

6. If Cherry is in basket I and Pear is in basket II, which of the following must be true?

- (a) Apple is in basket I.
- (b) Grape is in basket II.
- (c) Orange is in basket II.
- (d) Banana is in basket III.
- (e) Grape in basket I

7. If Cherry is in basket II and Pear is in basket I, any of the following can be true EXCEPT :

- (a) Apple is in basket II.
- (b) Apple is in basket III.
- (c) Grape is in basket I.
- (d) Grape is in basket II.
- (e) Both (2) and (3)

8. If Apple, Grape and Orange are in basket I, which of the following must be true?

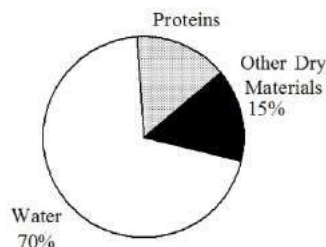
- (a) Banana is in basket II.
- (b) Cherry is in basket I.
- (c) Cherry is in basket III.
- (d) Mango is in basket III.
- (e) None of these

9. If Grape is in basket II, which of the following is acceptable?

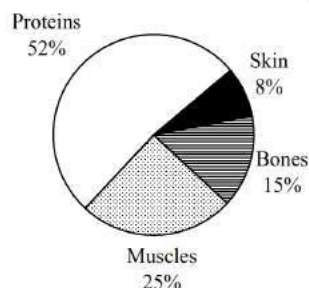
- (a) Apple is in basket I and Orange is in basket II.
- (b) Banana is in basket I and Mango is in basket II.
- (c) Banana is in basket I and Mango is in basket III.
- (d) Pear is in basket I and Cherry is in basket II.
- (e) More than one of the above given statements.

Direction for questions 10 to 12 : Answer these questions based on the data presented in the figure given below.

**Distribution of material in Ghosh Babu's body
(as a % of total body weight)**



**Occurrence of Proteins in different organs
of Ghosh Babu's body**



10. What fraction of Ghosh Babu's weight consists of muscular and skin proteins?

- (a) $\frac{1}{13}$
- (b) $\frac{1}{30}$
- (c) $\frac{1}{20}$
- (d) $\frac{1}{31}$
- (e) Cannot be determined

11. Ratio of distribution of proteins in muscle to the distribution of proteins in skin is

- (a) 3 : 1
- (b) 3 : 10
- (c) 1 : 3
- (d) $3\frac{1}{2}$
- (e) 10 : 3

12. What per cent of Ghosh Babu's body weight is made up of skin?

- (a) 0.15
- (b) 10
- (c) 1.2
- (d) 1.5
- (e) Cannot be determine

ANSWERS

- 1. (d) 2. (b) 3. (e) 4. (a) 5. (d) 6. (d) 7. (b) 8. (d) 9. (d) 10. (c)
- 11. (a) 12. (e)

SOLUTIONS

Level - 1

1. d From additional information (4) we know that C is not in group Y and D is not in group Z.
Given that C and D are in the same group, which means that both C and D are in group X.
A, C, D, H and I are in group X.
Since, we need to find the friend who cannot be in the group that has exactly three friends; it means that group X will only have five friends.
From additional information (a) we know that B and J are in the same group.
Also from additional information (b), D, E and F are in different groups.
So, it is clear that in a group which has exactly three friends; B and J will be accompanied by either E or F.
So, G will be in the group that has exactly two friends along with either E or F.
2. b Given that F is in group X and G is not in group Y
Since D, E and F are in different groups and D is not in group Z, therefore D is in group Y and E is in group Z.
Since, C is not in group Y and C, I and H are in the same group, therefore C, I and H are either in group X or group Z.
Also, G is either in group X or Z.
Since each group has at least two friends and B and J are in the same group, therefore in group Y, there are exactly three friends namely B, J and D.
Therefore, out of the pairs mentioned the following four pairs of friends cannot be in the same group; (J, F); (D, G); (B, E) and (D, I).
3. e Let us first form a group that has exactly six friends.
Since, in one group there are six friends, therefore in each of the two other groups there are two friends.
Also, we know that D, E and F are in different groups, B and J are in the same group and so are C, I and H.
This means that in a group which has six friends, the following five friends namely B, J, H, I and C must be there.
Since, C cannot be in group Y and in group X there is A along with one out of D, E and F, we can conclude that it is only group Z that can have six friends.

