



Chapter 1 - Data Interpretation Practice Exercises



Chapter 2 - Logical Reasoning Practice Exercises



Chapter 3 - Data Redundancy and Data Dependency



LRDI Practice Test - 1

LRDI Practice Test - 2

LRDI Practice Test - 3

Answer Key



Explanations



Data Interpretation Practice Exercises

Introduction

This section contains a total of 5 practice exercises and each practice exercise consists of various kinds of questions that can be asked from a set of given information. The objective of these practice exercises is just to make you comfortable with the different types of concepts used in Data Interpretation.

At the end of each practice exercise, there is a scoring table to assess your performance in 'concept building', instantly. Since practice exercises are concept-oriented, you are advised not to worry too much regarding time spent.

Any rough work if required, should be done on a separate sheet of paper. Force yourself to do mental calculations and use the pen only when it is absolutely necessary.

How to score:

The process of scoring is very simple. For every right answer add one mark, and for every wrong answer deduct one-fourth mark.

DI is an application of the concepts of Arithmetic, especially percentages, simple and compound interest, profit, loss and discount and ratio, along with your ability to calculate. In case you get a net score of less than 80% in any practice exercise, do not forget to revise the above mentioned concepts.

All the best !

Data Interpretation Practice Exercises

Introduction

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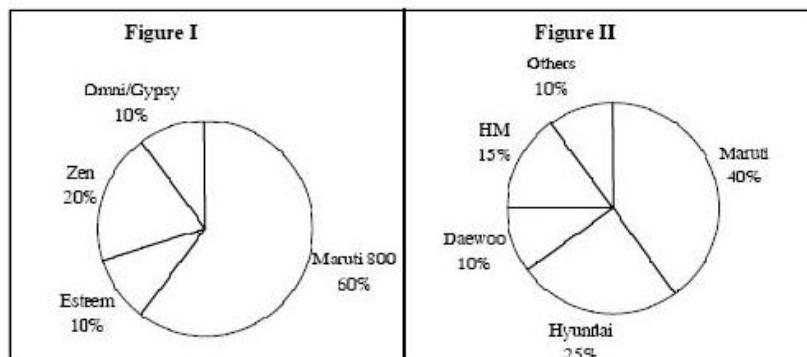
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All the best !

Practice Exercise - A1

Directions for questions 1 to 15: Study the pie charts given below and answer the following questions.

The break-up of the volume share, in Mumbai, of different car models manufactured by Maruti car company, for years 2002 and 2003 is shown in figure (I). The break-up for the year 2003 was the same as that for the year 2002. The break-up of the car market according to market share by volume possessed by different car manufacturing in Mumbai, for 2002 is shown in figure (II).



1. If in 2002, the total number of cars sold in Mumbai was 2.5 lakh then how many Esteems were sold?

- a. 1 lakhs b. 0.1 lakhs c. 1.1 lakhs d. 1.01 lakhs e. None of these

2. If the Maruti 800 sales in Mumbai for 2002 was 48,000 then what was the total car sales, in Mumbai?

- a. 1 lakh b. 1.2 lakh c. 2 lakh d. 2.5 lakhs e. Cannot be determined
- 3. Using data given in question 1, find the difference between the sales of HM and Zen?

 - a. 17500 b. 17000 c. 175000 d. 165000 e. 16700

4. Use data from question 2. If the number of Maruti 800 sold increased by 25%, by approximately how many percentage points will the Maruti market share go up? Assume sales of all other models of other car companies remains constant?

- a. 6 points b. 2.5 points c. 3.4 points d. 4.3 points e. Cannot be determined
- 5. If the total number of cars sold in Mumbai in the year 2002 is 4 lakhs then how many cars did Hyundai and Daewoo sell together?

 - a. 1 lakh b. 1.2 lakh c. 1.4 lakh d. 1.6 lakh e. 1.8 lakhs
 - 6. What is the number of Santros sold if Santro accounts for 75% of the Hyundai sales in Mumbai in the year 2002? (Use data from question 5)

 - a. 75000 b. 70000 c. 85000 d. 90000 e. 80000
 - 7. Using data from question 5 and 6, find the difference in the sales of Santro and Zen in Mumbai in the year 2002?

 - a. 34000 b. 36000 c. 40000 d. 43000 e. 45000
 - 8. If the total sales of cars in 2002 in India was 24 lakh and Mumbai constituted 5% of India's total car sales then what was the sales of Maruti 800 in Mumbai?

 - a. 25000 b. 27000 c. 28800 d. 32500 e. Cannot be determined

Additional Information for questions 9 to 15:

Total volume of car sales in 2003 in Mumbai is 4 lakh. In 2003, the break-up of Mumbai car market (volume wise) is the same as the break-up in year 2002.

9. If the total car sales in Mumbai grows by 15% in the year 2004 and if the composition of market shares remains the same as given in figure (II) then what is the number of cars sold by HM?

- a. 59000 b. 69000 c. 49000 d. 79000 e. 89000

10. In Mumbai if sales of Maruti went up by 20% in 2004 over its value in 2003 while the sales of all other manufacturers remained same then what percentage of the total sales would Maruti have in 2004?

- a. 22.22% b. 33.33% c. 44.44% d. 55.55% e. None of these

11. In Mumbai, Hyundai sales in 2004 drop by 10% while total car sales went up by 30%. What share of the sales did Hyundai have in 2004?

