Set 333

Note: Questions 1 to 26 carry one mark each.

Directions for questions 1 to 4: Answer the questions on the basis of the information given below.
The Dean's office recently scanned student results into the central computer system. When their character reading software cannot read something, it leaves the space blank. The scanner output read as follows:

Name	Finance	Marketing	Statistics	Strategy	Operations	GPA
Aparna		B	F			1.4
Bikas	D	D	F	F		
Chandra		D	A	F	F	2.4
Deepak	A	B		D	D	3.2
Fazal	D	F	B		D	2.4
Gowri	C	C	A		B	3.8
Hari		B	A		D	2.8
Ismet			B		A	
Jagdeep	A	A	B		C	3.8
Kunal	F		A	F	F	1.8
Leena	B	A		B	F	3.2
Manab			A	B	B	
Nisha	A	D	B	A	F	3.6
Osman	C		B	B	A	4.6
Preeti	F	D		D		3.2
Rahul	A	C	A		F	4.2
Sameer		C	F	B		
Tara	B					2.4
Utkarsh			F	C	A	3.0
Vipul	A		C	C	F	2.4

In the grading system, A, B, C, D, and F grades fetch 6, 4, 3, 2, and 0 grade points respectively. The Grade Point Average (GPA) is the arithmetic mean of the grade points obtained in the five subjects. For example Nisha's GPA is (6 + 2 + 4 + 6 + 0) / 5 = 3.6. Some additional facts are also known about the students' grades. These are

(a) Vipul obtained the same grade in Marketing as Aparna obtained in Finance and Strategy.
(b) Fazal obtained the same grade in Strategy as Utkarsh did in Marketing.
(c) Tara received the same grade in exactly three courses.

1. What grade did Preeti obtain in Statistics?
1. A 2. B 3. C 4. D

Sol. (1)
GPA of Preeti = 3.2
i.e. $\frac{F + D + x + D + y}{5} = 3.2$
0 + 2 + x + 2 + y = 16
x + y = 12
So only combination possible is A, A.
So Preeti obtained A grade in statistics.

2. In operations, Tara could have received the same grade as

1. Ismet 2. Hari 3. Jagdeep 4. Manab

Sol. (4)

Tara received same grade in 3 courses. We already know that Tara has got B grade in one of the subject and GPA is 2.4. So in 3 courses in which he scored same grade is B. So Tara has received the same grade as Manab.

3. In Strategy, Gowri's grade point was higher than that obtained by
1. Fazal 2. Hari 3. Nisha 4. Rahul

Sol. (2)

GPA of Gowri is 3.8
i.e. $3 + 3 + 6 + x + 4 = 3.8 \times 5$
$16 + x = 18$
$x = 2$
So in strategy, Gowri's grade is C.
Rahul's grade in strategy = $(4.2 \times 5) - 15 = 6$, i.e., A.
Fazal's grade in strategy = $(2.4 \times 5) - 8 = 4$, i.e., B.
Hence, Gowri's grade will be higher than that of Hari.