The sixth friend in group Z could be either E or F as D cannot be in group Z.

So, neither A nor G nor D cannot be in the group that has six friends.

4. a Since there are exactly five friends in group Z, so it can be concluded that H, I and C are definitely in group Z.

Since A is in group X, and D, E and F are in different groups, therefore B and J who are in the same group are in group Y.

So, G is also in group Z.

The fifth friend in group Z could be either E or F.

The third friend in group Y and second friend in group X could be either D or E or F.

Therefore, J is definitely in group Y.

Level - 2

For questions 5 to 9 :

5. d Check the options :
- (a) According to condition (iii), Mango and Pear cannot be together.
- (b) According to condition (ii) Banana and Cherry, Banana and Pear cannot be together.
- (c) According to condition (i) Apple and Grape should be together.
- (d) Does not violate any condition, so it is the answer.
6. d Based on the given information only two cases are possible.

Case I:

I	II	III
Pear	Cherry	Banana
Apple	Orange	Mango
Grape		

Case II:

I	II	III
Pear	Cherry	Banana
Orange	Apple	Mango
	Grape	

From the above two cases we can conclude that Banana is in basket III.

7. b Taking reference from the above question, we can conclude that Apple cannot be in basket III.

8. d Based on the given information, the only case possible is:

I	II	III
Apple	Pear	Banana
Grape	Cherry	Mango
Orange		

Hence, we can conclude that Mango is in basket III.

9. d Based on the information given in the question we can conclude that:

I	II	III
Pear	Apple	
	Grape	

Now, look at the options.

Option (a) is not acceptable because Apple cannot be in basket I.

Option (b) is not acceptable because Banana cannot be in basket 1.

Option (c) is not acceptable because Banana cannot be in basket I.

Option (d) is acceptable because Pear will definitely be in basket I and Cherry can be in basket II.

10. c The skin and muscular protein together constitute 33% of the total proteins. The total proteins itself is 15% of the total body weight. Hence, the percentage of skin and muscular protein as a fraction of the total body weight = $33\% \text{ of } 15\% = 5\% = 1/20$.
11. a Required ratio = $25 : 8 = 3 : 1$ (approx.).
12. e We can determine only the percentage of skin protein in Ghosh Babu's total body weight. But there is no data given about the percentage of skin in Ghosh Babu's body. Hence, the answer is (d).

PREVIOUS YEARS QUESTIONS

LEVEL - 1

1999

1. Three labelled boxes containing red and white cricket balls are all mislabelled. It is known that one of the boxes contains only white balls and another one contains only red balls. The third contains a mixture of red and white balls. You are required to correctly label the boxes with the labels red, white and red and white by picking a sample of one ball from only one box. What is the label on the box you should sample?
- (a) white
(b) red
(c) red and white
(d) Not possible to determine from a sample of one ball

LEVEL - 2

1994

Directions for Questions 2 to 5: Study the information below and answer the questions based on it.

The primitive tribes – folk of the island of Lexicophobos have recently developed a language for themselves. Which has a very limited vocabulary. In fact, the words can be classified into only three types : the Binges, the Cingoes and the Dingoes.

The Binges type of words are : Grumbs, Harrumphs, Ihavitoo

The Cingoes type of words are : Ihavitoo, Jingongo, Koolodo

The Dingoes type of words are : Lovitoo, Metoo, Nana
They have also devised some rules of grammar:

Every sentence must have only five words.

Every sentence must have two Binges, one Cingo and two Dingoes.

