

# CAT 2022 DILR Mock

## 1 - 20



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### 1. Answer the following questions based on the given caselet:

Four IPL franchises CSK,MI,KKR and RR have contracts with players of four foreign countries England, Australia, West Indies and New Zealand over the years 2010-2017. The contracts were single-year contracts.

The following facts are also known about these contracts.

I. Only one player from Australia has always played with any of the team every year except 2016. And RR have contract with one foreign player, each year. And in any of the year not more than two players from a country played for any team.

II. One or more Players from England had played every year till 2015, but after not played in any of the team.

III. No player from West Indies has played in RR franchise and in the year 2016 and 2017, players from New Zealand did not played for RR.

IV. Only one player from New Zealand have contract in each years, 2015,2016 and 2017 but not with CSK or MI.

V. In the years 2015, 2016 and 2017 players from Australia only played for KKR or RR and in 2015, two England players played for MI and CSK had only 1 foreign player not from England.

VI. In 2010, there were total 6 foreign players in all four teams together, with two foreign players in MI and CSK and West Indies player were not in either MI not KKR. Before, 2015, Australian players never played for RR and before 2011 Australian players never played for KKR.

VII. In, 2010, England players has played for all franchises. In 2011, number of England players played for CSK is same as number of England players played for MI in 2015. And in, 2011, England and Australian players never played for same team. West Indies player not played for either MI or CSK in 2011. Total of 5 foreign players played in 2012 and 2011.

VIII. Number of foreign players in KKR was two in the year 2013 only and both players from same country but not from England. In 2013, only KKR has more than one player and Australian player not played for RR or MI.

IX. Player from Australia did not played for MI in 2016 and not for CSK in 2017. And number of foreign players in 2016 and 2017 was 4 and no team had more than one player.

X. In, 2012 and 2014, players from England played for CSK and in 2014 none of the franchises had more than one player. In 2012, two players from England and West Indies played and player from England do not played for MI or KKR. And player from Australia played for KKR.

XI. In, 2014, player from Australia did not played for RR or KKR. Total four players played in 2014 and two players from England had played.

**A. Player from which foreign country played for RR in 2015?**

**A** New Zealand

**B** England

**C** Australia

### **Solution**

From statement I,

Only one player from Australia has always played with any of the team every year except 2016. And RR have contract with one foreign player, each year. And in any of the year not more than two players from a country played for any team.

From statement II,

One or more Players from England had played every year till 2015, but after not played in any of the team. So, in 2016 and 2017 no England players.

From statement III,

No player from West Indies has played in RR franchise and in the year 2016 and 2017, players from New Zealand did not played for RR.

From statement IV,

Only one player from New Zealand have contract in each years, 2015,2016 and 2017 but not with CSK or MI.

So, player from New Zealand played for KKR in 2016 and 2017.

From statement V,

In the years 2015, 2016 and 2017 players from Australia only played for KKR or RR and in 2015, two England players played for MI and CSK had only 1 foreign player not from England. Since, player from New Zealand played for KKR in 2016 and 2017, player from Australia played for RR in 2016 and 2017 and for KKR in 2015. And foreign player in CSK in 2015 was from West Indies.

From statement VI,

In 2010, there were total 6 foreign players in all four teams together, with two foreign players in MI and CSK and West Indies player were not in either MI or KKR. Before, 2015, Australian players never played for RR and before 2011 Australian players never played for KKR.

Since, West Indies player never played for RR and not played for MI or KKR in 2010, played for CSK and England player played for RR and KKR.

From, statement VII,

In, 2010, England players has played for all franchises. In 2011, number of England players played for CSK is same as number of England players played for MI in 2015. And in, 2011, England and Australian players never played for same team. West Indies player not played for either MI or CSK in 2011. Total of 5 foreign players played in 2012 and 2011.

Since, in, 2010, England players has played for all franchises, player from Australia and England played for MI and played from West Indies and England played for CSK. Since, in 2011, number of England players played for CSK is same as number of England players played for MI in 2015, in 2011, two England players played for CSK. Since, West Indies player not played for either MI or CSK in 2011, West Indies player, played for KKR in 2011. Since, total 5 foreign players played in 2011 and Australian player not played for RR, Australian player played for MI.

From, statement VIII,

Number of foreign players in KKR was two in the year 2013 only and both players from same country but not from England. So, two West Indies players played for KKR in 2013. In 2013, only KKR has more than one player and Australian player not played for RR or MI, so Australian player played for CSK.

From statement IX,

Player from Australia did not played for MI in 2016 and not for CSK in 2017. So, Australian player played for CSK in 2016 and Australian player played for MI in 2017. And number of foreign players in 2016 and 2017 was 4 and no team had more than one player.

From statement X,

In, 2012 and 2014, players from England played for CSK and in 2014 none of the franchises had more than one player. In 2012, two players from England and West Indies played and player from England do not played for MI or KKR. And player from Australia played for KKR.

From statement XI,

In, 2014, player from Australia did not played for RR or KKR. Total four players played in 2014 and two players from England had played.

So, the table below can be obtained:

	2010	2011	2012	2013	2014	2015	2016
CSK	West Indies, England	England (2)	England	Australia	England	West Indies	Australia
MI	Australia,England	Australia	West Indies(2)	England	Australia	England (2)	West Indies
KKR	England	West Indies	Australia	West Indies(2)	West Indies	Australia	New Zealand
RR	England	England	England	England	Engalnd	New Zealand	Australia

Player from New Zealand played for RR in 2015.

**B. For which team West Indies player, played in 2011?**

**A** CSK

**B** MI

**C** KKR

**D** None

### **Solution**

From statement I,

Only one player from Australia has always played with any of the team every year except 2016. And RR have contract with one foreign player, each year. And in any of the year not more than two players from a country played for any team.

From statement II,

One or more Players from England had played every year till 2015, but after not played in any of the team. So, in 2016 and 2017 no England players.

From statement III,

No player from West Indies has played in RR franchise and in the year 2016 and 2017, players from New Zealand did not played for RR.

From statement IV,

Only one player from New Zealand have contract in each years, 2015,2016 and 2017 but not with CSK or MI.

So, player from New Zealand played for KKR in 2016 and 2017.

From statement V,

In the years 2015, 2016 and 2017 players from Australia only played for KKR or RR and in 2015, two England players played for MI and CSK had only 1 foreign player not from England. Since, player from New Zealand played for KKR in 2016 and 2017, player from Australia played for RR in 2016 and 2017 and for KKR in 2015. And foreign player in CSK in 2015 was from West Indies.

From statement VI,

In 2010, there were total 6 foreign players in all four teams together, with two foreign players in MI and CSK and West Indies player were not in either MI or KKR. Before, 2015, Australian players never played for RR and before 2011 Australian players never played for KKR.

Since, West Indies player never played for RR and not played for MI or KKR in 2010, played for CSK and England player played for RR and KKR.