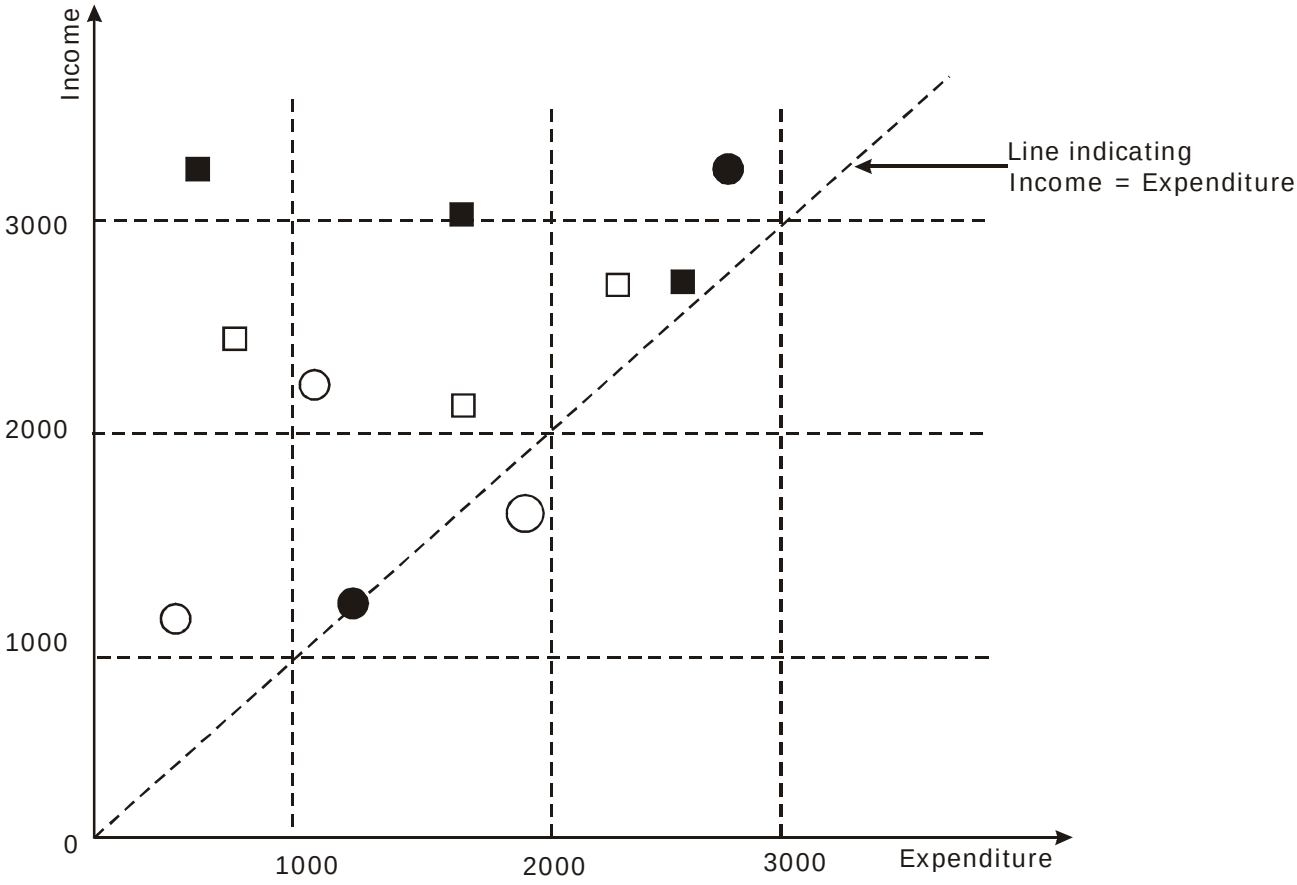
4. What grade did Utkarsh obtain in Finance?
1. B 2. C 3. D 4. F

Sol. (3)

As Fazal GPA = 2.4
So $D + F + B + P + D = 2.4 \times 5$
$2 + 0 + 4 + P + 2 = 12$
$P = 4$
So his grade in strategy is B.
So Grade of Utkarsh in marketing is also B.
So for Utkarsh, $x + B + F + C + A = 3 \times 5$
$x + 4 + 0 + 3 + 6 = 15$
$x = 2$
So grade of Utkarsh in finance = D.

Directions for questions 5 to 8: Answer the questions on the basis of the information given below.
The data points in the figure below represent monthly income and expenditure data of individual members of the Ahuja family (■), the Bose family (□), the Coomar family (○), and the Dubey family (●). For these questions, savings is defined as

Savings = Income – Expenditure



5. Which family has the lowest average income?
1. Ahuja 2. Bose 3. Coomar 4. Dubey

Sol. (3)

$$\text{Average income of Ahuja} = \frac{700+1700+1800}{3} = \frac{4200}{3}$$

$$\text{Average income of Bose} = \frac{800+1600+2300}{3} = \frac{4700}{3}$$

$$\text{Average income of Coomar} = \frac{300+1100+1900}{3} = \frac{3300}{3}$$

$$\text{Average income of Dubey} = \frac{1200+2800}{2} = \frac{4000}{2}$$

It's clear that lowest average income is of Coomar. (It is clear visually as well)

6. Which family has the highest average expenditure?
1. Ahuja 2. Bose 3. Coomar 4. Dubey

Sol. (4)

From the figure draw a line parallel to the expenditure axis and midway between observations of each family's values.