If Grumbs is used in a sentence, Ihavitoo must also be used and vice versa.

Koolodo can be used in a sentence only if Lovitoo is used.

2. Which choice of words in a sentence is not possible, if no rules of grammar are to be violated?
- (a) Grumbs and Harrumphs as the Binges and Ihavitoo as the Cingo.
(b) Harrumphs and Ihavitoo as the Binges.
(c) Grumbs and Ihavitoo as the Binges and Lovitoo and Nana as the Dingoes.
(d) Metoo and Nana as the Dingoes.
3. If Grumbs and Harrumphs are the Binges in a sentence, and no rule of grammar is violated, which of the following is / are true?
- I. Ihavitoo is the Cingo.
II. Lovitoo is the Dingo.
III. Either Lovitoo or Metoo must be one of – or both – the Dingoes.

- (a) I only (b) II only
(c) III only (d) I & III only

4. Which of the following is a possible sentence if no grammar rule is violated?

- (a) Grumbs harrumphs ihavitoo lovitoo metoo.
(b) Grumbs harrumphs ihavitoo jingongo lovitoo.
(c) Harrumphs ihavitoo jingongo lovitoo metoo.
(d) Grumbs ihavitoo koolodo metoo nana.

5. If in a sentence Grumps is the Bingo and no rule of grammar is violated, which of the following cannot be true?

- (a) Harrumphs must be a Bingo.
(b) Ihavitoo must be a Bingo.
(c) Lovitoo may be used.
(d) All three Bingos are used.

2001

Directions for Questions 6 to 8: Answer the questions based on the passage below.

A group of three or four has to be selected from seven persons. Among the seven are two women: Fiza and Kavita, and five men: Ram, Shyam, David, Peter and Rahim. Ram would not like to be in the group if Shyam is also selected. Shyam and Rahim want to be selected together in the group. Kavita would like to be in the group only if David is also there. David, if selected, would not like Peter in the group. Ram would like to be in the group only if Peter is also there. David insists that Fiza be selected in case he is there in the group.

6. Which of the following is a feasible group of three?

- (a) David, Ram and Rahim
(b) Peter, Shyam and Rahim
(c) Kavita, David and Shyam
(d) Fiza, David and Ram

7. Which of the following is a feasible group in four?

- (a) Ram, Peter, Fiza and Rahim
(b) Shyam, Rahim, Kavita and David
(c) Shyam, Rahim, Fiza and David
(d) Fiza, David, Ram and Peter

8. Which of the following statements is true?

- (a) Kavita and Ram can be part of a group of four
(b) A group of four can have two women
(c) A group of four can have all four men
(d) None of these

2001

9. Eight people carrying food baskets are going for a picnic on motorcycles. Their names are A, B, C, D, E, F, G, and H. They have 4 motorcycles M1, M2, M3 and M4 among them. They also have 4 food baskets O, P, Q and R of different sizes and shapes and each can be carried only on motorcycles M1, M2, M3 and M4 respectively. No more than 2 persons can travel on a motorcycle and no more than one basket can be carried on a motorcycle. There are 2 husband-wife pairs in this group of 8 people and each pair will ride on a motorcycle together. C cannot travel with A or B. E cannot travel with B or F. G cannot travel with F, or H, or D. The husband-wife pairs must carry baskets O and P. Q is with A and P is with D. F travels on M1 and E travels on M2 motorcycles. G is with Q, and B cannot go with R. Who is travelling with H?