- a. 14% b. 15% c. 16% d. 17% e. 18%

12. Using data from question 11 find the share of Daewoo's sales, given that Daewoo's sales did not change?

- a. 7.7% b. 10% c. 8.6% d. 6.7% e. Cannot be determined

13. In Mumbai, for 2004, if the total car sales increased by 20% and Maruti sold 40,000 more Esteems then what would be the new share of Maruti in 2004? (Assuming sales of all other models in 2004 remain same as that in 2003.)

- a. 37.77% b. 41.67% c. 53.33% d. 67.7% e. None of these

14. In question 13, what would be Maruti Esteem's share in the sales break-up of Maruti (Assume sales of all other Maruti models remains the same)?

- a. 24% b. 25% c. 28% d. 30% e. Cannot be determined

15. How many Opel cars were sold in 2003 if the 'others' category in figure (II) is constituted by 25% of Opels cars?

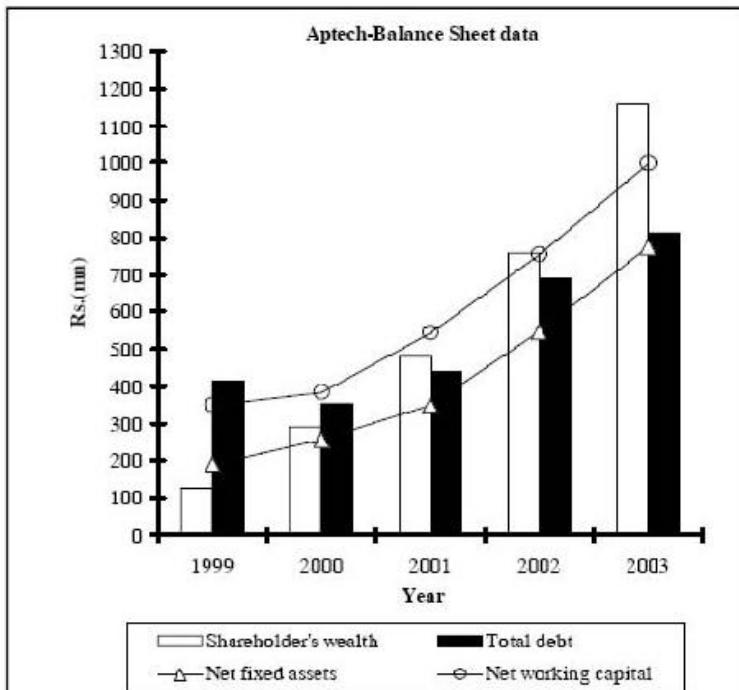
- a. 6000 b. 8000 c. 9000 d. 10000 e. Data is insufficient

Scoring table

Total questions	Total attempted	Total correct	Total wrong	Score	Time taken
15					

Practice Exercise - A2

Direction for question 1 to 10 Study the graph below and answer the following questions.



1. For how many years is the shareholder's wealth above the average share holders debt?

- a. 2 b. 3 c. 5 d. 4 e. 1

2. If the net working capital of the company were indexed as 100 taking base year as 1999, what would have been the net working capital index in 2003?

- a. 174 b. 154 c. 234 d. 285 e. 325

3. By what percentage is the growth rate of net fixed assets, for the year 2000, different from the growth rate of net fixed assets, for the year 2002 ?

- a. 57.1% points b. 39.5% points c. 65.4% points

- d. 25.3% points e. 37.5% points

4. Assuming that in 2004, the shareholder's wealth increases at the simple annual growth rate of the shareholder's wealth for the period 1999 to 2003, then what will be the shareholder's wealth in 2004?

- a. 4333 b. 3507 c. 1406 d. 2357 e. 1512

5. For which of the following years is the growth rate of shareholder's wealth above its average annual growth rate?

- a. 1999 and 2000 b. 2001 and 2002 c. 2000 and 2001

- d. 2002 and 2003 e. None of these

6. Which of the following has the highest compounded annual growth rate for the period 1999-2003?

- a. Net fixed assets b. Net working capital c. Total debt

- d. Shareholder's wealth e. (c) and (d)

7. By what percentage is the growth rate of net working capital in 2002 more or less than that of shareholder's wealth in 2003 ?