7. Which family has the lowest average savings?

1. Ahuja 2. Bose 3. Coomar 4. Dubey

Sol. (4)

From figure the Ist member of Dubey family is on the line indicating income = expenditure.

The 2nd member is just above the line.

8. The highest amount of savings accrues to a member of which family?

1. Ahuja 2. Bose 3. Coomar 4. Dubey

Sol. (1)

Look at the leftmost member of Ahuja family.

Directions for questions 9 to 12: Answer the questions on the basis of the information given below.

Prof. Singh has been tracking the number of visitors to his homepage? His service provider has provided him with the following data on the country of origin of the visitors and the university they belong to:

Number of visitors

	DAY		
COUNTRY	**1**	**2**	**3**
Canada	2	0	0
Netherlands	1	1	0
India	1	2	0
UK	2	0	2
USA	1	0	1

Number of visitors

	DAY		
UNIVERSITY	**1**	**2**	**3**
University 1	1	0	0
University 2	2	0	0
University 3	0	1	0
University 4	0	0	2
University 5	1	0	0
University 6	1	0	1
University 7	2	0	0
University 8	0	2	0

9. To which country does University 5 belong?
   1. India or Netherlands but not USA 2. India or USA but not Netherlands
   3. Netherlands or USA but not India 4. India or USA but not UK

10. University 1 can belong to
   1. UK 2. Canada 3. Netherlands 4. USA

11. Which among the listed countries can possibly host three of the eight listed universities?
   1. None 2. Only UK 3. Only India 4. Both India and UK

12. Visitors from how many universities from UK visited Prof. Singh's homepage in the three days?
   1. 1 2. 2 3. 3 4. 4

Solution for questions 9 to 12:
Comparing Table 1 and 2, university 4 corresponds to UK and university 6 corresponds to USA (after as day 3 values are concerned and university 8 corresponds to India and university 3 to Netherlands now Indian or Netherlands can take university 1 or university 5. Now university 2 and 7 belongs to either UK or Canada (only one)

UNIVERSITY	DAY			COUNTRY
	1	2	3	
University 1	1	0	0	India / Netherlands
University 2	2	0	0	UK / Canada
University 3	0	1	0	Netherlands
University 4	0	0	2	UK
University 5	1	0	0	India/Netherlands
University 6	1	0	1	USA
University 7	2	0	0	UK/Canada
University 8	0	2	0	India

9. (1)

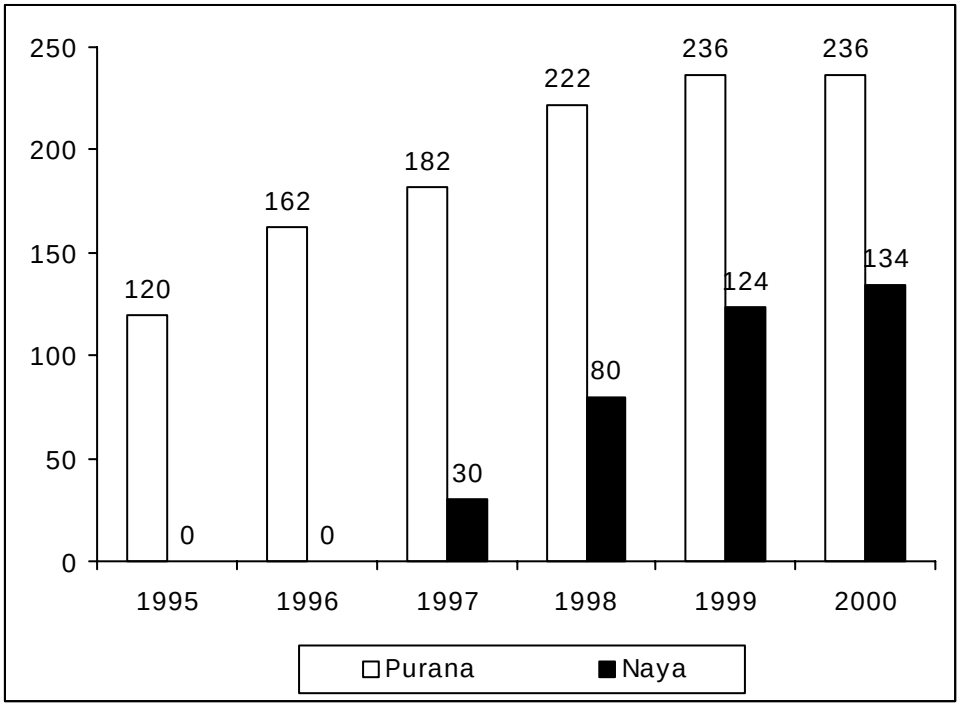
10. (3)