From, statement VII,

In, 2010, England players has played for all franchises. In 2011, number of England players played for CSK is same as number of England players played for MI in 2015. And in, 2011, England and Australian players never played for same team. West Indies player not played for either MI or CSK in 2011. Total of 5 foreign players played in 2012 and 2011.

Since, in, 2010, England players has played for all franchises, player from Australia and England played for MI and played from West Indies and England played for CSK. Since, in 2011, number of England players played for CSK is same as number of England players played for MI in 2015, in 2011, two England players played for CSK. Since, West Indies player not played for either MI or CSK in 2011, West Indies player, played for KKR in 2011. Since, total 5 foreign players played in 2011 and Australian player not played for RR, Australian player played for MI.

From, statement VIII,

Number of foreign players in KKR was two in the year 2013 only and both players from same country but not from England. So, two West Indies players played for KKR in 2013. In 2013, only KKR has more than one player and Australian player not played for RR or MI, so Australian player played for CSK.

From statement IX,

Player from Australia did not played for MI in 2016 and not for CSK in 2017. So, Australian player played for CSK in 2016 and Australian player played for MI in 2017. And number of foreign players in 2016 and 2017 was 4 and no team had more than one player.

From statement X,

In, 2012 and 2014, players from England played for CSK and in 2014 none of the franchises had more than one player. In 2012, two players from England and West Indies played and player from England do not played for MI or KKR. And player from Australia played for KKR.

From statement XI,

In, 2014, player from Australia did not played for RR or KKR. Total four players played in 2014 and two players from England had played.

So, the table below can be obtained:

	2010	2011	2012	2013	2014	2015	2016
CSK	West Indies, England	England (2)	England	Australia	England	West Indies	Australia
MI	Australia,England	Australia	West Indies(2)	England	Australia	England (2)	West Indies
KKR	England	West Indies	Australia	West Indies(2)	West Indies	Australia	New Zealand
RR	England	England	England	England	Engalnd	New Zealand	Australia

In 2011, West Indies player played for KKR.

**C. How many players from West Indies have played in 2013 and 2014 together?**

**A** Three

**B** Two

**C** Five

**D** Four

### **Solution**

From statement I,

Only one player from Australia has always played with any of the team every year except 2016. And RR have contract with one foreign player, each year. And in any of the year not more than two players from a country played for any team.

From statement II,

One or more Players from England had played every year till 2015, but after not played in any of the team. So, in 2016 and 2017 no England players.

From statement III,

No player from West Indies has played in RR franchise and in the year 2016 and 2017, players from New Zealand did not played for RR.

From statement IV,

Only one player from New Zealand have contract in each years, 2015,2016 and 2017 but not with CSK or MI.

So, player from New Zealand played for KKR in 2016 and 2017.

From statement V,

In the years 2015, 2016 and 2017 players from Australia only played for KKR or RR and in 2015, two England players played for MI and CSK had only 1 foreign player not from England. Since, player from New Zealand played for KKR in 2016 and 2017, player from Australia played for RR in 2016 and 2017 and for KKR in 2015. And foreign player in CSK in 2015 was from West Indies.

From statement VI,

In 2010, there were total 6 foreign players in all four teams together, with two foreign players in MI and CSK and West Indies player were not in either MI or KKR. Before, 2015, Australian players never played for RR and before 2011 Australian players never played for KKR.

Since, West Indies player never played for RR and not played for MI or KKR in 2010, played for CSK and England player played for RR and KKR.

From, statement VII,

In, 2010, England players has played for all franchises. In 2011, number of England players played for CSK is same as number of England players played for MI in 2015. And in, 2011, England and Australian players never played for same team. West Indies player not played for either MI or CSK in 2011. Total of 5 foreign players played in 2012 and 2011.

Since, in, 2010, England players has played for all franchises, player from Australia and England played for MI and played from West Indies and England played for CSK. Since, in 2011, number of England players played for CSK is same as number of England players played for MI in 2015, in 2011, two England players played for CSK. Since, West Indies player not played for either MI or CSK in 2011, West Indies player, played for KKR in 2011. Since, total 5 foreign players played in 2011 and Australian player not played for RR, Australian player played for MI.

From, statement VIII,

Number of foreign players in KKR was two in the year 2013 only and both players from same country but not from England. So, two West Indies players played for KKR in 2013. In 2013, only KKR has more than one player and Australian player not played for RR or MI, so Australian player played for CSK.

From statement IX,

Player from Australia did not played for MI in 2016 and not for CSK in 2017. So, Australian player played for CSK in 2016 and Australian player played for MI in 2017. And number of foreign players in 2016 and 2017 was 4 and no team had more than one player.

From statement X,

In, 2012 and 2014, players from England played for CSK and in 2014 none of the franchises had more than one player. In 2012, two players from England and West Indies played and player from England do not played for MI or KKR. And player from Australia played for KKR.

From statement XI,

In, 2014, player from Australia did not played for RR or KKR. Total four players played in 2014 and two players from England had played.

So, the table below can be obtained:

	2010	2011	2012	2013	2014	2015	2016
CSK	West Indies, England	England (2)	England	Australia	England	West Indies	Australia
MI	Australia,England	Australia	West Indies(2)	England	Australia	England (2)	West Indies
KKR	England	West Indies	Australia	West Indies(2)	West Indies	Australia	New Zealand
RR	England	England	England	England	Engalnd	New Zealand	Australia

Three players from West Indies have played in 2013 and 2014 together.

**D. In 2016, players from Australia played for which franchise/(s)?**

**A** RR

**B** CSK

**C** MI

**D** Both A and B

**Solution**

From statement I,

Only one player from Australia has always played with any of the team every year except 2016. And RR have contract with one foreign player, each year. And in any of the year not more than two players from a country played for any team.

From statement II,

One or more Players from England had played every year till 2015, but after not played in any of the team. So, in 2016 and 2017 no England players.

From statement III,

No player from West Indies has played in RR franchise and in the year 2016 and 2017, players from New Zealand did not played for RR.

From statement IV,

Only one player from New Zealand have contract in each years, 2015,2016 and 2017 but not with CSK or MI.

So, player from New Zealand played for KKR in 2016 and 2017.

From statement V,

In the years 2015, 2016 and 2017 players from Australia only played for KKR or RR and in 2015, two England players played for MI and CSK had only 1 foreign player not from England. Since, player from New Zealand played for KKR in 2016 and 2017, player from Australia played for RR in 2016 and 2017 and for KKR in 2015. And foreign player in CSK in 2015 was from West Indies.

From statement VI,

In 2010, there were total 6 foreign players in all four teams together, with two foreign players in MI and CSK and West Indies player were not in either MI or KKR. Before, 2015, Australian players never played for RR and before 2011 Australian players never played for KKR.

Since, West Indies player never played for RR and not played for MI or KKR in 2010, played for CSK and England player played for RR and KKR.

From, statement VII,

In, 2010, England players has played for all franchises. In 2011, number of England players played for CSK is same as number of England players played for MI in 2015. And in, 2011, England and Australian players never

played for same team. West Indies player not played for either MI or CSK in 2011. Total of 5 foreign players played in 2012 and 2011.