- (a) A (b) B
(c) C (d) D

2001

10. In a 'keep-fit' gymnasium class there are 15 females enrolled in a weight-loss programme. They all have been grouped in any one of the five weight-groups W1, W2, W3, W4, or W5. One instructor is assigned to one weight-group only. Sonali, Shalini, Shubhra and Shahira belong to the same weight-group. Sonali and Rupa are in one weight-group, Rupali and Renuka are also in one weight-group. Rupa, Radha, Renuka, Ruchika, and Ritu belong to different weight-groups. Somya cannot be with Ritu, and Tara cannot be with Radha. Komal cannot be with Radha, Somya, or Ritu. Shahira is in W1 and Somya is in W4 with Ruchika. Sweta and Jyotika cannot be with Rupali, but are in a weight-group with total membership of four. No weight-group can have more than five or less than one member. Amita, Babita, Chandrika, Deepika and Elina are instructors of weight-groups with membership sizes 5, 4, 3, 2 and 1 respectively. Who is the instructor of Radha?

- (a) Babita (b) Elina
(c) Chandrika (d) Deepika

11. A king has unflinching loyalty from eight of his ministers M1 to M8, but he has to select only four to make a cabinet committee. He decides to choose these four such that each selected person shares a liking with at least one of the other three selected. The selected persons must also hate at least one of the likings of any of the other three persons selected.

M1 likes fishing and smoking, but hates gambling.
M2 likes smoking and drinking, but hates fishing.

M3 likes gambling, but hates smoking,
 M4 likes mountaineering, but hates drinking,
 M5 likes drinking, but hates smoking and mountaineering.
 M6 likes fishing, but hates smoking and mountaineering.
 M7 likes gambling and mountaineering, but hates fishing.
 M8 likes smoking and gambling, but hates mountaineering.

Who are the four people selected by the king?

- (a) M1, M2, M5 and M6
- (b) M3, M4, M5 and M6
- (c) M4, M5, M6 and M8
- (d) M1, M2, M4 and M7

2003

Directions for Questions 12 to 15: Answer the questions on the basis of the following information.

Four families decided to attend the marriage ceremony of one of their colleagues. One family has no kids, while the others have at least one kid each. Each family with kids has at least one kid attending the marriage. Given below is some information about the families, and who reached when to attend the marriage.

The family with two kids came just before the family with no kids.

Shanthi who does not have any kids reached just before Sridevi's family.

Sunil and his wife reached last with their only kid.

Anil is not the husband of Joya.

Anil and Raj are fathers.

Sridevi's and Anita's daughters go to the same school.

Joya came before Shanthi and met Anita when she reached the venue

Raman stays the farthest from the venue.

Raj said his son could not come because of his exams.

12. Who among the following arrived third?

- (a) Shanthi
- (b) Sridevi
- (c) Anita
- (d) Joya

13. Name the correct pair of husband and wife.

- (a) Raj and Shanthi
- (b) Sunil and Sridevi
- (c) Anil and Sridevi
- (d) Raj and Anita

14. Of the following pairs, whose daughters go to the same school?

- (a) Anil and Raman
- (b) Sunil and Raman
- (c) Sunil and Anil
- (d) Raj and Anil

15. Whose family is known to have more than one kid for certain?

- (a) Raman's
- (b) Raj's
- (c) Anil's
- (d) Sunil's

Directions for Questions 16 to 18: Answer the questions on the basis of the information given below.

A, B, C, D, E, and F are a group of friends. There are two housewives, one professor, one engineer, one accountant and one lawyer in the group. There are only two married couples in the group. The lawyer is married to D, who is a housewife. No woman in the group is either an engineer or an accountant. C, the accountant, is married to F, who is a professor. A is married to a housewife. E is not a housewife.

16. Which of the following is one of the married couples?

- (a) A & B
- (b) B & E
- (c) D & E
- (d) A & D

17. What is E's profession?

- (a) Engineer
- (b) Lawyer
- (c) Professor
- (d) Accountant

18. How many members of the group are males?

- (a) 2
- (b) 3
- (c) 4
- (d) Cannot be determined

2004

Directions for Questions 19 to 22: Answer the questions on the basis of the information given below.

Twenty one participants from four continents (Africa, America, Australasia, and Europe) attended a United Nations conference. Each participant was an expert in one of four fields, labour, health, population studies, and refugee relocation. The following five facts about the participants are given.