11. (1)

12. (2)

Directions for questions 13 to 16: Answer the questions on the basis of the information given below.

Purana and Naya are two brands of kitchen mixer-grinders available in the local market. Purana is an old brand that was introduced in 1990, while Naya was introduced in 1997. For both these brands, 20% of the mixer-grinders bought in a particular year are disposed off as junk exactly two years later. It is knows that 10 Purana mixer-grinders were disposed off in 1997. The following figures show the number of Purana and Naya mixer-grinders in operation from 1995 to 2000, as at the end of the year.



13. How many Naya mixer-grinders were purchased in 1999?
1. 44 2. 50 3. 55 4. 64

Sol. (2)

In 1999, total number of Naya mixer-grinder = 124
Number of Naya mixer-grinder disposed = 20% of 30 = 6
Number of mixtures bought
124 = [50 + 24] $\Rightarrow$ 50

14. How many Naya mixer-grinders were disposed off by the end of 2000?
1. 10 2. 16
3. 22 4. Cannot be determined from the data

Sol. (3)

Number of Naya mixer-grinder disposed in 1999 $\Rightarrow$ 6
Number of Naya mixer-grinder disposed in 2000 $\Rightarrow$ 10
Total disposed by end of 2000 = 16

15. How many Purana mixer-grinders were disposed off in 2000?
1. 0 2. 5
3. 6 4. Cannot be determined from the data

Sol. (4)

Initial number of Purana mixer-grinder not available, hence cannot be determined.

16. How many Purana mixer-grinders were purchased in 1999?
1. 20 2. 23
3. 50 4. Cannot be determined from the data

Sol. (4)

Initial number of Purana mixer-grinder not available, hence cannot be determined.

Directions for questions 17 to 20: Answer the questions on the basis of the information given below.

A study was conduced to ascertain the relative importance that employees in five different countries assigned to five different traits in their Chief Executive Officers. The traits were compassion (C), decisiveness (D), negotiation skills (N), public visibility (P), and vision (V). The level of dissimilarity between two countries is the maximum difference in the ranks allotted by the two countries to any of the five traits. The following table indicates the rank order of the five traits for each country.

	Country				
Rank	**India**	**China**	**Japan**	**Malaysia**	**Thailand**
1	C	N	D	V	V
2	P	C	N	D	C
3	N	P	C	P	N
4	V	D	V	C	P
5	D	V	P	N	D

17. Which of the following pairs of countries are most dissimilar?
    1. China and Japan
    2. India and China
    3. Malaysia and Japan
    4. Thailand and Japan

Sol. (4)

Thailand and Japan (Maximum difference of 4 ranks (5 – 1) = 4)

18. Which of the following countries is least dissimilar to India?
    1. China
    2. Japan
    3. Malaysia
    4. Thailand

Sol. (1)

China (Maximum difference between 2 parameter is 2)

19. Which amongst the following countries is most dissimilar to India?
    1. China
    2. Japan
    3. Malaysia
    4. Thailand

Sol. (2)

Japan (Maximum difference of 4)

20. Three of the following four pairs of countries have identical levels of dissimilarity. Which pair is the odd one out?
    1. Malaysia and China
    2. China and Thailand
    3. Thailand and Japan
    4. Japan and Malaysia

Sol. (4)

Japan and Malaysia (Inferring from question 17)

Directions for questions 21 to 26: Each question is followed by two statements, A and B. Answer each question using the following instructions.