Since, in, 2010, England players has played for all franchises, player from Australia and England played for MI and played from West Indies and England played for CSK. Since, in 2011, number of England players played for CSK is same as number of England players played for MI in 2015, in 2011, two England players played for CSK. Since, West Indies player not played for either MI or CSK in 2011, West Indies player, played for KKR in 2011. Since, total 5 foreign players played in 2011 and Australian player not played for RR, Australian player played for MI.

From, statement VIII,

Number of foreign players in KKR was two in the year 2013 only and both players from same country but not from England. So, two West Indies players played for KKR in 2013. In 2013, only KKR has more than one player and Australian player not played for RR or MI, so Australian player played for CSK.

From statement IX,

Player from Australia did not played for MI in 2016 and not for CSK in 2017. So, Australian player played for CSK in 2016 and Australian player played for MI in 2017. And number of foreign players in 2016 and 2017 was 4 and no team had more than one player.

From statement X,

In, 2012 and 2014, players from England played for CSK and in 2014 none of the franchises had more than one player. In 2012, two players from England and West Indies played and player from England do not played for MI or KKR. And player from Australia played for KKR.

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	2010	2011	2012	2013	2014	2015	2016
MI	Australia,England	Australia	West Indies(2)	England	Australia	England (2)	West Indies
KKR	England	West Indies	Australia	West Indies(2)	West Indies	Australia	New Zealand
RR	England	England	England	England	Engalnd	New Zealand	Australia

In 2016, players from Australia played for CSK and RR

**E. How many players from England played in the year 2010?**

**A** Three

**B** Four

**C** Six

**D** Five

### **Solution**

From statement I,

Only one player from Australia has always played with any of the team every year except 2016. And RR have contract with one foreign player, each year. And in any of the year not more than two players from a country played for any team.

From statement II,

One or more Players from England had played every year till 2015, but after not played in any of the team. So, in 2016 and 2017 no England players.

From statement III,

No player from West Indies has played in RR franchise and in the year 2016 and 2017, players from New Zealand did not played for RR.

From statement IV,

Only one player from New Zealand have contract in each years, 2015,2016 and 2017 but not with CSK or MI.

So, player from New Zealand played for KKR in 2016 and 2017.

From statement V,

In the years 2015, 2016 and 2017 players from Australia only played for KKR or RR and in 2015, two England players played for MI and CSK had only 1 foreign player not from England. Since, player from New Zealand played for KKR in 2016 and 2017, player from Australia played for RR in 2016 and 2017 and for KKR in 2015. And foreign player in CSK in 2015 was from West Indies.

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In 2010, there were total 6 foreign players in all four teams together, with two foreign players in MI and CSK and West Indies player were not in either MI or KKR. Before, 2015, Australian players never played for RR and before 2011 Australian players never played for KKR.

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Since, in, 2010, England players has played for all franchises, player from Australia and England played for MI and played from West Indies and England played for CSK. Since, in 2011, number of England players played for CSK is same as number of England players played for MI in 2015, in 2011, two England players played for CSK. Since, West Indies player not played for either MI or CSK in 2011, West Indies player, played for KKR in 2011. Since, total 5 foreign players played in 2011 and Australian player not played for RR, Australian player played for MI.

From, statement VIII,

Number of foreign players in KKR was two in the year 2013 only and both players from same country but not from England. So, two West Indies players played for KKR in 2013. In 2013, only KKR has more than one player and Australian player not played for RR or MI, so Australian player played for CSK.

From statement IX,

Player from Australia did not played for MI in 2016 and not for CSK in 2017. So, Australian player played for CSK in 2016 and Australian player played for MI in 2017. And number of foreign players in 2016 and 2017 was 4 and no team had more than one player.

From statement X,

In, 2012 and 2014, players from England played for CSK and in 2014 none of the franchises had more than one player. In 2012, two players from England and West Indies played and player from England do not played for MI or KKR. And player from Australia played for KKR.

From statement XI,

In, 2014, player from Australia did not played for RR or KKR. Total four players played in 2014 and two players from England had played.

So, the table below can be obtained:

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CSK	West Indies, England	England (2)	England	Australia	England	West Indies	Australia
MI	Australia,England	Australia	West Indies(2)	England	Australia	England (2)	West Indies
KKR	England	West Indies	Australia	West Indies(2)	West Indies	Australia	New Zealand
RR	England	England	England	England	Engalnd	New Zealand	Australia

Four players from England played in 2011.

**2. Answer the questions based on the information given below:**

Ten football players (L,M,N,O,P,Q,R,S,T and U) are specialised in at least one of the following three skills: dribbling, shooting, and passing . Among them, three are players with dribbling skills but without shooting, or passing skills , another three are players in shooting but without dribbling, or passing skills, and one is a player with passing skills but without dribbling or shooting skills. Further, two are players with dribbling and shooting skills but not with passing skill, and one is a player with dribbling and passing skills but not with shooting skills.

The following facts are known about these ten football players.

- 1) Both L and M are football players with shooting skills , but only one of them is also player with dribbling skills.
- 2) O is a player skilled in both dribbling skills and passing skills.
- 3) Both Q and R are players skilled in dribbling, but only one of them is also a player with shooting skills.
- 4) Neither T nor U is a player skilled in dribbling.
- 5) Neither S nor T is a player with shooting skills, but only one of them is a player with passing skills.

**A. Which of the following pairs CANNOT have any football player who is a player skilled in dribbling and shooting but not in passing?**

**A** N and P

**B** L and M

**C** N and Q

**D** Q and R

**Solution**

From statement i, exactly one of L or M is a player skilled in shooting, and the other one is a player with dribbling and shooting skills but not with passing skill.

From statement ii, O is the only person who is a player with dribbling and passing skills but not with shooting skills

From statement iii, one of Q and G is a player skilled in dribbling, while the other is a player with shooting skills but not passing skills.