- (a) The number of labour experts in the camp was exactly half the number of experts in each of the other three categories.
- (b) Africa did not send any labour expert. Otherwise, every continent, including Africa, sent at least one expert for each category.
- (c) None of the continents sent more than three experts in any category.
- (d) If there had been one less Australasian expert, then the Americas would have had twice as many experts as each of the other continents.
- (e) Mike and Alfonso are leading experts of population studies who attended the conference. They are from Australasia.

19. Which of the following combinations is NOT possible?
- 2 experts in population studies from the Americas and 2 health experts from Africa attended the conference.
 - 2 experts in population studies from the Americas and 1 health expert from Africa attended the conference.
 - 3 experts in refugee relocation from the Americas and 1 health expert from Africa attended the conference.
 - Africa and America each had 1 expert in population studies attending the conference.
20. If Ramos is the lone American expert in population studies, which of the following is NOT true about the numbers of experts in the conference from the four continents?
- There is one expert in health from Africa.
 - There is one expert in refugee relocation from Africa.
 - There are two experts in health from the Americas.
 - There are three experts in refugee relocation from the Americas.
21. Alex, an American expert in refugee relocation, was the first keynote speaker in the conference. What can be inferred about the number of American experts in refugee relocation in the conference, excluding Alex?
- At least one
 - At most two
- Only i and not ii
 - Only ii and not i
 - Both i and ii
 - Neither i nor ii
22. Which of the following numbers cannot be determined from the information given?
- Number of labour experts from the Americas.
 - Number of health experts from Europe.
 - Number of health experts from Australasia.
 - Number of experts in refugee relocation from Africa.

2006

Directions for Questions 23 to 27: Answer the questions on the basis of the information given below:

K, L, M, N, P, Q, R, S, U and W are the only ten members in a department. There is a proposal to form a team from within the members of the department, subject to the following conditions:

- A team must include exactly one among P, R, and S.
- A team must include either M or Q, but not both.

- If a team includes K, then it must also include L, and vice versa.
- If a team includes one among S, U, and W, then it must also include the other two.
- L and N cannot be members of the same team.
- L and U cannot be members of the same team.

The size of a team is defined as the number of members in the team.

23. Who cannot be a member of a team of size 3?

- L
- M
- N
- P
- Q

24. Who can be a member of a team of size 5?

- K
- L
- M
- P
- R

25. What would be the size of the largest possible team?

- 8
- 7
- 6
- 5
- Cannot be determined

26. What could be the size of a team that includes K?

- 2 or 3
- 2 or 4
- 3 or 4
- Only 2
- Only 4

27. In how many ways a team can be constituted so that the team includes N?

- 2
- 3
- 4
- 5
- 6

MEMORY BASED QUESTIONS

2009

28. Three people among A, B, C, D, E and F are to be selected to form a committee. Each selected person should share at least one 'liking' with at least one of the other two selected people. Each selected person should also hate at least one 'liking' of at least one of the other two people selected.

- A likes reading and travelling, and hates surfing and singing.
- B likes surfing and driving, and hates fishing.
- C likes dancing and travelling, and hates reading and fishing.
- D likes fishing and surfing, and hates driving.
- E likes singing and travelling, and hates dancing.
- F likes reading and fishing, and hates surfing.

(a) A, D and F (b) A, C and E
(c) B, D and F (d) Both (b) and (c)

- [illegible]

(a) J
(b) I
(c) Either (a) or (b)
(d) No such team is possible

- (a) O (b) N
(c) G (d) J

(d) The Bannerjees eat makkai-ki-roti served in white chinaware, the Sharmas eat fried brinjal at 12 o'clock and the Pattabhiramans eat sambar from red chinaware

1. (c) 2. (b) 3. (d) 4. (a) 5. (b) 6. (b) 7. (c) 8. (d) 9. (c) 10. (b)
11. (d) 12. (a) 13. (b) 14. (c) 15. (b) 16. (d) 17. (a) 18. (b) 19. (d) 20. (c)
21. (c) 22. (d) 23. (a) 24. (c) 25. (d) 26. (e) 27. (d) 28. (d) 29. (b) 30. (c)
31. (c) 32. (c)

SOLUTIONS

LEVEL - 1

1. c Test the boxes labelled — Red and White.