- a. 50% b. 33% c. 25% d. 18% e. 27%

2. If the net working capital of the company were indexed as 100 taking base year as 1999, what would have been the net working capital index in 2003?
- a. 174 b. 154 c. 234 d. 285 e. 325
3. By what percentage is the growth rate of net fixed assets, for the year 2000, different from the growth rate of net fixed assets, for the year 2002 ?
- a. 57.1% points b. 39.5% points c. 65.4% points
d. 25.3% points e. 37.5% points
4. Assuming that in 2004, the shareholder's wealth increases at the simple annual growth rate of the shareholder's wealth for the period 1999 to 2003, then what will be the shareholder's wealth in 2004?
- a. 4333 b. 3507 c. 1406 d. 2357 e. 1512
5. For which of the following years is the growth rate of shareholder's wealth above its average annual growth rate?
- a. 1999 and 2000 b. 2001 and 2002 c. 2000 and 2001
d. 2002 and 2003 e. None of these
6. Which of the following has the highest compounded annual growth rate for the period 1999-2003?
- a. Net fixed assets b. Net working capital c. Total debt
d. Shareholder's wealth e. (c) and (d)
7. By what percentage is the growth rate of net working capital in 2002 more or less than that of shareholder's wealth in 2003 ?
- a. 50% b. 33% c. 25% d. 18% e. 27%
8. Which year the growth rate of net working capital is greater than the growth rate of shareholder's wealth?
- a. 2000 b. 2001 c. 2002 d. 2003 e. None of these
9. For which of the following is the difference in growth rate, the minimum?
- a. Net fixed assets 2000-2002 and total debt 2000-2002
b. Shareholder's wealth 1999-2000 to shareholder's wealth 2002-2003
c. Total debt 2001-2002 to net working capital 2001-2002
d. Total debt 2002-2003 to shareholder's wealth 2001-2002
e. both (a) and (d)
10. For how many years is the net working capital above the average in the period 1999-2003?
- a. 2 b. 3 c. 5 d. 1 e. 4

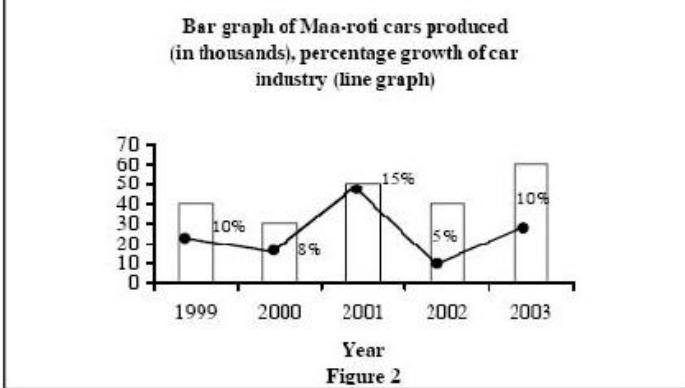
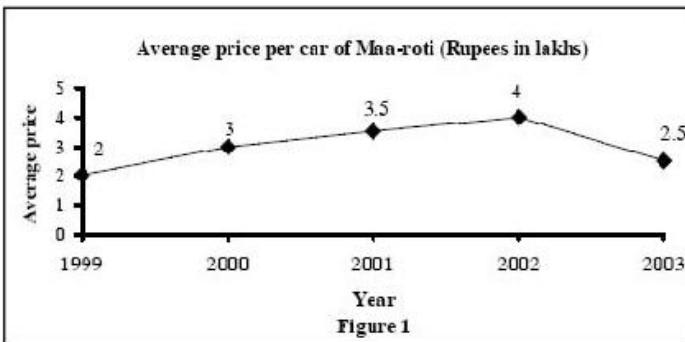
Scoring table

Total questions	Total attempted	Total correct	Total wrong	Score	Time taken
10					

Practice Exercise - A3

Direction for questions 1 to 23: Study the graphs below and answer the questions that follow.

The graphs below pertain to Maa-roti Ltd., the famous car maker. In figure 1, the line graph gives the average price per car in rupees in lakhs. In figure 2, the bar graph represents the production level (number of units in thousands) and the line graph which is drawn with the bar chart represents the growth rate of the entire car industry for that year, on volume basis.



1. Percentage change (with respect to the previous year) in the average price per car of Maa-roti is maximum for
 - a. 2001 b. 2000 c. 2002 d. 2003 e. Cannot be determined

2. The average annual growth rate of Maa-roti car production for the period 2000-2003 is
 - a. 50% b. 33.33% c. 100% d. 25% e. 66.67%

3. The average price per car of Maa-roti for the years 1999-2003 is
a. ₹3 lakh b. ₹2.97 lakh c. ₹3.03 lakh
d. ₹3.54 lakh e. ₹2.68 lakh
4. The ratio of Maa-roti cars produced to that of the total cars produced in 2001 is
a. 1 : 4 b. 1 : 3 c. 1 : 2
d. 1 : 5 e. Cannot be determined
5. What is the percentage share of Maa-roti in 2001 if the total production of the car industry is 2 lakh in 2001?
a. 40% b. 25% c. 50%
d. 33.3% e. 20%
6. Using the data of question 5, find the total number of cars produced by the entire car Industry in 1999?
a. 1.61 lakh b. 1.68 lakh c. 1.46 lakh
d. 2.48 lakh e. 1.88 lakh
7. The ratio of revenues earned by Maa-roti in 2001 to that earned in 2000 is
a. 35 : 18 b. 18 : 35 c. 35 : 32
d. 32 : 35 e. Cannot be determined
8. If only 80% of the Maa-roti cars produced in 2000 were sold in 2000 and the rest were sold in 2001 then what is the revenue of Maa-roti in 2000? (Assume a zero inventory at the beginning of 2000)
a. ₹720 crore b. ₹72,000 crore c. ₹7,200 crore
d. ₹72 crore e. Cannot be determined
9. If inventory at the end of 2001 is zero, then using the data of question 8 find the total revenue of Maa-roti for 2000 and 2001 put together?
a. ₹2,720 crore b. ₹2,500 crore c. ₹2,680 crore
d. ₹2,270 crore e. Cannot be determined
10. If production equals sales, then which year, from 2000 to 2003, witnessed the maximum growth in revenue for Maa-roti?
a. 2002 b. 2000 c. 2001
d. 2003 e. Cannot be determined
11. If production equals sales, then which year, from 2000 to 2003, witnessed the maximum growth rate in revenue?
a. 2001 b. 2000 c. 2002
d. 2003 e. Cannot be determined
12. If the average price of a Maa-roti car is 80% of the average price of the rest of car industry, then what is the turnover of car industry for 2002? (Use the data in question 5.)
a. ₹3,000 crore b. ₹1,010 crore c. ₹1,825 crore
d. ₹1,575 crore e. Cannot be determined
13. If production equals sales then what is the average price per car of the rest of car industry in 2002, if Maa-roti has a market share of 62.5% by volume? Given that the average price per car of the car industry is ₹4.5 lakh.