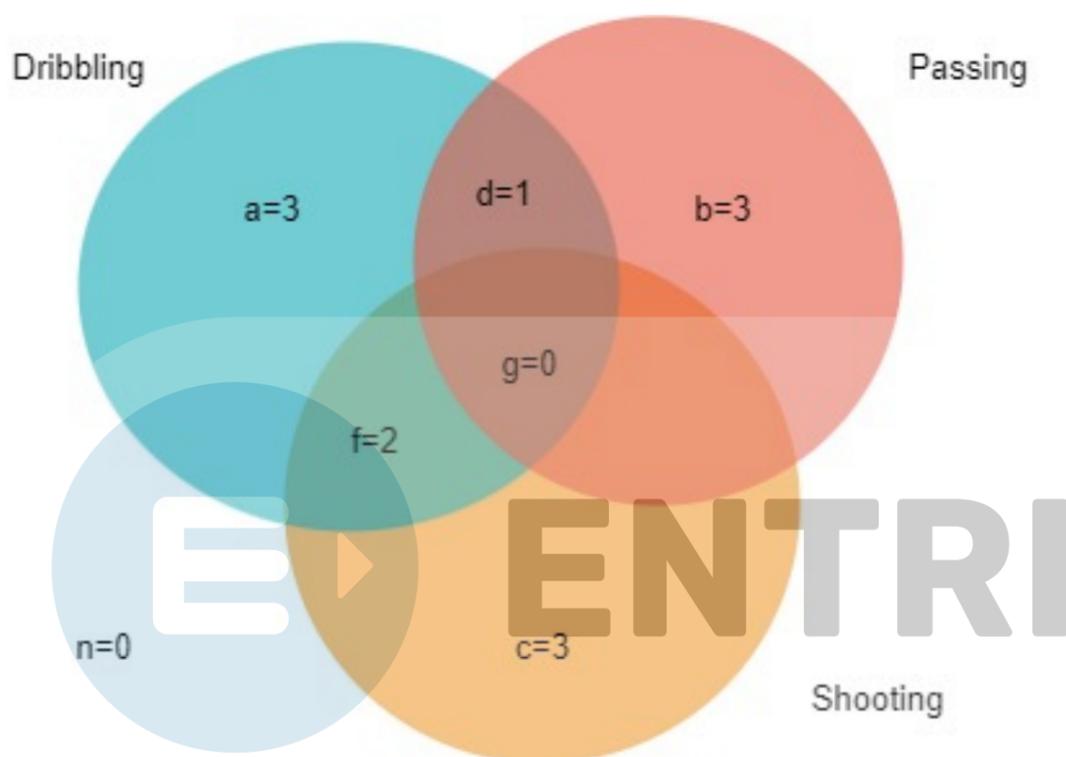
From statements iv and v, T is not a player skilled in dribbling and shooting ; hence, T is a player with passing skill.

From statement v, S is not a player with shooting skills. Hence, the only possibility left is that S is a player with dribbling skills.

From statement iv, U is not a player skilled in dribbling. Hence, he must be a player with only shooting skills.

For the remaining two persons N and P, one should be a player with only dribbling skills, while the other should be a player with only shooting skills.

Using this data, we can get the venn diagram as given below:



Regions: a = R/Q, S, N/P; b = T, c =L/M, N/P, U; d = O; f = L/M, R/Q

Neither N nor P is a player skilled in dribbling and shooting but not in passing

- B. If N is a player skilled in shooting and Q is not, then which are the three players who are skilled in dribbling but not in either shooting or passing?**

**A** P, Q, and R

**B** N, P, and Q

C P, Q, and S

D N, R, and S

### Solution

From statement i, exactly one of L or M is a player skilled in shooting, and the other one is a player with dribbling and shooting skills but not with passing skill.

From statement ii, O is the only person who is a player with dribbling and passing skills but not with shooting skills

From statement iii, one of Q and G is a player skilled in dribbling, while the other is a player with shooting skills but not passing skills.

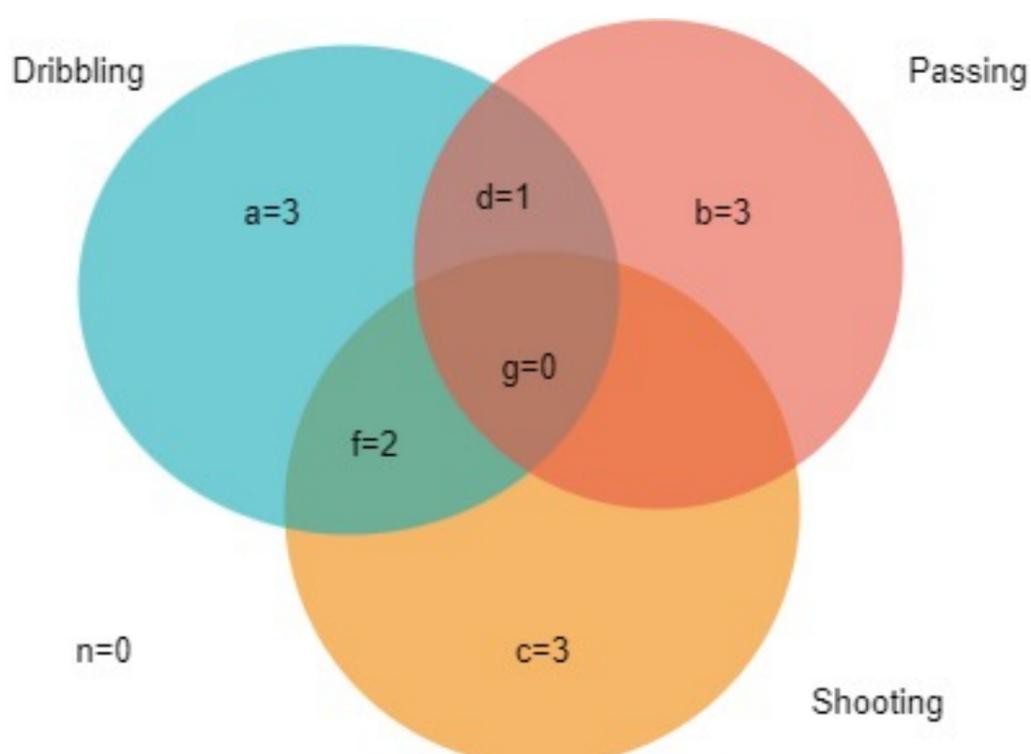
From statements iv and v, T is not a player skilled in dribbling and shooting ; hence, T is a player with passing skill.

From statement v, S is not a player with shooting skills. Hence, the only possibility left is that S is a player with dribbling skills.

From statement iv, U is not a player skilled in dribbling. Hence, he must be a player with only shooting skills.

For the remaining two persons N and P, one should be a player with only dribbling skills, while the other should be a player with only shooting skills.

Using this data, we can get the venn diagram as given below:



Regions: a = R/Q, S, N/P; b = T, c = L/M, N/P, U; d = O; f = L/M, R/Q

P, Q, and S are the three players who are skilled in dribbling but not in either shooting or passing.

C. **Who among the following is DEFINITELY a skilled player in passing but not in either dribbling or shooting skills?**

A P

B T

C M

D M

### **Solution**

From statement i, exactly one of L or M is a player skilled in shooting, and the other one is a player with dribbling and shooting skills but not with passing skill.

From statement ii, O is the only person who is a player with dribbling and passing skills but not with shooting skills

From statement iii, one of Q and G is a player skilled in dribbling, while the other is a player with shooting skills but not passing skills.