Now if the ball is Red, label the box — Red

Now the box which has the label White is either Red or Red and White.

However, it cannot be Red.

Hence, it is Red and White.

The last box is White.

LEVEL - 2

2. b All the sentences are possible except (b) as Grumbs have to be used with Ihavitoo and Grumbs cannot be used in any other type but Binges.
3. d Since Grumbs and Harrumphs are the Binges and Grumbs has to always go with Ihavitoo, so we will have to use Ihavitoo as the Cingo. Since statement I is true, the answer can only be (a) or (d). So we will only evaluate the option (d). Since we have not used Koolodo as Cingo, we can use either Lovitoo or Metoo or both as Dingos. Hence, statement III is also true, so the answer is (d).
4. a Option (b) uses two Cingo's instead of one, hence grammatically incorrect. Option (c) violates the same rule again and in addition it uses ihavitoo without using Grumbs. Option (d) again uses two Cingo's instead of one. Hence, the only option that is grammatically correct is (a).
5. b If Grumbs is the Bingo, then Ihavitoo must also be used. And since Ihavitoo is common to Bingo and Cingo, Ihavitoo must be used as a Cingo. Also no other Cingo can be used. So obviously Harrumphs must also be used as a Bingo. And since we are not using Koolodo as Cingo, we can use Lovitoo as Dingo. So (a), (c) and (d) can all be true. So (b) cannot be true.
6. b Checking from options,
- (a) David, Rama and Rahim
Ram would like to be in the group only if Peter is there, so it is not feasible.
- (b) Peter, Shyam and Rahim want to be selected together and none of them have problem or any conditions, hence feasible.
- (c) Since Shyam is there, Rahim has to be but he is not also Fiza is not there which David insists so not feasible.
- (d) Since Peter is not there Ram would not prefer that group, hence not feasible.

7. c Looking at options, we see (c) is best as Shyam and Rahim is selected and Fiza is there when David is selected.

In (a) we see Shyam is not there with Rahim.

In (b) Fiza is not there with David.

In (d) Peter and David cannot go together as David would not like Peter in the group.

8. d In 1st option — Kavita is in the group means David is there and David would not like Peter in the group, whereas Ram would like to be in the group if Peter is there so the statement cannot be true.

2nd option — If David is there, then only the group will have both women Kavita and Fiza, but in that case we see none of the rest could be the fourth person as Shyam and Rahim has to be together and Ram would be if Peter is there and David would not like Peter in the group, hence statement is false.

3rd option — It is not possible as Ram cannot go with Shyam and David with Peter.

So none of the above statements are true.

9. c O, P, Q and R carried on motorcycles M_1 , M_2 , M_3 and M_4 respectively. So

O	P	Q	R
M_1	M_2	M_3	M_4
F	E	A + G	C
B	D		H

Since B cannot be with R so it will go with O that is only left.

Hence, C and H will go together in M_4 with R.

10. b W1

W4

Rupa	Radha	Renuka	Ruchika	Ritu
Sonali		Rupali	Somya	Tara
Shalini		Komal	Sweta	
Shubhra			Jyotika	

Shahira

Deepika

Amita Elina Chandrika Babita

Hence, Elina is the instructor of Radha.

11. d

	Fishing	Smoking	Drinking	Gambling	Mountaineering
Likes	M_1 M_6	M_4 M_2 M_8	M_2 M_5	M_3 M_7 M_8	M_4 M_7
Dislikes	M_2 M_7	M_3 M_5 M_6	M_4	M_1	M_5 M_6 M_8

Going by options, we have:

- (a) M does not hate at least one of the liking of any of the other 3 persons selected.
- (b) None of person shares the liking of at least one of the other selected.
- (c) None of the person shares a liking with at least one of the other three selected.
- (d) M_1 shares liking with M_2 and vice versa.
 M_4 shares liking with M_7 and vice versa.
 M_1, M_2 dislikes M_7 liking.
 M_4, M_7 dislikes M_2 liking.