a. ₹5 lakh b. ₹4.66 lakh c. ₹5.33 lakh

d. ₹7.4 lakh e. Cannot be determined

14. What is the break-even point of Maa-roti in 2000 if in 1999, the break-even point of Maa-roti had been 23,000 vehicles?

a. 12000 b. 14000 c. 10000

d. 18000 e. Cannot be determined

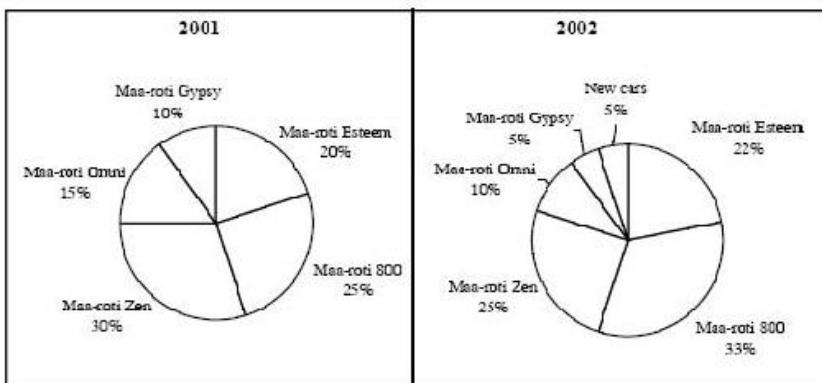
15. In 1999, if 10% of the production gets rejected due to defects then what is the turnover of Maa-roti? (Assume that sales equals production less rejection.)

a. ₹840 crore b. ₹800 crore c. ₹720 crore

d. ₹680 crore e. Cannot be determined

Additional Information for questions 16 to 23:

Distribution of cars produced by Maa-roti



16. What is the total number of Maa-roti Omni produced in 2001?

a. 10000 b. 7500 c. 9000 d. 5000 e. 6500

17. If production equals the quantity sold, then what is the ratio of sales revenues of Maa-roti 800 for 2001 and 2002?

a. 14 : 25 b. 41 : 50 c. 10 : 11

d. 5 : 6 e. Cannot be determined

18. What is the ratio of the number of Maa-roti Gypsy produced in 2002 to that produced in 2001?

a. 1 : 3 b. 5 : 2 c. 2 : 5

d. 3 : 1 e. Cannot be determined

19. What is the growth rate of production of Maa-roti Esteem in 2002?

a. -10% b. -12% c. 13% d. 10% e. -12%

20. Assuming production equals Sales, find the simple annual growth rate of turnover of Maa-roti for the period 1999-2003?

a. 21.8% b. 24% c. 29.16% d. 17.5% e. 18.5%

21. Assuming production equals Sales, find the compounded annual growth rate of turnover of Maa-roti for the period 1999-2003?

a. 17% b. 21.8% c. 17.8% d. 18.5% e. Cannot be determined

22. If the average price per car of Maa-roti in 2004 is ₹3 lakh, then what is the average price per car of Maa-roti for the years from 2001 to 2004?

a. ₹3.5 lakh b. ₹3.2 lakh c. ₹3 lakh

16. What is the total number of Maa-roti Omni produced in 2001?

- a. 10000 b. 7500 c. 9000 d. 5000 e. 6500

17. If production equals the quantity sold, then what is the ratio of sales revenues of Maa-roti 800 for 2001 and 2002?

- a. 14 : 25 b. 41 : 50 c. 10 : 11

d. 5 : 6 e. Cannot be determined

18. What is the ratio of the number of Maa-roti Gypsy produced in 2002 to that produced in 2001?

- a. 1 : 3 b. 5 : 2 c. 2 : 5

d. 3 : 1 e. Cannot be determined

19. What is the growth rate of production of Maa-roti Esteem in 2002?

- a. -10% b. -12% c. 13% d. 10% e. -12%

20. Assuming production equals Sales, find the simple annual growth rate of turnover of Maa-roti for the period 1999-2003?

- a. 21.8% b. 24% c. 29.16% d. 17.5% e. 18.5%

21. Assuming production equals Sales, find the compounded annual growth rate of turnover of Maa-roti for the period 1999-2003?

- a. 17% b. 21.8% c. 17.8% d. 18.5% e. Cannot be determined

22. If the average price per car of Maa-roti in 2004 is ₹3 lakh, then what is the average price per car of Maa-roti for the years from 2001 to 2004?