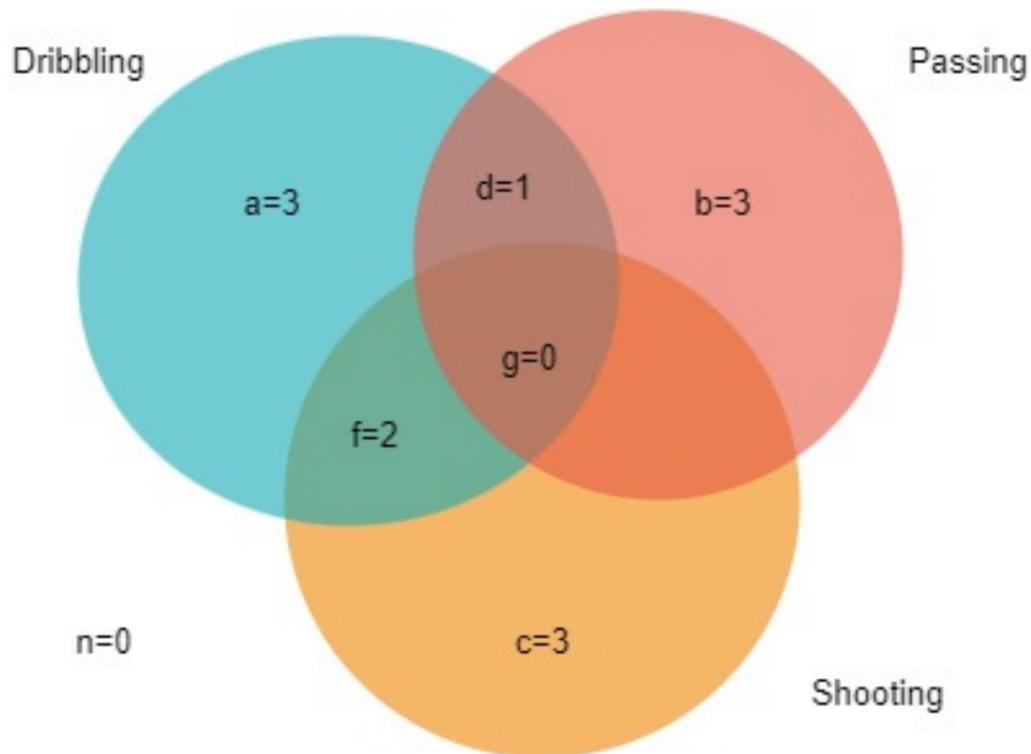
From statements iv and v, T is not a player skilled in dribbling and shooting ; hence, T is a player with passing skill.

From statement v, S is not a player with shooting skills. Hence, the only possibility left is that S is a player with dribbling skills.

From statement iv, U is not a player skilled in dribbling. Hence, he must be a player with only shooting skills.

For the remaining two persons N and P, one should be a player with only dribbling skills, while the other should be a player with only shooting skills.

Using this data, we can get the venn diagram as given below:



Regions:  $a = R/Q, S, N/P$ ;  $b = T$ ,  $c = L/M, N/P, U$ ;  $d = O$ ;  $f = L/M, R/Q$

T is definitely a skilled player in passing but not in either dribbling or shooting skills.

**D. Who among the following is DEFINITELY a skilled player in shooting but not in either dribbling or passing skills?**

**A** U

**B** M

**C** R

**D** P

### **Solution**

From statement i, exactly one of L or M is a player skilled in shooting, and the other one is a player with dribbling and shooting skills but not with passing skill.

From statement ii, O is the only person who is a player with dribbling and passing skills but not with shooting skills

From statement iii, one of Q and G is a player skilled in dribbling, while the other is a player with shooting skills but not passing skills.

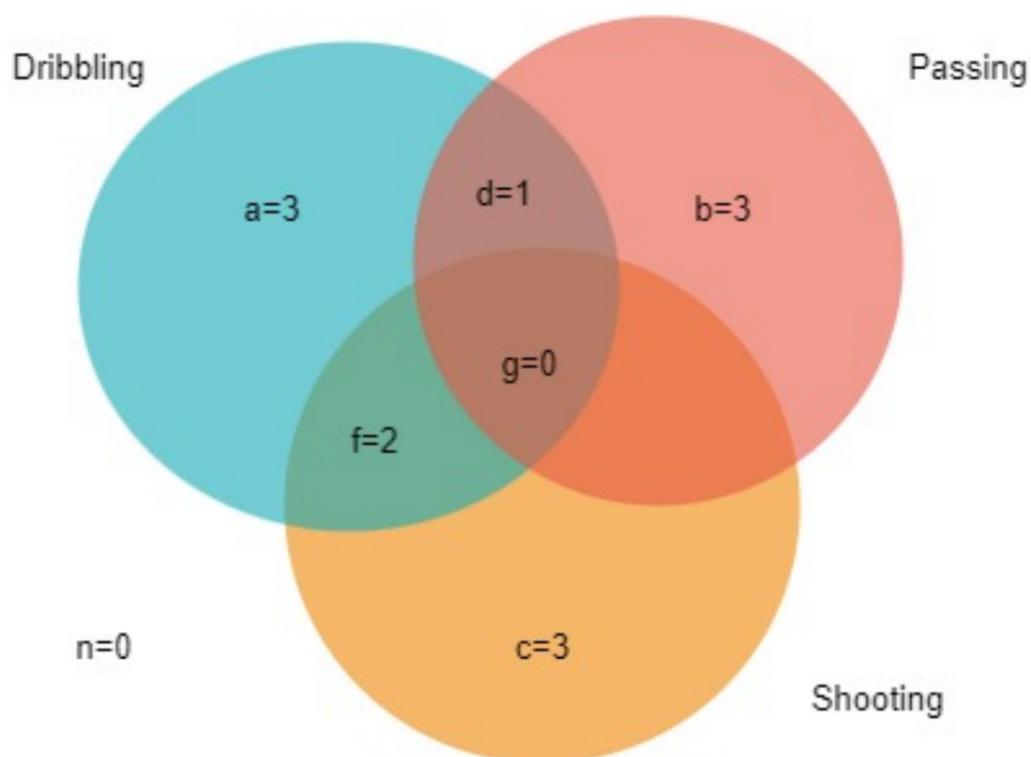
From statements iv and v, T is not a player skilled in dribbling and shooting ; hence, T is a player with passing skill.

From statement v, S is not a player with shooting skills. Hence, the only possibility left is that S is a player with dribbling skills.

From statement iv, U is not a player skilled in dribbling. Hence, he must be a player with only shooting skills.

For the remaining two persons N and P, one should be a player with only dribbling skills, while the other should be a player with only shooting skills.

Using this data, we can get the venn diagram as given below:



Regions:  $a = R/Q, S, N/P$ ;  $b = T$ ,  $c = L/M, N/P, U$ ;  $d = O$ ;  $f = L/M, R/Q$

U is definitely a skilled player in shooting but not in either dribbling or passing skills.

**E. Who among the following is DEFINITELY a skilled player in dribbling but not in either shooting or passing skills?**

**A** S

**B** L

C Q

D N

### Solution

From statement i, exactly one of L or M is a player skilled in shooting, and the other one is a player with dribbling and shooting skills but not with passing skill.

From statement ii, O is the only person who is a player with dribbling and passing skills but not with shooting skills

From statement iii, one of Q and G is a player skilled in dribbling, while the other is a player with shooting skills but not passing skills.