Hence, the answer is option (d).

For questions 12 to 15:

The key to cracking this question is to follow the simple fundamentals in Analytical Reasoning of going 1 line at a time and making a simple table

Arrival Order	Husband	Wife	Kids
1		Joya	2
2		Shanthi	0
3		Sridevi	
4	Sunil		1

Sentence 1 – Family with 2 kids before no kids

Sentence 2 – Shanthi with no kids came before Sridevi

Sentence 3 – Sunil and wife came last with only kid

Sentence 4 – Anil and Joya not husband and wife

Sentence 5 – Anil and Raj are fathers – hence cannot be the family with no kids

Sentence 6 – Sridevi and Anita cannot be the persons with no kid

Sentence 7 – Anil and Joya not husband and wife

Sentence 8 – Joya before Shanti and Anita was already present.

Using the above informations, Anil and Raj cannot be married to Shanthi as Shanthi has no kids. Hence, Sunil has to be married to Sridevi (not with Joya already stated) and Raman with Shanthi.

Arrival Order	Husband	Wife	Kids
1	Anil	Anita	1
2	Raj	Joya	2
3	Raman	Shanthi	0
4	Sunil	Sridevi	1

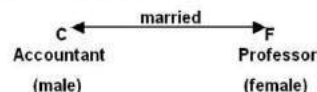
12. a

13. b

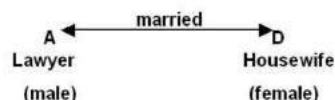
14. c

15. b

For questions 16 to 18:



Since the Housewife D is married to the Lawyer and A is married to a Housewife, D and A is the other married couple.



Since E is not the Housewife, it implies E is an Engineer and B is a Housewife. As no Engineer is female, E is a male. So the male members in the group are A, C and E and the female members are B, D and F.

16. d

17. a

18. b

For questions 19 to 22: For solving these questions make a table like this:

	Africa	America	Australasia	Europe	
L	0	1	1	1	3
H			1	1	6
P			2	1	6
R			1	1	6
	4	8	5	4	21

- (i) As the labour expert is half of each of the other, so the only possible combination is:

$$\begin{matrix} L - 3 \\ H \\ P \\ R \end{matrix} \left. \vphantom{\begin{matrix} L \\ H \\ P \\ R \end{matrix}} \right\} 6 \text{ each}$$

- (ii) Statement (d): If the number of Australasia expert is 1 less, i.e. total export are 20 American be twice as each of other. The only combined possible is Americas = 8.

$$\text{Australasia} = 4 + 1 = 5$$

$$\text{Europe} = 4$$

$$\text{Africa} = 4$$

Now, we need to workout the various options possible in the blank cells.

	Africa	America	Australasia	Europe	
L	0	1	1	1	3
H	2	2	1	1	6
P	1	2	2	1	6
R	1	3	1	1	6
	4	8	5	4	21

	Africa	America	Australasia	Europe	
L	0	1	1	1	3
H	1	3	1	1	6
P	1	2	2	1	6
R	2	2	1	1	6
	4	8	5	4	21

	Africa	America	Australasia	Europe	
L	0	1	1	1	3
H	1	3	1	1	6
P	2	1	2	1	6
R	1	3	1	1	6
	4	8	5	4	21

19. d

20. c

21. c

22. d

For questions 23 to 27:

From statement one, team would include exactly one among P, R, S

⇒ P (or) R (or) S.

From statement two, team would include either M, or Q

⇒ M but not Q

(or) Q but not M

From statement three, if a team includes K, it will include L or vice versa.

⇒ K, L always accompany each other.