- a. ₹3.5 lakh b. ₹3.2 lakh c. ₹3 lakh

d. ₹2.8 lakh e. Cannot be determined

23. If the growth rate of production of Maa-roti for 1999 is 20% then what is the production of Maa-roti cars in 1998?

- a. 33333 b. 44444 c. 55555 d. 22222 e. None of these

Scoring table

Total questions	Total attempted	Total correct	Total wrong	Score	Time taken
23					

Practice Exercise - A4

Directions for questions 1 to 10: Study the table below and answer the questions that follow.

	Rs. In millions				
	1999	2000	2001	2002	2003
OPBDIT	110	285	395	520	380
Interest	30	80	80	110	145
Depreciation	5	20	50	80	120
Net Profit	75	165	205	285	10
Tax	0	20	60	85	105
Other Income	1	2	4	10	6

Net profit = OPBDIT - Depreciation - Interest - Tax

OPBDIT: Operating profit before depreciation, interest and tax

Minimum alternate tax has to be paid by the company for the year in which its tax is zero.

1. For which year is the operating profit after interest and tax but before depreciation the highest?

- a. 1999 b. 2000 c. 2001
- d. 2002 e. 2003

2. Which of the following has witnessed a growth across all the years?

- a. Depreciation and OPBDIT
- b. Depreciation and net profit
- c. Tax and depreciation
- d. Net Profit and Other Income
- e. Tax and Net profit

3. What is the difference between the percentage increase in net profit for the period 1999-2000 and the OPBDIT for the period 2001-02?

- a. 100% b. 78% c. 120%
 - d. 85% e. 66%
4. What is the simple annual growth rate in case of interest for the period 1999-2003?
- a. 62% b. 96% c. 77%
 - d. 58% e. 88%

5. In the above problem, what is the compounded annual growth rate?

- a. 111% b. 37% c. 62%
- d. 67% e. 48%

6. In which year was the company placed in the minimum alternate tax category?

- a. 2001 b. 1999 c. 2000
- d. 2002 e. 2003

7. The OPBDIT of 2003 is what percentage of OPBDIT of 2002?

a. 73.1% b. 34.5% c. 78.4%

d. 147.4% e. 37.5%

8. Which of the following have shown a similar trend across the years?

a. Depreciation and OPBDIT

b. Net profit and OPBDIT

c. Depreciation and interest

d. OPBDIT, tax and net profit

e. Tax and Net profit

9. If the interest is indexed as 100 taking base year as 1999, what would have been the interest index in 2003?

a. 483 b. 380 c. 418

d. 566 e. 383

10. Assuming that the amount depreciated in any year is a percentage of the total assets acquired by the company in the previous year, in which year did the company acquire the maximum assets?

a. 2003 b. 2001 c. 2002

d. 2000 e. 1999

Scoring table

Total questions	Total attempted	Total correct	Total wrong	Score	Time taken
10					

Practice Exercise - A5

Directions for questions 1 to 15: Answer the questions on the basis of the information given below:

Set A shows the performance of 32 teams (4 teams per group) each having played 5 games so far in the first round of the European Champions League, which is a premier football competition at the club level.

Set A

Group A		GP	W	D	L	GS	GA	Group B		GP	W	D	L	GS	GA
1	Bayern Munich	5	4	0	1	9	3	1	Arsenal	5	5	0	0	10	2
2	Juventus	5	4	0	1	9	4	2	Ajax Amsterdam	5	3	1	1	10	6
3	Club Brugge	5	2	0	3	5	6	3	FC Thun	5	1	0	4	4	9
4	Rapid Vienna	5	0	0	5	2	12	4	Sparta Prague	5	0	1	4	2	9

Group C		GP	W	D	L	GS	GA	Group D		GP	W	D	L	GS	GA
1	Barcelona	5	4	1	0	14	2	1	Villarreal	5	1	4	0	2	1
2	Udinese	5	2	1	2	10	10	2	Lille	5	1	3	1	1	1
3	Panathinaikos	5	1	1	3	3	11	3	Man Utd	5	1	3	1	2	2
4	Werder Bremen	5	1	1	3	7	11	4	Benfica	5	1	2	2	3	4

Group E		GP	W	D	L	GS	GA	Group F		GP	W	D	L	GS	GA
1	AC Milan	5	2	2	1	9	4	1	Lyon	5	4	1	0	11	3
2	Schalke 04	5	2	2	1	10	6	2	Real Madrid	5	3	1	1	9	6
3	PSV Eindhoven	5	2	1	2	2	6	3	Rosenborg	5	1	1	3	5	9
4	Fenerbahce	5	1	1	3	7	12	4	Olympiakos	5	0	1	4	5	12

Group G		GP	W	D	L	GS	GA	Group H		GP	W	D	L	GS	GA
1	Liverpool	5	3	2	0	6	1	1	Inter Milan	5	4	0	1	8	3
2	Chelsea	5	3	1	1	7	1	2	Rangers	5	1	3	1	6	6
3	Real Betis	5	2	1	2	3	6	3	Artmedia Petrzalka	5	1	2	2	5	9
4	Anderlecht	5	0	0	5	0	8	4	FC Porto	5	1	1	3	8	9

Abbreviations used:

GP = Games Played, **W** = Win, **D** = Draw,

L = Loss, **GS** = Goals Scored, **GA** = Goals Against

Set B shows the list of last matches in the first round that played between these teams.

