known about them:

1. No male among the friends works in Pharma.
2. U and Y do not belong to the same gender and both do not work in the same sector as V.
3. V and T are males and work for the same sector.
4. Q is a female and R is a male.5. S is planning to shift to IT and he does not work with W
6. There are 4 females among the ten friends.
7. R works along with P in IT.
8. Only one other friend among the ten works along with W.
9. Each company has at least more than one friend in their sectors.

Q26 Which of the following statements is definitely incorrect?

I. W and U are working together.
II. R and Y form a couple.
III. P and U form a couple.
(A) Only I
(B) Only II
(C) Only III
(D) None of these

Q27 In which sector does X work?
(A) Pharma
(B) IT
(C) Automobiles
(D) Cannot be determined

Q28 What is the total number of males in IT and Pharma together?
(A) 1 (B) 2
(C) 3 (D) None of these

Q29 The exact gender of how many friends can be determined?
(A) 5 (B) 6
(C) 7 (D) 8

Q30 In which sector does R work?
(A) Pharma
(B) IT
(C) Automobiles
(D) Cannot be determined

Answer Key

Q1	(B)
Q2	(A)
Q3	(A)
Q4	(C)
Q5	(C)
Q6	(D)
Q7	(D)
Q8	(B)
Q9	(D)
Q10	(A)
Q11	(C)
Q12	(C)
Q13	(D)
Q14	(B)
Q15	(D)
Q16	(B)
Q17	(D)
Q18	(C)
Q19	(A)
Q20	(A)
Q21	(B)
Q22	(C)
Q23	(A)
Q24	(D)
Q25	(D)
Q26	(D)
Q27	(C)
Q28	(B)
Q29	(D)
Q30	(B)

Hints & Solutions

Q1. Text Solution:

By using point (1), (3) and (4) we get,

Name	Time	Speed	Distance
Anirudh			
Sudheer			
Manvendra	3	45 km/hr	135 km
Suket		60 km/hr	
Raghav	6		

By using point 2 we get,

Now to make the distance travelled by Suket and Raghav equal, only possibility is Suket travels for 4 hrs. at $60km/hr$ and Raghav travel for $6hrs$. at 40 km/hrs.

Anirudh can't drive his car at $20km/hr$ then 30 km/hr is the only possibility.

Then we have the table as,

Name	Time	Speed	Distance
Anirudh	2 hrs.	30 km/hr	60 km
Sudheer	5 hrs.	20 km/hr	100 km
Manvendra	3 hrs.	45 km/hr	135 km
Suket	4 hrs.	60 km/hr	240 km
Raghav	6 hrs.	40 km/hr	240 km

From the table we can say that Sudheer travels 100 km.

Q2. Text Solution:

By using point (1), (3) and (4) we get,

Name	Time	Speed	Distance
Anirudh			
Sudheer			
Manvendra	3	45 km/hr	135 km
Suket		60 km/hr	
Raghav	6		

By using point 2 we get,

Name	Time	Speed	Distance
Anirudh	2 hrs.		
Sudheer			
Manvendra	3 hrs.	45 km/hr	135
Suket		60 km/hr	
Raghav	6 hrs.		

Now to make the distance travelled by Suket and Raghav equal, only possibility is Suket travels for 4 hrs. at $60km/hr$ and Raghav travel for $6hrs$. at 40 km/hrs.

Anirudh can't drive his car at $20km/hr$ then 30 km/hr is the only possibility.

Then we have the table as,

Name	Time	Speed	Distance
Anirudh	2 hrs.	30 km/hr	60 km
Sudheer	5 hrs.	20 km/hr	100 km
Manvendra	3 hrs.	45 km/hr	135 km
Suket	4 hrs.	60 km/hr	240 km
Raghav	6 hrs.	40 km/hr	240 km

From the table we can say that Raghav travels at 40 km/hr

Q3. Text Solution:

By using point (1), (3) and (4) we get,

Name	Time	Speed	Distance
Anirudh			
Sudheer			
Manvendra	3	45 km/hr	135 km
Suket		60 km/hr	
Raghav	6		

By using point 2 we get,

Now to make the distance travelled by Suket and Raghav equal, only possibility is Suket travels for 4 hrs. at $60km/hr$ and Raghav travel for $6hrs$. at 40 km/hrs.