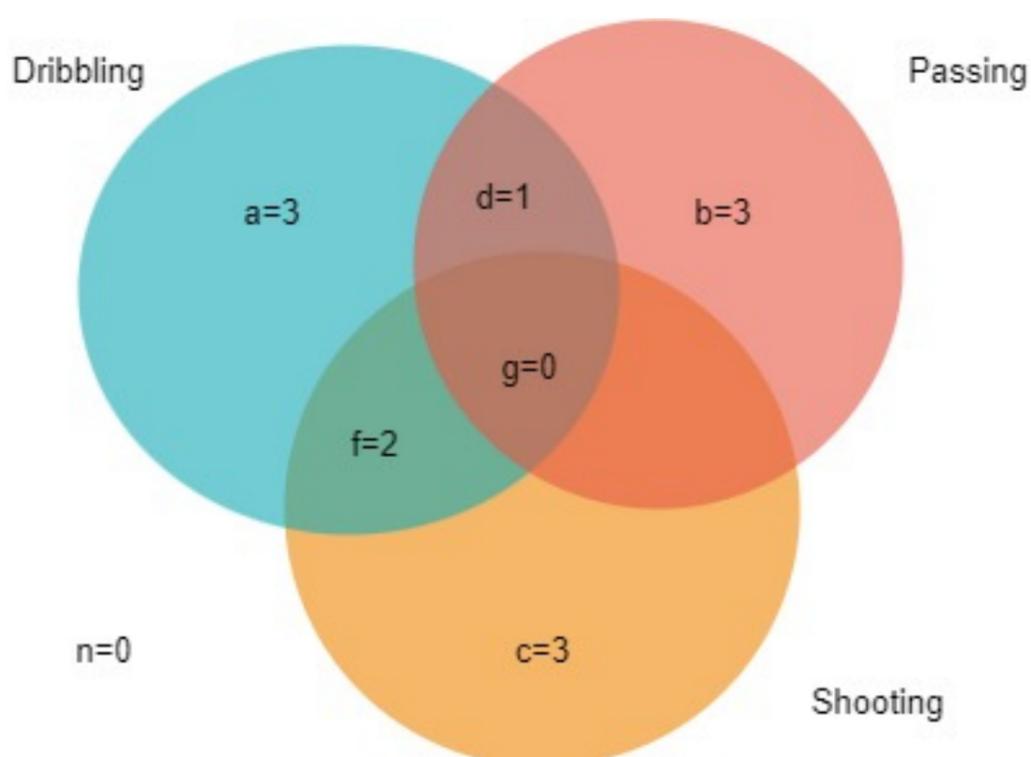
From statements iv and v, T is not a player skilled in dribbling and shooting ; hence, T is a player with passing skill.

From statement v, S is not a player with shooting skills. Hence, the only possibility left is that S is a player with dribbling skills.

From statement iv, U is not a player skilled in dribbling. Hence, he must be a player with only shooting skills.

For the remaining two persons N and P, one should be a player with only dribbling skills, while the other should be a player with only shooting skills.

Using this data, we can get the venn diagram as given below:



Regions:  $a = R/Q, S, N/P$ ;  $b = T$ ,  $c = L/M, N/P, U$ ;  $d = O$ ;  $f = L/M, R/Q$

From the above venn diagram, we can see that S is definitely a skilled player in dribbling but not in either shooting or passing skills.

**3. Answer the following questions based on the given information.**

The local branch of FBI bank evaluates the performance of five employees, Albin, Bala, Ciril, Dani, and Esha for their monthly salary based on ratings in five different criteria (C1 to C5) as given below:

C1: Punctuality

C2: Customer interaction

C3: Obidience

C4: Accuracy

C5: Attitude

Based on feedback from the customers, the bank assigns a rating from 1 to 5 in each of these criteria. Each rating is an integer from a low value of 1 to a high value of 5. The final rating of an employee is the average of his ratings in these five criterias. The monthly salary of the employees has two parts – a fixed salary and final rating-based allowance. If an employee gets a rating of 1 in any of the criteria, he is not eligible to get allowance. To be eligible for allowance, an employee also needs to get a rating of five in at least one of the criteria.

The partial information related to the ratings of the employees in different criteria and the monthly salary structure (in rupees) is given in the table below:

	C1	C2	C3	C4	C4	Fixed salary	Allowance
Albin				4		Rs. 20000	Rs. 2500 × final rating
Bala	3					Rs. 22000	Rs. 2000 × final rating
Ciril			2			Rs. 24000	Rs. 1000 × final rating
Dani		3				Rs. 23000	Rs. 1500 × final rating
Esha					2	Rs. 21000	Rs. 2000 × final rating

The following additional facts are also known.

1) Albin and Bala have got a rating of 5 in exactly one of the criteria. Ciril has got a rating of 5 in exactly two criteria.

2) None of the employees has got the same rating in three criteria.

**A. If Esha gets an allowance, what is the minimum possible value of her final rating?**

**A** 3.4

**B** 2.8



**ENTRI**

C 3.2

D 3.0

**Solution**

From the table, we can see that Esha gets a bonus; hence, she got a rating of 5 in one of the criteria, and she did not get a rating of 1 in any of the criteria.

Now, to minimize her final rating, his ratings in the remaining three criteria should be as low as possible.

Minimum possible ratings for the remaining three criteria can be 2, 3, and 3.

$$\text{Lowest possible final rating} = \frac{5+2+2+3+3}{5} = 3$$

**B. If Dani does not get an allowance, what is the maximum possible value of his final rating?**

A 3.4

B 3.2

C 3.8

D 3.6

**Solution**

From the table, we can see that Dani did not get an allowance; hence, we can say that he got a rating of 1 in one of the criteria.

Now, to maximize his final rating, his ratings in the remaining three criteria should be as high as possible.

Highest possible ratings for the remaining three criteria can be 5, 5, and 4.

$$\text{Highest possible final rating of Dani} = \frac{5+5+3+4+1}{5} = 3.6$$

**C. If all five employees get bonus, what is the maximum possible value of the monthly salary (in rupees) that an employee gets?**

**A** 29500

**B** 30500

**C** 29600

**D** 29000

### **Solution**

To get the maximum salary of employees, we need to keep the final rating as low as possible.

Considering statements 1 and 2 and the condition that no employee will get a rating of 1 as all the employees got a bonus, we can create the below table that shows the maximum possible final ratings and the maximum possible value of monthly salary that the given employees can get.

		<b>Bonus</b>		<b>Total</b>
Albin	$5 + 4 + 4 + 3 + 3 = 19$	$3.8(2500) = 9500$	20000	29500
Bala	$5 + 4 + 4 + 3 + 3 = 19$	$3.8(2000) = 7600$	22000	29600
Ciril	$5 + 5 + 4 + 4 + 2 = 20$	$4(1000) = 4000$	24000	28000
Dani	$5 + 5 + 3 + 4 + 4 = 21$	$4.2(1500) = 6300$	23000	29300
Esha	$5 + 5 + 4 + 4 + 2 = 20$	$4(2000) = 8000$	21000	29000

Hence, the maximum possible value of the monthly salary (in rupees) that an employee gets is Rs. 29600.

D. If all five employees get bonus, what is the minimum possible value of the monthly salary (in rupees) that an employee gets?