Set B

HOME		AWAY	Group	HOME		AWAY	Group
AC Milan	v	Schalke 04	Group E	Club Brugge	v	Bayern Munich	Group A
PSV Eindhoven	v	Fenerbahce	Group E	Rapid Vienna	v	Juventus	Group A
Lyon	v	Rosenborg	Group F	Arsenal	v	Ajax Amsterdam	Group B
Olympiakos	v	Real Madrid	Group F	Sparta Prague	v	FC Thun	Group B
Chelsea	v	Liverpool	Group G	Udinese	v	Barcelona	Group C
Real Betis	v	Anderlecht	Group G	Werder Bremen	v	Panathinaikos	Group C
Armedia Petralka	v	FC Porto	Group H	Benfica	v	Man Utd	Group D
Rangers	v	Inter Milan	Group H	Villarreal	v	Lille	Group D

Points

The winning team, in any match, is awarded 3 points but the losing team does not score any point.

In case a match ends in a draw, both the playing teams get 1 point each.

Within a group, each team plays with all other teams twice, once each at their respective home grounds.

Group Positions

The groups will be sorted on the basis of points scored. If points are tied, positions in a group will be decided by goal difference (defined as difference between goals scored and goals against). If goal difference is also tied, higher position will be awarded to the team that scored more goals, and in the event it is still tied, alphabetic order will be used to decide the position. The team with a name starting from an earlier alphabet will be ranked above.

The top two teams from each group qualify for the second round of the competition, which is a knock-out round.

The team finishing first in a group is said to have 'won' the group, and the team finishing 2nd is said to have finished as the runner-up.

Knock out Rounds

- The first match of the second round will be played between the winner of Group A and the runner-up of Group H.
- The second match will be played between the runner-up of Group A and the winner of Group H. Similarly teams from Group B will play against teams from Group G, and so on.
- The winners of each group will play their first knock-out round match at their respective home grounds.
- The next round will be the quarter-finals, followed by the semi-finals and then the final round will be played.
- All these matches (quarter-finals onwards) will be played at neutral venues and there will be no draws in any of these matches.
- In case the scores are tied at the end of the allotted time, the teams will participate in a penalty shootout in order to decide the winner.
- All knock-out matches must have a winner.

Apart from the pride of playing in this prestigious competition, each team is also awarded \$325,000 for a win and \$170,000 for a draw.

1. What will be the total number of matches played in the entire competition?
 - 79
 - 95
 - 111
 - 207
 - None of these

2. What will be the total number of matches played by the team winning the competition, at its home-ground?

a. 5 b. 3 c. 4

d. Either (a) or (c) e. Either (b) or (c)

3. What will be the minimum number of "away" matches played by the team which wins the competition?

a. 5 b. 6 c. 4 d. 3 e. Cannot be determined

4. Which of the following teams can win the competition?

a. Fenerbahce b. Rosenborg c. Benfica

d. Club Brugge e. Any of these

5. Which of the following teams stands to make the most amount of money by winning the competition?

a. Barcelona b. Arsenal c. Lyon

d. Inter Milan e. Bayern Munich

Additional information for questions 6 to 10:

All the home teams win their last match in the first round.

6. Which is the only team that scored less than 3 points in the entire competition?

a. Rapid Vienna b. Olympiakos c. Anderlecht

d. Sparta Prague e. Either (a) or (d)

7. Which team earned the second highest points in the first round?

a. Lyon b. Inter Milan c. Barcelona

d. Liverpool e. Arsenal

8. Which team scored the most number of goals at the end of the first round?

a. Arsenal b. Barcelona c. Lyon

d. Inter Milan e. cannot be determined

9. What is the total number of matches in the first round that did not end in a draw?

a. 15 b. 38 c. 77 d. 96 e. 80

10. Which of the following teams failed to reach the second round?

a. Juventus b. Rangers c. Lille

d. PSV Eindhoven e. None of these

Additional information for questions 11 to 15:

After all the home teams have won their final matches in the first round, the draw for the knock-out round is made as per the rules of the tournament (refer information about knock-out round). In the round of 16, all the home teams lose their matches.

11. Which team playing in the quarter-finals have not drawn a match so far?

a. Juventus b. Bayern Munich c. Arsenal

d. Inter Milan e. Cannot be determined

12. Which team has earned the most amount of money till the beginning of knock-out stage of the competition?

a. Juventus b. Liverpool c. Arsenal

a. Lyon b. Inter Milan c. Barcelona

d. Liverpool e. Arsenal

8. Which team scored the most number of goals at the end of the first round?

a. Arsenal b. Barcelona c. Lyon

d. Inter Milan e. cannot be determined

9. What is the total number of matches in the first round that did not end in a draw?

a. 15 b. 38 c. 77 d. 96 e. 80

10. Which of the following teams failed to reach the second round?

a. Juventus b. Rangers c. Lille

d. PSV Eindhoven e. None of these

Additional information for questions 11 to 15:

After all the home teams have won their final matches in the first round, the draw for the knock-out round is made as per the rules of the tournament (refer information about knock-out round). In the round of 16, all the home teams lose their matches.