Anirudh can't drive his car at $20km/hr$ then 30 km/hr is the only possibility.

Then we have the table as,

Name	Time	Speed	Distance
Anirudh	2 hrs.	30 km/hr	60 km
Sudheer	5 hrs.	20 km/hr	100 km
Manvendra	3 hrs.	45 km/hr	135 km
Suket	4 hrs.	60 km/hr	240 km
Raghav	6 hrs.	40 km/hr	240 km

From the table we can say that Sudheer travels for $5hrs$.

Q4. Text Solution:

By using point (1), (3) and (4) we get,

Name	Time	Speed	Distance
Anirudh			
Sudheer			
Manvendra	3	45 km/hr	135 km
Suket		60 km/hr	
Raghav	6		

By using point 2 we get,

Now to make the distance travelled by Suket and Raghav equal, only possibility is Suket travels for 4 hrs. at $60km/hr$ and Raghav travel for $6hrs.$ at 40 $km/hrs.$

Anirudh can't drive his car at $20km/hr$ then 30 km/hr is the only possibility.

Then we have the table as,

Name	Time	Speed	Distance
Anirudh	2 hrs.	30 km/hr	60 km
Sudheer	5 hrs.	20 km/hr	100 km
Manvendra	3 hrs.	45 km/hr	135 km
Suket	4 hrs.	60 km/hr	240 km
Raghav	6 hrs.	40 km/hr	240 km

From the table we can say that Suket covers a distance of $240km$.

Q5. Text Solution:

By using point (1), (3) and (4) we get,

Name	Time	Speed	Distance
Anirudh			
Sudheer			
Manvendra	3	45 km/hr	135 km
Suket		60 km/hr	
Raghav	6		

By using point 2 we get,

Now to make the distance travelled by Suket and Raghav equal, only possibility is Suket travels for 4 hrs. at $60km/hr$ and Raghav travel for $6hrs.$ at 40 $km/hrs.$

Anirudh can't drive his car at $20km/hr$ then 30 km/hr is the only possibility.

Then we have the table as,

Name	Time	Speed	Distance
Anirudh	2 hrs.	30 km/hr	60 km
Sudheer	5 hrs.	20 km/hr	100 km
Manvendra	3 hrs.	45 km/hr	135 km
Suket	4 hrs.	60 km/hr	240 km
Raghav	6 hrs.	40 km/hr	240 km

From the table we can say that Manvendra travels the second highest distance.

Q6. Text Solution:

The remaining ones are, Bob, Calieo, Danny, Genifer.

Bob, Can't be with Calieo and Danny can't be with Genifer.

Then the possibilities are :

(1) (Bob, Danny) (Calieo, Genifer)

(2) (Bob, Genifer) (Danny, Calieo)

Q7. Text Solution:

(Bob, Eric and Federic) are in the same team of three.

Then the remaining one are, Alex, Calieo, Danny and Genifer.

Danny and Genifer can't be together so, (Danny, Alex) and (Calieo, Genifer)

(Danny, Calieo) and (Alex, Genifer)

Hence option (d)

Q8. Text Solution:

Here it is given that, (Danny ↔ Genifer) can't be together (Bob ↔ Calieo) can't be together. (Alex and Bob) can't be together. Additionally, (Bob and Genifer) can't be together. Here we can use first letter of each name to simplify problem.

(1) [E F] [B D] A G C

(2) [A C] B D G E F

(3) [A D] [C G] B E F

(4) [A G] B D C E F

(5) [C D] A G B E F

In 7 ways one cay form a team of 2 players.