A 27500

B 27400

C 27000

D 26000

### Solution

To get the minimum salary of employees, we need to keep the final rating as low as possible.

Considering statements 1 and 2 and the condition that no employee will get a rating of 1 as all the employees got a bonus, we can create the below table that shows the minimum possible final ratings and the minimum possible value of monthly salary that the given employees can get.

		Bonus		Total
Albin	$5 + 4 + 2 + 2 + 3 = 16$	$3.2(2500) = 8000$	20000	28000
Bala	$5 + 3 + 2 + 2 + 3 = 15$	$3(2000) = 6000$	22000	28000
Ciril	$5 + 5 + 2 + 2 + 3 = 17$	$3.4(1000) = 3400$	24000	27400
Dani	$5 + 3 + 2 + 2 + 3 = 15$	$3(1500) = 4500$	23000	27500
Esha	$5 + 2 + 2 + 3 + 3 = 15$	$3(2000) = 6000$	21000	27000

Hence, the minimum possible value of the monthly salary (in rupees) that an employee gets is Rs. 27000.

**4. Answer the questions based on information given below:**

In a certain job fair, candidates were to appear for coding exam in five companies: TCS, IBM, Quest, Bosch, and VVDN. Due to a certain emergency situation, a few of the coding exam could not be conducted for some candidates. Hence, some candidates missed one coding exam and some others missed two coding exams. Nobody missed more than two coding exams.

If a candidate missed only one exam, then the marks awarded in that exam was the average of the best three among the four scores in the exams they appeared for. If a candidate missed two exams, then the marks awarded in each of these exams was the average of the best two among the three scores in the exams they appeared for. The marks obtained by six candidates in the exam are given in the table below. Each of them missed either one or two exams.

	<b>TCS</b>	<b>IBM</b>	<b>Quest</b>	<b>Bosch</b>	<b>VVDN</b>
Aron	80	75	70	75	60
Ben	90	80	55	85	85
Cali	75	80	90	100	90
Don	70	90	100	90	80
Elvis	80	85	95	60	55
Fred	83	72	78	88	83

The following facts are also known:

- I. Four of these candidates appeared in each of the TCS, IBM, Bosch, and VVDN exams.
- II. The candidate who missed the Quest exam did not miss any other exam.
- III. One of the candidates who missed the IBM exam did not miss any other exam. The other candidate who missed the IBM exam also missed the Bosch exam.

**A. Which candidates did not appear for the exam by TCS?**

**A** Aron and Ben

**B** Elvis and Fred

**C** Cannot be determined

### **Solution**

From statement ii, the candidate who missed the exam by Quest did not miss any other exams. From the given table, we can notice that only for Cali, the score in exam by Quest is the average of the best three among the remaining four scores. Hence, Cali missed the exam by Quest.

From statement iii, only Don or Aron has equal scores in exams by IBM and Bosch and only for these two, the score in exam by IBM is the average of the best three among the remaining four scores. Hence, both Don and Aron missed the exam by IBM and one of them also missed the exam by Bosch.

From statement i, 4 candidates appeared in each of the TCS, IBM, Bosch, and VVDN exams. Hence, exactly two candidates missed each of the exams by TCS, IBM, Bosch, and VVDN.

Aron, Carli, and Done have taken the exam by TCS. Now, only one of the remaining three candidates has taken the exam by TCS. Since Ben's score in exam by TCS cannot be the average of the best two or best three from the remaining scores, he must have taken the exam by TCS.

For exam by IBM:

We already knew that Aron and Don missed the exam by IBM.

For exam by Quest: Only Cali missed the exam by Quest.

For exam by Bosch:

One of Aron or Don missed the exam by Bosch. From the remaining persons, only Ben's score can be the average of the best two or best three scores. Hence, the second person who missed the exam by Bosch must be Ben.

Only Ben and Fred are the two persons who can miss the exam by VVDN and satisfy the given conditions. Hence, only Ben and Fred missed the exam by VVDN.

Now, we can make the following table about the candidates who missed a particular company.

Person	Exam missed
Aron	Only IBM or IBM and Bosch
Ben	Bosch and VVDN
Cali	Only Quest
Don	Only IBM or IBM and Bosch
Elvis	Only TCS
Fred	VVDN and TCS

Therefore, Elvis and Fred missed the exam by TCS.

**B. What BEST can be concluded about the candidates who did not appear for the exam by IBM?**

**A** Don and Ben

**B** Aron and Don

**C** Aron and Elvis

**D** Two among Aron, Don, Elvis

### Solution

From statement ii, the candidate who missed the exam by Quest did not miss any other exams. From the given table, we can notice that only for Cali, the score in exam by Quest is the average of the best three among the remaining four scores. Hence, Cali missed the exam by Quest.

From statement iii, only Don or Aron has equal scores in exams by IBM and Bosch and only for these two, the score in exam by IBM is the average of the best three among the remaining four scores. Hence, both Don and Aron missed the exam by IBM and one of them also missed the exam by Bosch.

From statement i, 4 candidates appeared in each of the TCS, IBM, Bosch, and VVDN exams. Hence, exactly two candidates missed each of the exams by TCS, IBM, Bosch, and VVDN.

Aron, Carli, and Done have taken the exam by TCS. Now, only one of the remaining three candidates has taken the exam by TCS. Since Ben's score in exam by TCS cannot be the average of the best two or best three from the remaining scores, he must have taken the exam by TCS.

For exam by IBM:

We already knew that Aron and Don missed the exam by IBM.

For exam by Quest: Only Cali missed the exam by Quest.

For exam by Bosch:

One of Aron or Don missed the exam by Bosch. From the remaining persons, only Ben's score can be the average of the best two or best three scores. Hence, the second person who missed the exam by Bosch must be Ben.

Only Ben and Fred are the two persons who can miss the exam by VVDN and satisfy the given conditions. Hence, only Ben and Fred missed the exam by VVDN.

Now, we can make the following table about the candidates who missed a particular company.

Person	Exam missed
Aron	Only IBM or IBM and Bosch
Ben	Bosch and VVDN
Cali	Only Quest
Don	Only IBM or IBM and Bosch
Elvis	Only TCS
Fred	VVDN and TCS

So, Aron and Don missed the exam by IBM.

- C. What BEST can be concluded about the candidates who missed the exam by Bosch?**

**A** Don and Ben

**B** Aron and Ben

**C** Ben and one out of Aron and Don

**D** Aron and Don

### **Solution**

From statement ii, the candidate who missed the exam by Quest did not miss any other exams. From the given table, we can notice that only for Cali, the score in exam by Quest is the average of the best three among the remaining four scores. Hence, Cali missed the exam by Quest.

From statement iii, only Don or Aron has equal scores in exams by IBM and Bosch and only for these two, the score in exam by IBM is the average of the best three among the remaining four scores. Hence, both Don and Aron missed the exam by IBM and one of them also missed the exam by Bosch.