11. Which team playing in the quarter-finals have not drawn a match so far?

a. Juventus b. Bayern Munich c. Arsenal

d. Inter Milan e. Cannot be determined

12. Which team has earned the most amount of money till the beginning of knock-out stage of the competition?

a. Juventus b. Liverpool c. Arsenal

d. Rangers e. AC Milan

13. What is the difference between the earnings of Ajax Amsterdam and Real Madrid before the quarterfinals are played?

a. \$170,000 b. \$155,000 c. Nil

d. \$140,000 e. None of these

14. If the team with the most wins, from amongst all that are still contesting, plays against the team with the most number of draws then which of the following two teams can be playing in the quarter-final?

a. Juventus & Rangers b. Juventus & Liverpool

c. Arsenal & Liverpool d. Arsenal & Villareal

e. Cannot be determined

15. Which of the following teams cannot play in the finals?

a. Juventus & Liverpool b. Rangers & Ajax Amsterdam

c. Real Madrid & Udinese d. AC Milan & Lyon

e. Cannot be determined

Scoring table

Total questions	Total attempted	Total correct	Total wrong	Score	Time taken
15					

Logical Reasoning Practice Exercises

Introduction

This section contains total of 11 Practice Exercises. These exercises are specifically designed keeping in the mind the requirement and trends of Logical Reasoning in CAT and other management entrance examination.

At the end of each practice exercise, there is a scoring table to assess your performance in 'concept building', instantly. Since practice exercises are concept-oriented, you are advised not to worry too much regarding time spent.

Any rough work, if required, should be done on a separate sheet of paper. Force yourself to do mental calculations and use the pen only when it is absolutely necessary.

How to score: The process of scoring is very simple. For every right answer add one mark, and for every wrong answer deduct one-fourth mark.

All the best !

Practice Exercise - B1

Directions for questions 1 to 3: Read the following information carefully and answer the questions given below it.

- I. There are five friends.
- II. They are standing in a row facing south.
- III. Jayesh is to the immediate right of Alok.
- IV. Pramod is between Bhagat and Subodh.
- V. Subodh is between Jayesh and Pramod.

- 1. Who is at the extreme left end?
 - a. Alok b. Bhagat c. Subodh
 - d. Either (a) or (b) e. Data inadequate
- 2. Who is in the middle?
 - a. Bhagat b. Jayesh c. Pramod d. Subodh e. None of these

- 3. To find answers of the above two questions, which of the given statements can be dispensed with?
 - a. None b. V only c. III only d. II only e. I only

Directions for questions 4 to 8: Study the given information carefully and answer the questions that follow.

- I. A, B, C, D, E, F and G are sitting on a wall and all of them are facing east.
- II. C is on the immediate right of D.
- III. B is at an extreme end and has E as his neighbour.
- IV. G is between E and F.
- V. D is sitting third from the south end.

- 4. Who is sitting to the right of E?
 - a. A b. C c. D d. f e. None of these
- 5. Which of the following pairs of people is sitting at the extreme ends?
 - a. AB b. AE c. CB d. FB e. EB
- 6. Name the person who should change places with C so that he gets the third place from the north end.
 - a. E b. F c. G d. D e. A
- 7. Immediately, between which of the following pairs of people is D sitting?
 - a. AC b. AF c. CE d. CF e. EF
- 8. Which of the conditions I to V given above is not required to find out the place in which A is sitting?
 - a. I b. II c. III d. IV e. All are required

Directions for questions 9 to 13: Read the following information carefully and answer the questions given below it.

I. Eight persons E, F, G, H, I, J, K and L are seated around a square table — two on each side.

II. There are three lady members and they are not seated next to each other.

III. J is between L and F.

IV. G is between I and F.

V. H, a lady member, is second to the left of J.

VI. L, a male member, is seated directly opposite of E, a lady member.

VII. There is a lady member between F and I.

9. Who among the following is seated between E and H?

a. F b. I c. J d. G e. None of these

10. How many persons are seated between K and F?

a. One b. Two c. Three d. Four e. Cannot be determined

11. Who among the following are the three lady members?

a. E, G and J b. E, H and G c. G, H and J

d. G, E and K e. Cannot be determined

12. Who among the following is to the immediate left of F?

a. G b. I c. J d. K e. Cannot be determined

13. Which of the following is true about J?

a. J is a male member

b. J is a female member

c. Sex of J cannot be determined

d. Position of J cannot be determined

e. None of these

Directions for questions 14 and 15: Read the following information carefully and answer the questions given below it.

I. Seven books are placed one above the other in a particular way.

II. The history book is placed directly above the civics book.

III. The geography book is fourth from the bottom and the English book is fifth from the top.

IV. There are two books in between the civics and economics books.

14. To find the number of books between the civics and the science books, which other extra piece of information is required, from the following?

a. There are two books between the geography and the science books.

b. There are two books between the mathematics and the geography books.

c. There is one book between the English and the science books.

d. The civics book is placed before two books above the economics book.

e. None of these

15. To know which three books are kept above the English book, which of the following additional pieces of information, if any, is required?

- a. The economics book is between the English and the science books.
- b. There are two books between the English and the history books.
- c. The geography book is above the English book.
- d. No other information is required.
- e. Either (a) or (b)

Directions for questions 16 to 20: Read the following information carefully and answer the questions given below it.

I. Five professors (Dr Joshi, Dr Davar, Dr Natrajan, Dr Choudhary and Dr Zia) teach five different subjects (zoology, physics, botany, geology and history) in four universities (Delhi, Gujarat, Mumbai and Osmania). Do not assume any specific order.