Q9. Text Solution:

If Danny, Eric and Federic are in a team then the only possibility for Bob to form a team is (Bob and Genifer). Then Alex must form a team with Calieo. Hence option (d) will be the choice.

Q10. Text Solution:

If Eric, Federic and Genifer are the team of three players then the remaining ones are, Alex, Bob, Calieo, Danny.

(1) Alex and Bob can't be together.

(2) Bob, Calieo can't be together.

So only possibility is (Bob and Danny) and (Alex, Calieo).

Hence option (a).

Q11. Text Solution:

By using point 2 , one cay say that if we choose Rakesh or Akhil then 4 people got eliminated and to satisfy point 1 becomes impossible. So these 2 person can't be selected.

Now we are left with 3 batsman and 5 bowlers.

By using condition 4 we have 2 cases.

Case 1 :

Batsmen		Bowler	
Vijay	Ram		

Case 2 :

Batsmen		Bowler	
Vinod	Ram		

By using condition 3 and 5 we get,

Case 1 :

Batsmen		Bowler	
Vijay	Ram	Atul	Sujeet

Case 2 :

Batsmen		Bowler	
Vinod	Ram	Atul	Sujeet
Vinod,	Ram	Amal	Navin
Vinod	Ram	Amal	Vishal
Vinod	Ram	Navin	Vishal

From Case 1, only possibility for bowlers is Atul and Sujeet.

Hence Amal can't be a member of the team.

Q12. Text Solution:

By using point 2 , one cay say that if we choose Rakesh or Akhil then 4 people got eliminated and to satisfy point 1 becomes impossible. So these 2 person can't be selected.

Now we are left with 3 batsman and 5 bowlers.

By using condition 4 we have 2 cases.

Case 1 :

Batsmen		Bowler	
Vijay	Ram		

Case 2 :

Batsmen		Bowler	
Vinod	Ram		

By using condition 3 and 5 we get,

Case 1 :

Batsmen		Bowler	
Vijay	Ram	Atul	Sujeet

Case 2 :

Batsmen		Bowler	
Vinod	Ram	Atul	Sujeet
Vinod,	Ram	Amal	Navin
Vinod	Ram	Amal	Vishal
Vinod	Ram	Navin	Vishal

By both case we can say that one can form a team by 5 ways.

Q13. Text Solution:

By using point 2 , one cay say that if we choose Rakesh or Akhil then 4 people got eliminated and to satisfy point 1 becomes impossible. So these 2 person can't be selected.

Now we are left with 3 batsman and 5 bowlers.

By using condition 4 we have 2 cases.

Case 1 :

Batsmen		Bowler	
Vijay	Ram		

Case 2 :

Batsmen		Bowler	
Vinod	Ram		

By using condition 3 and 5 we get,
Case 1 :

Batsmen		Bowler	
Vijay	Ram	Atul	Sujeet

Case 2 :

Batsmen		Bowler	
Vinod	Ram	Atul	Sujeet
Vinod,	Ram	Amal	Navin
Vinod	Ram	Amal	Vishal
Vinod	Ram	Navin	Vishal

Amal and Vishal are a part of the team in second case then one cay say that option d will be the correct choice.

Q14. Text Solution:

By using point 2 , one cay say that if we choose Rakesh or Akhil then 4 people got eliminated and to satisfy point 1 becomes impossible. So these 2 person can't be selected.
Now we are left with 3 batsman and 5 bowlers.
By using condition 4 we have 2 cases.
Case 1 :

Batsmen		Bowler	
Vijay	Ram		

Case 2 :

Batsmen		Bowler	
Vinod	Ram		

By using condition 3 and 5 we get,
Case 1 :

Batsmen		Bowler	
Vijay	Ram	Atul	Sujeet

Case 2 :

Batsmen		Bowler	
Vinod	Ram	Atul	Sujeet
Vinod,	Ram	Amal	Navin
Vinod	Ram	Amal	Vishal
Vinod	Ram	Navin	Vishal

From Case 2 we can say that, one can form team in 4 ways.