From statement i, 4 candidates appeared in each of the TCS, IBM, Bosch, and VVDN exams. Hence, exactly two candidates missed each of the exams by TCS, IBM, Bosch, and VVDN.

Aron, Carli, and Done have taken the exam by TCS. Now, only one of the remaining three candidates has taken the exam by TCS. Since Ben's score in exam by TCS cannot be the average of the best two or best three from the remaining scores, he must have taken the exam by TCS.

For exam by IBM:

We already knew that Aron and Don missed the exam by IBM.

For exam by Quest: Only Cali missed the exam by Quest.

For exam by Bosch:

One of Aron or Don missed the exam by Bosch. From the remaining persons, only Ben's score can be the average of the best two or best three

scores. Hence, the second person who missed the exam by Bosch must be Ben.

Only Ben and Fred are the two persons who can miss the exam by VVDN and satisfy the given conditions. Hence, only Ben and Fred missed the exam by VVDN.

Now, we can make the following table about the candidates who missed a particular company.

Person	Exam missed
Aron	Only IBM or IBM and Bosch
Ben	Bosch and VVDN
Cali	Only Quest
Don	Only IBM or IBM and Bosch
Elvis	Only TCS
Fred	VVDN and TCS

Ben and one of Aron and Don missed the exam by Bosch.

**D. How many out of these six candidates missed exactly one exam?**

**A** 5

**B** 3

**C** 2

**D** 1

### **Solution**

From statement ii, the candidate who missed the exam by Quest did not miss any other exams. From the given table, we can notice that only for Cali, the score in exam by Quest is the average of the best three among the

remaining four scores. Hence, Cali missed the exam by Quest.

From statement iii, only Don or Aron has equal scores in exams by IBM and Bosch and only for these two, the score in exam by IBM is the average of the best three among the remaining four scores. Hence, both Don and Aro missed the exam by IBM and one of them also missed the exam by Bosch.

From statement i, 4 candidates appeared in in each of the TCS, IBM, Bosch, and VVDN exams. Hence, exactly two candidates missed each of the exams by TCS, IBM, Bosch, and VVDN.

Aron, Carli, and Done have taken the exam by TCS. Now, only one of the remaining three candidates has taken the exam by TCS. Since Ben's score in exam by TCS cannot be the average of the best two or best three from the remaining scores, he must have taken the exam by TCS.

For exam by IBM:

We already knew that Aron and Don missed the exam by IBM.

For exam by Quest: Only Cali missed the exam by Quest.

For exam by Bosch:

One of Aron or Don missed the exam by Bosch. From the remaining persons, only Ben's score can be the average of the best two or best three scores. Hence, the second person who missed the exam by Bosch must be Ben.

Only Ben and Fred are the two persons who can miss the exam by VVDN and satisfy the given conditions. Hence, only Ben and Fred missed the exam by VVDN.

Now, we can make the following table about the candidates who missed a particular company.

<b>Person</b>	<b>Exam missed</b>
Aron	Only IBM or IBM and Bosch
Ben	Bosch and VVDN
Cali	Only Quest
Don	Only IBM or IBM and Bosch
Elvis	Only TCS

Person	Exam missed
Fred	VVDN and TCS

From the above table, we can notice that the candidates who missed only one exam are Cali, Elvis, and one of Aron or Don. Hence, only 3 candidates missed only one exam.

**E. For how many candidates can we be sure about which exams they missed?**

**A** 4

**B** 3

**C** 5

**D** 2

### **Solution**

From statement ii, the candidate who missed the exam by Quest did not miss any other exams. From the given table, we can notice that only for Cali, the score in exam by Quest is the average of the best three among the remaining four scores. Hence, Cali missed the exam by Quest.

From statement iii, only Don or Aron has equal scores in exams by IBM and Bosch and only for these two, the score in exam by IBM is the average of the best three among the remaining four scores. Hence, both Don and Aro missed the exam by IBM and one of them also missed the exam by Bosch.

From statement i, 4 candidates appeared in in each of the TCS, IBM, Bosch, and VVDN exams. Hence, exactly two candidates missed each of the exams by TCS, IBM, Bosch, and VVDN.

Aron, Carli, and Done have taken the exam by TCS. Now, only one of the remaining three candidates has taken the exam by TCS. Since Ben's score in exam by TCS cannot be the average of the best two or best three from

the remaining scores, he must have taken the exam by TCS.

For exam by IBM:

We already knew that Aron and Don missed the exam by IBM.

For exam by Quest: Only Cali missed the exam by Quest.

For exam by Bosch:

One of Aron or Don missed the exam by Bosch. From the remaining persons, only Ben's score can be the average of the best two or best three scores. Hence, the second person who missed the exam by Bosch must be Ben.

Only Ben and Fred are the two persons who can miss the exam by VVDN and satisfy the given conditions. Hence, only Ben and Fred missed the exam by VVDN.

Now, we can make the following table about the candidates who missed a particular company.

Person	Exam missed
Aron	Only IBM or IBM and Bosch
Ben	Bosch and VVDN
Cali	Only Quest
Don	Only IBM or IBM and Bosch
Elvis	Only TCS
Fred	VVDN and TCS

For all the candidates except Aron and Don, we are sure about the exams they missed. Hence, there are 4 candidates.

**F. Who among the following did not appear for the exam conducted by Quest?**

**A** Fred

**B** Aron

**C** Cali

**D** Elvis

### **Solution**

From statement ii, the candidate who missed the exam by Quest did not miss any other exams. From the given table, we can notice that only for Cali, the score in exam by Quest is the average of the best three among the remaining four scores. Hence, Cali missed the exam by Quest.

From statement iii, only Don or Aron has equal scores in exams by IBM and Bosch and only for these two, the score in exam by IBM is the average of the best three among the remaining four scores. Hence, both Don and Aron missed the exam by IBM and one of them also missed the exam by Bosch.

From statement i, 4 candidates appeared in each of the TCS, IBM, Bosch, and VVDN exams. Hence, exactly two candidates missed each of the exams by TCS, IBM, Bosch, and VVDN.

Aron, Carli, and Done have taken the exam by TCS. Now, only one of the remaining three candidates has taken the exam by TCS. Since Ben's score in exam by TCS cannot be the average of the best two or best three from the remaining scores, he must have taken the exam by TCS.

For exam by IBM:

We already knew that Aron and Don missed the exam by IBM.

For exam by Quest: Only Cali missed the exam by Quest.

For exam by Bosch:

One of Aron or Don missed the exam by Bosch. From the remaining persons, only Ben's score can be the average of the best two or best three scores. Hence, the second person who missed the exam by Bosch must be Ben.

Only Ben and Fred are the two persons who can miss the exam by VVDN and satisfy the given conditions. Hence, only Ben and Fred missed the exam by VVDN.

Now, we can make the following table about the candidates who missed a particular company.

<b>Person</b>	<b>Exam missed</b>
Aron	Only IBM or IBM and Bosch
Ben	Bosch and VVDN
Cali	Only Quest
Don	Only IBM or IBM and Bosch
Elvis	Only TCS
Fred	VVDN and TCS



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