Choose 1 if the question can be answered by using one of the statements alone but not by using the other statement alone.
Choose 2 if the question can be answered by using either of the statements alone.
Choose 3 if the question can be answered by using both statements together but not by either statement alone.
Choose 4 if the question cannot be answered on the basis of the two statements.

21. Zakib spends 30% of his income on his children's education, 20% on recreation and 10% on healthcare. The corresponding percentage for Supriyo are 40%, 25%, and 13%. Who spends more on children's education?
A. Zakib spends more on recreation than Supriyo.
B. Supriyo spends more on healthcare than Zakib.

Sol. (1)

Statement A: 20% of Z > 25% of S

$\frac{Z}{S} > \frac{5}{4}$ Cannot say.

Statement B: 13% of S > 10% of Z

$\Rightarrow$ 39% of S > 30% of Z. So 40% of S must be greater than 33% of Z.

Hence statement B is sufficient to answer.

22. Four candidates for an award obtain distinct scores in a test. Each of the four casts a vote to choose the winner of the award. The candidate who gets the largest number of votes wins the award. In case of a tie in the voting process, the candidate with the highest score wins the award. Who wins the award?
A. The candidates with top three scores each vote for the top score amongst the other three.
B. The candidate with the lowest score votes for the player with the second highest score.

Sol. (1)

Assume A, B, C, D get score 10, 8, 6, 4 reap.

A	B	C	D
10	8	6	4

Statement A:
With the conditions A will give vote to B
With the conditions B will give vote to A
With the conditions C will give vote to A

Even if D gives to A/B/C — 2 situation arises.
Either A will win or there will a tie when D gives vote to B.
Even then A will win.
So we are getting the answer.

Statement B: Can conclude anything.
Answer (1) first statement.

23. In a class of 30 students, Rashmi secured the third rank among the girls, while her brother Kumar studying in the same class secured the sixth rank in the whole class. Between the two, who had a better overall rank?
A. Kumar was among the top 25% of the boys merit list in the class in which 60% were boys.
B. There were three boys among the top five rank holders, and three girls among the top ten rank holders.

Sol. (1)

Statement A: Cannot say anything.
Statement B: Because amongst the Top 5 $\rightarrow$ 3 are boys, 2 are girls. And Rashmi is third among the girls and Kumar is 6^{th}.
We can conclude.
Answer (1) statement II is sufficient.

24. Tarak is standing 2 steps to the left of a red mark and 3 steps to the right of a blue mark. He tosses a coin. If it comes up heads, he moves one step to the right; otherwise he moves one step to the left. He keeps doing this until he reaches one of the two marks, and then he stops. At which mark does he stop?
A. He stops after 21 coin tosses.
B. He obtains three more tails than heads.

Sol. (2)

Statement A: We can find, there are 12 Tails and 9 Heads.
After tosses he will reach at blue point. So statement A is sufficient.
Statement B: 3 more Tails greater than Heads. So he will reach at blue point after tosses.
So statement B is also sufficient.

25. Ravi spent less than Rs. 75 to buy one kilogram each of potato, onion, and gourd. Which one of the three vegetables bought was the costliest?
A. 2 kg potato and 1 kg gourd cost less than 1 kg potato and 2 kg gourd.
B. 1 kg potato and 2 kg onion together cost the same as 1 kg onion and 2 kg gourd.