Q15. Text Solution:

By using point 2 , one cay say that if we choose Rakesh or Akhil then 4 people got eliminated and to satisfy point 1 becomes impossible. So these 2 person can't be selected.
Now we are left with 3 batsman and 5 bowlers.
By using condition 4 we have 2 cases.
Case 1 :

Batsmen		Bowler	
Vijay	Ram		

Case 2 :

Batsmen		Bowler	
Vinod	Ram		

By using condition 3 and 5 we get,
Case 1 :

Batsmen		Bowler	
Vijay	Ram	Atul	Sujeet

Case 2 :

Batsmen		Bowler	
Vinod	Ram	Atul	Sujeet
Vinod,	Ram	Amal	Navin
Vinod	Ram	Amal	Vishal
Vinod	Ram	Navin	Vishal

Atul and Sujeet are the part f the team (Vinod, Ram) (Vijay, Ram) will be the part of the team.

Hence option (d).

Q16. Text Solution:

By 1 and 2 we get, one of Ashwani and Arpit must be selected if Ashwani is in the team then Abhishek and Anand cannot be in the team.

Point 4 suggest that, If Arpit is in the team then Amal is in the team and if Arpit is not in the team then Amal is not in the team and vice versa.

So, two cases arises,

Case I: When Ashwani is selected

Case II : When Arpit is selected.

Case I : When Ashwani is selected, then Abhishek, Anand, Arpit and Amal cannot be in the team as per condition 2 and 4 .

Then we are left with Atul, Avinash and Ankit. By using condition 3, Avinash and Ankit cannot be together so a team of fantastic 4 cannot be prepared.

Case II : When Arpit is selected :

When Arpit is selected then Amal will also be selected.

⇒ Arpit, Amal, ... , ...

Now the possibilities for the remain two positions are

1. Arpit, Amal, Abhishek, Anand
2. Arpit, Amal, Abhishek, Ankit
3. Arpit, Amal, Ankit, Anand
4. Arpit, Amal, Atul, Ankit
5. Arpit, Amal, Abhishek, Ankit

In 5 ways a team can be formed.

Q17. Text Solution:

By 1 and 2 we get, one of Ashwani and Arpit must be selected if Ashwani is in the team then Abhishek and Anand cannot be in the team.

Point 4 suggest that, If Arpit is in the team then Amal is in the team and if Arpit is not in the team then Amal is not in the team and vice versa.

So, two cases arises,

Case I: When Ashwani is selected

Case II : When Arpit is selected.

Case I : When Ashwani is selected, then Abhishek, Anand, Arpit and Amal cannot be in the team as per condition 2 and 4.

Then we are left with Atul, Avinash and Ankit. By using condition 3, Avinash and Ankit cannot be together so a team of fantastic 4 cannot be prepared.

Case II : When Arpit is selected :

When Arpit is selected then Amal will also be selected.

⇒ Arpit, Amal, ... , ...

Now the possibilities for the remain two positions are

1. Arpit, Amal, Abhishek, Anand
2. Arpit, Amal, Abhishek, Ankit
3. Arpit, Amal, Ankit, Anand
4. Arpit, Amal, Atul, Ankit
5. Arpit, Amal, Abhishek, Ankit

Avinash can't be a part of the team if Anand is there in a team.

Q18. Text Solution:

By 1 and 2 we get, one of Ashwani and Arpit must be selected if Ashwani is in the team then Abhishek and Anand cannot be in the team.

Point 4 suggest that, If Arpit is in the team then Amal is in the team and if Arpit is not in the team then Amal is not in the team and vice versa.

So, two cases arises,

Case I: When Ashwani is selected

Case II : When Arpit is selected.

Case I : When Ashwani is selected, then Abhishek, Anand, Arpit and Amal cannot be in the team as per condition 2 and 4 .