From statement four, if one of S, U, W is included, then the other two also have to be included.

⇒ S, U, W are always together.

From statement five, L and N cannot be included together

⇒ L, N are never together.

From statement six, L and U cannot be included together.

⇒ L, U are never together.

23. 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.

24. 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 (statement four)

⇒ If 'U' is chosen 'L' cannot be chosen (statement five)

⇒ K cannot be chosen (statement three)

And from statement two; one of M (or) Q has to be chosen.

25. d From statements one and two

Two members are to be selected.

Of the remaining seven;

To maximize the size of the team.

We would chose S,

⇒ U and W are included in the team (statement four)

We cannot include K (or) L because we would then have to leave out N and U (from statements five and six)

26. e If 'K' is included, 'L' has to be included (statement (3))

If 'L' is chosen, neither N nor U can be chosen (statements (5) and (6))

⇒ S, W are also not included because S, U, W have to be always together. (Statement (4))

Hence one of P (or) R would be selected (statement (1)) and one of M (or) Q would be selected (statement (2))

(K, L) and two of the above five have to be included.

27. e If a team includes N, it cannot include 'L',

and therefore, not even 'K'. (from statement five and three)

According to statement (1), one of P or R or S has to be included.

According to statement (2), 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, then S U W M N and S U W Q N are the only possible cases.

Hence, in all $4 + 2 = 6$ teams can be constituted.

28. d A, D and F cannot be selected together as D doesn't hate any of the likings of A and F i.e. reading, travelling and fishing.

The rest two sets of people can be selected together.

29. b One team will have 3 members and the other will have 4 members. There are only two possible cases:

- (i) 3-member team: Sajid, Salim, Sanjay
 4-member team: Reeta, Sunil, Hasan, Govind
 (ii) 3-member team: Reeta, Salim, Sanjay
 4-member team: Sajid, Sunil, Hasan, Govind

Statement (1) is true in both the cases.

Statement (2) is true in case (i).

Statement (3) is false in both the cases.

For questions 30 to 31:

From statement (V), B and G cannot be together in the team. Therefore, there are three possible cases.

Case I: When B is selected.

F cannot be selected as F can only be selected when both G and N are selected. Thus, when B is selected, the team comprises exactly four bowlers. Also, J must be the wicketkeeper in the team, as selection of I ensures selection of F. Following table gives the possible compositions for the team.

Batsmen	Bowlers	Wicketkeeper
A, D, L, N, O, K/M	B, H, C, E	J

The number of ways in which the team can be formed
 $= 2 \times 1 \times 1 = 2$

Case II: When G is selected.

H cannot be selected as H can only be selected when B is selected. Thus, when G is selected, then again the team comprises exactly four bowlers. Following table gives the possible compositions for the team.

Batsmen	Bowlers	Wicketkeeper
A, D, L, N, O, K/M	G, F, C, E	I/J

The number of ways in which the team can be formed
 $= 2 \times 1 \times 2 = 4.$

Case III: When neither B nor G is selected.

When both B and G are not selected, then there is no possible composition for the team.

30. c If G is one of the bowlers in the team, then either of the two (i.e., I and J) can be selected as the wicketkeeper in the team.

31. c If H is selected, G cannot be selected.

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32. c We can find out the time for lunch of respective families from the table below:

Family/Time	12:00	1:00	2:00
Sharma	✓		
Banerjee			✓
Pattabhiraman	✓		

Fried brinjal → Chinaware

Sambar → White Chinaware

Makkai-ki-roti → Red Chinaware

The family that eats at 1 o'clock serves fried brinjal, hence Pattabhiraman serves fried brinjal.

The family that eats last like makkai-ki-roti so Banerjees like makkai-ki-roti. Sharmas are left with sambar.

Sharma - 12:00 - Sambar - White

Pattabhiraman - 1:00 - Fried brinjal - Blue

Banerjees - 2:00 - Makkai-ki-roti - Red

Hence, (c) is the best option.