Sol. (3)

Statement A: 2 kg potato cost + 1 kg gourd cost < 1 kg potato cost + 1 kg gourd cost
$\Rightarrow$ 1 kg potato cost < 1 kg gourd cost.
So statement A is not sufficient.
Statement B: 1 kg potato cost + 2 kg onion cost = 1 kg onion cost + 2 kg gourd cost $\Rightarrow$ 1 kg potato cost + 1 kg onion cost = 2 kg gourd cost.
So statement B is also not sufficient.
Combining both statements we get
1 kg potato cost < 1 kg gourd cost ...(i)
1 kg potato cost + 1 kg onion cost = 2 kg gourd cost ...(ii)
So the onion is costliest.

26. Nandini paid for an article using currency notes of denominations Re. 1, Rs. 2, Rs. 5, and Rs. 10 using at least one note of each denomination. The total number of five and ten rupee notes used was one more than the total number of one and two rupee notes used. What was the price of the article?
A. Nandini used a total of 13 currency notes.
B. The price of the article was a multiple of Rs. 10.

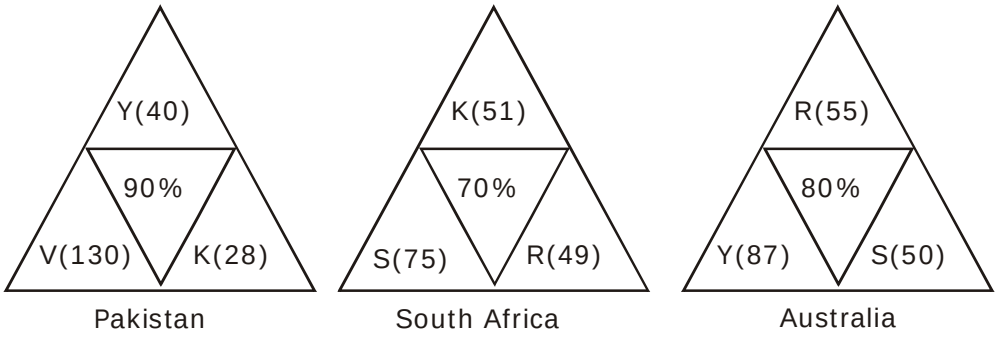
Sol. (4)

Statement A: 13 currency notes will give diff. Values.
Statement B: Multiple of 10 and by many.
Even if you combine the statement, we can have various values.
Answer is (4).

Note: Questions 27 to 38 carry two marks each.

Directions for questions 27 to 30: Answer the questions on the basis of the information given below.

Coach John sat with the score cards of Indian players from the 3 games in a one-day cricket tournament where the same set of players played for India and all the major batsmen got out. John summarized the batting performance through three diagrams, one for each games. In each diagram, the three outer triangles communicate the number of runs scored by the three top scores from India, where K, R, S, V, and Y represent Kaif, Rahul, Saurav, Virender, and Yuvraj respectively. The middle triangle in each diagram denotes the percentage of total score that was scored by the top three Indian scorers in that game. No two players score the same number of runs in the same game. John also calculated two batting indices for each player based on his scores in the tournaments; the R-index of a batsman is the difference between his highest and lowest scores in the 3 games while the M-index is the middle number, if his scores are arranged in a non-increasing order.



27. For how many Indian players is it possible to calculate the exact M-index?
1. 0 2. 1 3. 2 4. More than 2

28. Among the players mentioned, who can have the lowest R-index from the tournament?
1. Only Kaif, Rahul or Yuvraj 2. Only Kaif or Rahul
3. Only Kaif or Yuvraj 4. Only Kaif

29. How many players among those listed definitely scored less than Yuvraj in the tournament?
1. 0 2. 1 3. 2 4. More than 2

30. Which of the players had the best M-index from the tournament?
1. Rahul 2. Saurav 3. Virender 4. Yuvraj

Solution for questions 27 to 30: Go through the following table.