Then we are left with Atul, Avinash and Ankit. By using condition 3, Avinash and Ankit cannot be together so a team of fantastic 4 cannot be prepared.

Case II : When Arpit is selected :

When Arpit is selected then Amal will also be selected.

⇒ Arpit, Amal, ... , ...

Now the possibilities for the remain two

positions are
1. Arpit, Amal, Abhishek, Anand
2. Arpit, Amal, Abhishek, Ankit
3. Arpit, Amal, Ankit, Anand
4. Arpit, Amal, Atul, Ankit
5. Arpit, Amal, Abhishek, Ankit
Out of the possible ways Ashwani and Avinash cannot be a part of the team.

Q19. Text Solution:

By 1 and 2 we get,
one of Ashwani and Arpit must be selected if Ashwani is in the team then Abhishek and Anand cannot be in the team.
Point 4 suggest that, If Arpit is in the team then Amal is in the team and if Arpit is not in the team then Amal is not in the team and vice versa.
So, two cases arises,
Case I: When Ashwani is selected
Case II : When Arpit is selected.
Case I: When Ashwani is selected, then Abhishek, Anand, Arpit and Amal cannot be in the team as per condition 2 and 4.
Then we are left with Atul, Avinash and Ankit. By using condition 3, Avinash and Ankit cannot be together so a team of fantastic 4 cannot be prepared.
Case II : When Arpit is selected :
When Arpit is selected then Amal will also be selected.
$\Rightarrow$ Arpit, Amal,
Now the possibilities for the remain two positions are
1. Arpit, Amal, Abhishek, Anand
2. Arpit, Amal, Abhishek, Ankit
3. Arpit, Amal, Ankit, Anand
4. Arpit, Amal, Atul, Ankit
5. Arpit, Amal, Abhishek, Ankit
Amal is always in the team whenever Arpit is in the team by point 4 .

Q20. Text Solution:

By 1 and 2 we get, one of Ashwani and Arpit must be selected if Ashwani is in the team then Abhishek and Anand cannot be in the team.
Point 4 suggest that, If Arpit is in the team then Amal is in the team and if Arpit is not in the team then Amal is not in the team and vice versa.
So, two cases arises, Case I: When Ashwani is selected
Case II : When Arpit is selected.
Case I: When Ashwani is selected, then Abhishek, Anand, Arpit and Amal cannot be in the team as per condition 2 and 4 .
Then we are left with Atul, Avinash and Ankit.
By using condition 3, Avinash and Ankit cannot be together so a team of fantastic 4 cannot be prepared.
Case II : When Arpit is selected :
When Arpit is selected then Amal will also be selected.
$\Rightarrow$ Arpit, Amal, ... , ...
Now the possibilities for the remain two positions are
1. Arpit, Amal, Abhishek, Anand
2. Arpit, Amal, Abhishek, Ankit
3. Arpit, Amal, Ankit, Anand
4. Arpit, Amal, Atul, Ankit
5. Arpit, Amal, Abhishek, Ankit
Arpit and Atul must be a part of the team.

Q21. Text Solution:

Let's write down what we can conclude from each point.
1. Melanin plate got the minimum rating which is 1 .
2. Taj hotel $\rightarrow$ Porcelain plate $\rightarrow 2$
3. City palace $\rightarrow$ Board plate $\rightarrow (1^x, 5^x)$
4. (Hotel-?) $\rightarrow$ Crystal plate $\rightarrow 4$
5. Windham $\rightarrow$ Melanin ^{x}, Crystal ^{x}

We can use this information as

Name of Hotel	Plate	Rating
Taj Hotel	Porcelain	2
Windham Hotel		
Amar Hotel		
City Palace	Board	
Nawab ghar		

By using point 5 we cay say that Windham hotel serves food in Ceramic plates.

The ratings of Board plate is not 1, 5,2 and 4 then it must be 3 .

Now we can say that Ceramic plate receive rating of 5.

Form this discussion we can write the table as,

Name of Hotel	Plate	Ratings
Taj Hotel	Porcelain	2
Windham Hotel	Ceramic	5
Amar Hotel	Melanin/Crystal	1/4
City palace	Board	3
Nawab ghar	Crystal/Melanin	4/1

Windham hotel receive 5 ratings.

Q22. Text Solution:

Let's write down what we can conclude from each point.

1. Melanin plate got the minimum rating which is 1 .

2. Taj hotel $\rightarrow$ Porcelain plate $\rightarrow 2$

3. City palace $\rightarrow$ Board plate $\rightarrow (1^x, 5^x)$

4. (Hotel-?) $\rightarrow$ Crystal plate $\rightarrow 4$

5. Windham $\rightarrow$ Melanin ^{x}, Crystal ^{x}

We can use this information as

Name of Hotel	Plate	Rating
Taj Hotel	Porcelain	2
Windham Hotel		
Amar Hotel		
City Palace	Board	
Nawab ghar		

By using point 5 we cay say that Windham hotel serves food in Ceramic plates.

The ratings of Board plate is not 1, 5,2 and 4 then it must be 3 .

Now we can say that Ceramic plate receive rating of 5.

Form this discussion we can write the table as,

Name of Hotel	Plate	Ratings
Taj Hotel	Porcelain	2
Windham Hotel	Ceramic	5
Amar Hotel	Melanin/Crystal	1/4
City palace	Board	3
Nawab ghar	Crystal/Melanin	4/1

From the table Amar hotel and Nawab ghar can receive 1 rating but in the option only Amar hotel is available so we can mark this as correct option.

Q23. Text Solution:

Let's write down what we can conclude from each point.

1. Melanin plate got the minimum rating which is 1 .

2. Taj hotel $\rightarrow$ Porcelain plate $\rightarrow 2$

3. City palace $\rightarrow$ Board plate $\rightarrow (1^x, 5^x)$

4. (Hotel-?) $\rightarrow$ Crystal plate $\rightarrow 4$

5. Windham $\rightarrow$ Melanin ^{x}, Crystal ^{x}

We can use this information as

Name of Hotel	Plate	Rating
Taj Hotel	Porcelain	2
Windham Hotel		
Amar Hotel		
City Palace	Board	
Nawab ghar		

By using point 5 we cay say that Windham hotel serves food in Ceramic plates.

The ratings of Board plate is not 1, 5,2 and 4 then it must be 3 .

Now we can say that Ceramic plate receive rating of 5.

Form this discussion we can write the table as,

Name of Hotel	Plate	Ratings
Taj Hotel	Porcelain	2
Windham Hotel	Ceramic	5
Amar Hotel	Melanin/Crystal	1/4
City palace	Board	3
Nawab ghar	Crystal/Melanin	4/1

Required difference $= 3 - 2 = 1$

Q24. Text Solution:

Let's write down what we can conclude from each point.

1. Melanin plate got the minimum rating which is 1 .

2. Taj hotel $\rightarrow$ Porcelain plate $\rightarrow 2$

3. City palace $\rightarrow$ Board plate $\rightarrow (1^x, 5^x)$

4. (Hotel-?) $\rightarrow$ Crystal plate $\rightarrow 4$

5. Windham $\rightarrow$ Melanin ^{x}, Crystal ^{x}

We can use this information as

Name of Hotel	Plate	Rating
Taj Hotel	Porcelain	2
Windham Hotel		
Amar Hotel		
City Palace	Board	
Nawab ghar		

By using point 5 we cay say that Windham hotel serves food in Ceramic plates.

The ratings of Board plate is not 1, 5,2 and 4 then it must be 3 .

Now we can say that Ceramic plate receive rating of 5.