	Pakistan	**South Africa**	**Australia**
K	28	51	< 48
R	< 22	49	55
S	< 22	75	50
V	130	< 49	< 48
Y	40	< 49	87
Top 3 batsman	198	175	192
India Total	220	250	240

27. (3)

28. (4)

29. (2)

30. (2)

Directions for questions 31 to 34: Answer the questions on the basis of the information given below.
Twenty one participants from four continents (Africa, Americas, 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 three other 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 Alfanso are leading experts of population studies who attended the conference. They are from Australasia.

31. Which of the following combinations is NOT possible?
    1. 2 experts in population studies from the Americas and 2 health experts from Africa attended the conference.
    2. 2 experts in population studies from the Americas and 1 health expert from Africa attended the conference.
    3. 3 experts in refugee relocation from the Americas and 1 health expert from Africa attended the conference.
    4. Africa and America each had 1 expert in population studies attending the conference.

32. 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?
    1. There is one expert in health from Africa.
    2. There is one expert in refugee relocation from Africa.
    3. There are two experts in health from the Americas.
    4. There are three experts in refugee relocation from the Americas.

33. 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?
    i. At least one
    ii. At most two

    1. Only i and not ii
    2. Only ii and not I
    3. Both i and ii
    4. Neither i nor ii

34. Which of the following numbers cannot be determined from the information given?
    1. Number of labour experts from the Americas.
    2. Number of health experts from Europe.
    3. Number of health experts from Australasia.
    4. Number of experts in refugee relocation from Africa.

Solutions for questions 31 to 34: For solving these questions make a table like this:

	Africa	America	Australia	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

L – 3

H, P, R – 6 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.

Australasia 4 + 1 = 5
Europe 4
Africa 4

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

	Africa	America	Australia	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	Australia	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	Australia	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

31. (4)

32. (3)

33. (3)

34. (4)

Directions for questions 35 to 38: Answer the questions on the basis of the information given below.
The year was 2006. All six teams in Pool A of World Cup hockey, play each other exactly once. Each win earns a team three points, a draw earns one point and a loss earns zero points. The two teams with the highest points qualify for the semifinals. In case of a tie, the team with the highest goal difference (Goal For – Goals Against) qualifies.

In the opening match, Spain lost to Germany. After the second round (after each team played two matches), the pool table looked as shown below.

Teams	Games Played	Won	Drawn	Lost	Goals For	Goals Against	Points
Germany	2	2	0	0	3	1	6
Argentina	2	2	0	0	2	0	6
Spain	2	1	0	1	5	2	3
Pakistan	2	1	0	1	2	1	3
New Zealand	2	0	0	2	1	6	0
South Africa	2	0	0	2	1	4	0

In the third round, Spain played Pakistan, Argentina played Germany, and New Zealand played South Africa. All the third round matches were drawn. The following are some results from the fourth and fifth round matches

(a) Spain won both the fourth and fifth round matches.
(b) Both Argentina and Germany won their fifth round matches by 3 goals to 0.
(c) Pakistan won both the fourth and fifth round matches by 1 goal to 0.

35. Which one of the following statements is true about matches played in the first two rounds?
1. Germany beat New Zealand by 1 goal to 0.
2. Spain beat New Zealand by 4 goals to 0.
3. Spain beat South Africa by 2 goals to 0.
4. Germany beat South Africa by 2 goals to 1.

36. Which one of the following statements is true about matches played in the first two rounds?
1. Pakistan beat South Africa by 2 goals to 1.
2. Argentina beat Pakistan by 1 goal to 0.
3. Germany beat Pakistan by 2 goals to 1.
4. Germany beat Spain by 2 goals to 1.

37. If Pakistan qualified as one of the two teams from Pool A, which was the other team that qualified?
1. Argentina
2. Germany
3. Spain
4. Cannot be determined

38. Which team finished at the top of the pool after five rounds of matches?
    1. Argentina
    2. Germany
    3. Spain
    4. Cannot be determined

Solutions for questions 35 to 38:

From the statements from (a), (b), (c) given in the problem four teams (Spain, Argentina, Germany, Pakistan) appear to win their matches in the fifth round. However, there are only three matches per round and hence only three teams can win their matches in any round. Hence, the data set appears to be inconsistent.