Form this discussion we can write the table as,

Name of Hotel	Plate	Ratings
Taj Hotel	Porcelain	2
Windham Hotel	Ceramic	5
Amar Hotel	Melanin/Crystal	1/4
City palace	Board	3
Nawab ghar	Crystal/Melanin	4/1

From the table we cay say that City palace - Board plate will be the correct choice.

Q25. Text Solution:

Let's write down what we can conclude from each point.

1. Melanin plate got the minimum rating which is 1 .

2. Taj hotel $\rightarrow$ Porcelain plate $\rightarrow 2$

3. City palace $\rightarrow$ Board plate $\rightarrow (1^x, 5^x)$

4. (Hotel-?) $\rightarrow$ Crystal plate $\rightarrow 4$

5. Windham $\rightarrow$ Melanin ^{x}, Crystal ^{x}

We can use this information as

Name of Hotel	Plate	Rating
Taj Hotel	Porcelain	2
Windham Hotel		
Amar Hotel		
City Palace	Board	
Nawab ghar		

By using point 5 we cay say that Windham hotel serves food in Ceramic plates.

The ratings of Board plate is not 1, 5,2 and 4 then it must be 3 .

Now we can say that Ceramic plate receive rating of 5.

Form this discussion we can write the table as,

Name of Hotel	Plate	Ratings
Taj Hotel	Porcelain	2
Windham Hotel	Ceramic	5
Amar Hotel	Melanin/Crystal	1/4
City palace	Board	3
Nawab ghar	Crystal/Melanin	4/1

If Amar hotel serves food in Melanin plate then Nawab ghar serves food in Crystal plates.

Q26. Text Solution:

Given in the question, only the 2 couples among the friends works in IT.

Thus, 4 friends work in IT and among them two are male and two are female.

From (1) and (6) we can say that the other two females must work in Pharma. Therefore, the rest four male friends are working in Automobiles.

From (8) we can say that W would definitely be working in Pharma.

Given, V and T are males and are working together. Thus, they must be working in either IT or Automobiles. As R is a male working in IT, they are not working in IT (IT only has 2 males). Thus, V and T are working in Automobiles.

Also, from (5), S is not working in either IT or Pharma Thus, S is working in Automobiles. Also, we know R, W, and P are not working in Automobiles.

Also, from (2) U and Y also do not work in Automobiles. From (4), we know Q is a female, so Q also does not work in Automobiles. Thus, X must be working for Automobiles and is a male. From the information obtained the following two cases can be formed.

Case - 1

IT	Pharma	Automobiles
R (m), U/Y(m), P (f), Y/U (f)	W (f), Q(f)	V(m), T(m), S(m), X (m)

Case - 2

IT	Pharma	Automobiles
R (m), U/Y(m), P (f), Q (f)	W (f), Y/U (f)	V(m), T(m), S(m), X (m)

From the table, we can see that all three statements are possible.

Q27. Text Solution:

Given in the question, only the 2 couples among the friends works in IT.

Thus, 4 friends work in IT and among them two are male and two are female.

From (1) and (6) we can say that the other two females must work in Pharma. Therefore, the rest four male friends are working in Automobiles.

From (8) we can say that W would definitely be working in Pharma.

Given, V and T are males and are working together. Thus, they must be working in either IT or Automobiles. As R is a male working in IT, they are not working in IT (IT only has 2 males). Thus, V and T are working in Automobiles.

Also, from (5), S is not working in either IT or Pharma Thus, S is working in Automobiles. Also, we know R, W, and P are not working in Automobiles.

Also, from (2) U and Y also do not work in Automobiles. From (4), we know Q is a female, so Q also does not work in Automobiles. Thus, X must be working for Automobiles and is a male. From the information obtained the following two cases can be formed.

Case - 1

IT	Pharma	Automobiles
R (m), U/Y(m), P (f), Y/U (f)	W (f), Q(f)	V(m), T(m), S(m), X (m)

Case - 2

IT	Pharma	Automobiles
R (m), U/Y(m), P (f), Q (f)	W (f), Y/U (f)	V(m), T(m), S(m), X (m)

From the table, we can see that X works in Automobiles.

Q28. Text Solution:

Given in the question, only the 2 couples among the friends works in IT.

Thus, 4 friends work in IT and among them two are male and two are female.

From (1) and (6) we can say that the other two females must work in Pharma. Therefore, the rest four male friends are working in Automobiles.

From (8) we can say that W would definitely be working in Pharma.

Given, V and T are males and are working together. Thus, they must be working in either IT or Automobiles. As R is a male working in IT, they are not working in IT (IT only has 2 males). Thus, V and T are working in Automobiles.

Also, from (5), S is not working in either IT or Pharma Thus, S is working in Automobiles. Also, we know R, W, and P are not working in Automobiles.

Also, from (2) U and Y also do not work in Automobiles. From (4), we know Q is a female, so Q also does not work in Automobiles. Thus, X must be working for Automobiles and is a male. From the information obtained the following two cases can be formed.

Case - 1

IT	Pharma	Automobiles
R (m), U/Y(m), P (f), Y/U (f)	W (f), Q(f)	V(m), T(m), S(m), X (m)

Case - 2

IT	Pharma	Automobiles
R (m), U/Y(m), P (f), Q (f)	W (f), Y/U (f)	V(m), T(m), S(m), X (m)

Hence the total number of males in IT and Pharma is 2 .

Q29. Text Solution:

Given in the question, only the 2 couples among the friends works in IT.

Thus, 4 friends work in IT and among them two are male and two are female.

From (1) and (6) we can say that the other two females must work in Pharma. Therefore, the rest four male friends are working in Automobiles.

From (8) we can say that W would definitely be working in Pharma.

Given, V and T are males and are working together. Thus, they must be working in either IT or Automobiles. As R is a male working in IT, they are not working in IT (IT only has 2 males). Thus, V and T are working in Automobiles.

Also, from (5), S is not working in either IT or Pharma Thus, S is working in Automobiles. Also, we know R, W, and P are not working in Automobiles.

Also, from (2) U and Y also do not work in Automobiles. From (4), we know Q is a female, so Q also does not work in Automobiles. Thus, X must be working for Automobiles and is a male. From the information obtained the following two cases can be formed.

Case - 1

IT	Pharma	Automobiles
R (m), U/Y(m), P (f), Y/U (f)	W (f), Q(f)	V(m), T(m), S(m), X (m)

Case - 2

IT	Pharma	Automobiles
R (m), U/Y(m), P (f), Q (f)	W (f), Y/U (f)	V(m), T(m), S(m), X (m)

From the table, we can see that the exact gender of 8 can be uniquely determined.

Q30. Text Solution:

Given in the question, only the 2 couples among the friends works in IT.

Thus, 4 friends work in IT and among them two are male and two are female.

From (1) and (6) we can say that the other two females must work in Pharma. Therefore, the rest four male friends are working in Automobiles.

From (8) we can say that W would definitely be working in Pharma.

Given, V and T are males and are working together. Thus, they must be working in either IT or Automobiles. As R is a male working in IT, they are not working in IT (IT only has 2 males). Thus, V and T are working in Automobiles.

Also, from (5), S is not working in either IT or Pharma Thus, S is working in Automobiles. Also, we know R, W, and P are not working in Automobiles.

Also, from (2) U and Y also do not work in Automobiles. From (4), we know Q is a female, so Q also does not work in Automobiles. Thus, X must be working for Automobiles and is a

male. From the information obtained the following two cases can be formed.

Case - 1

IT	Pharma	Automobiles
R (m), U/Y(m), P (f), Y/U (f)	W (f), Q(f)	V(m), T(m), S(m), X (m)

Case - 2

IT	Pharma	Automobiles
R (m), U/Y(m), P (f), Q (f)	W (f), Y/U (f)	V(m), T(m), S(m), X (m)

Hence R works in IT.