II. Dr Choudhary teaches zoology in Mumbai University.

III. Dr Natrajan is neither in Osmania University nor in Delhi University and he teaches neither geology nor history.

IV. Dr Zia teaches physics but neither in Mumbai University nor in Osmania University.

V. Dr Joshi teaches history in Delhi University.

VI. Two professors are from Gujarat University.

VII. One professor teaches only one subject and in one University only.

16. Who teaches geology?

- a. Dr Natrajan b. Dr Zia c. Dr Davar
- d. Dr Joshi e. Cannot be determined

17. Which university is Dr Zia from?

- a. Gujarat b. Mumbai c. Delhi
- d. Osmania e. Either (a) or (b)

18. Who teaches botany?

- a. Dr Zia b. Dr Davar c. Dr Joshi
- d. Dr Natrajan e. Cannot be determined
- 19. Who is from Osmania University?
- a. Dr Natrajan b. Dr Davar c. Dr Joshi
- d. Dr Zia e. Either (b) or (c)

20. Which of the following combinations is correct?

- a. Delhi University - Dr Zia
- b. Dr Choudhary - geology
- c. Dr Davar - Mumbai University
- d. Dr Natrajan - Gujarat University
- e. None of these

Scoring table

Total questions	Total attempted	Total correct	Total wrong	Score	Time taken
20					

17. Which university is Dr Zia from?

- a. Gujarat
- b. Mumbai
- c. Delhi
- d. Osmania
- e. Either (a) or (b)

18. Who teaches botany?

- a. Dr Zia
- b. Dr Davar
- c. Dr Joshi
- d. Dr Natrajan
- e. Cannot be determined

19. Who is from Osmania University?

- a. Dr Natrajan
- b. Dr Davar
- c. Dr Joshi
- d. Dr Zia
- e. Either (b) or (c)

20. Which of the following combinations is correct?

- a. Delhi University - Dr Zia
- b. Dr Choudhary - geology
- c. Dr Davar - Mumbai University
- d. Dr Natrajan - Gujarat University
- e. None of these

Scoring table

Total questions	Total attempted	Total correct	Total wrong	Score	Time taken
20					

Practice Exercise - B2

Directions for questions 1 to 4: Read the information given below and answer the questions that follow.

In an engineering college, there are three departments - civil, mechanical and electrical. There are, in all, 20 faculties. Of them, five are male professors (A, H, I, O and P), seven are male Lecturers (B, C, D, J, K, Q and R), three are female professors (E, L and S), and five are female lecturers (F, G, M, N and T). Civil department has the staff members from A to G. Mechanical department has staff members from H to N and electrical department has staff members from O to T.

Different teams are to be formed out of these staff members as per the constraints below.

I. No male lecturer in civil department can be grouped with any female lecturer in electrical department.

II. No female professor can be grouped with any male lecturer.

1. A committee of six members is to be formed with one professor and one Lecturer each from each department. There must be a minimum of two female members in this committee. Which of the following combinations is possible?

a. A, I, P, B, L, N b. H, I, P, E, L, T c. A, H, O, F, S, T

d. A, F, H, M, S, T e. A, P, S, B, N, T

2. A delegation of ladies is to be sent abroad to attend a seminar. Any Professor in mechanical department is not ready to join with any lecturer in civil department. The delegation should have minimum three professors. Further, every department must be represented in the delegation. Which of the following combinations would be possible?

a. E, L, S, F, G, N b. A, H, D, E, L, S c. F, L, N, T, S, M

d. E, L, S, M, N, T e. F, E, G, S, L, A

3. A joint committee of five members is to be formed from the faculties of civil and electrical department only. The committee must have minimum two professors and two lecturers. There should be at least two female members in the committee. Which of the following combinations is possible?

a. S, T, D, O, R b. A, B, O, R, T c. A, O, R, G, T

d. A, O, B, G, T e. R, G, O, D, S, T

4. A departmental committee is to be formed in mechanical department only. There should be 4 members in the committee and one of them must be a lady. The committee must include the head of Department, Professor I. However, he cannot work with either L or N. Further M cannot work with either N or J. Which of the following combinations is possible?

a. I, M, L, N b. I, M, H, K c. I, H, J, K

d. H, J, M, N e. I, J, K, L

Directions for questions 5 to 8: Read the following information carefully and answer the questions given below it.

Once I put forward an enquiry to three girls Joan, Rakhi and Sakshi regarding their ages. This is what I was told.

Joan : Rakhi is the youngest.

Sakshi : The difference between Rakhi's age and mine is three years.

Rakhi : Either I am 24-year-old or Joan is 25-year-old or Sakshi is 26-year-old.

Joan : All are above 24 years of age.

Sakshi : I am the eldest if and only if Rakhi is not the youngest.

Rakhi : Sakshi is elder to me.

Joan : I am the eldest

Rakhi : Sakshi is not 27-year-old.

Sakshi : The sum of my age and Joan's age is two more than twice of Rakhi's age.

They also conveyed to me that one of them had been lying throughout

whereas the others had spoken the truth.

5. Who is lying?

a. Sakshi b. Joan c. Rakhi

d. Either (a) or (b) e. Cannot be determined

6. What is Sakshi's age?

a. 27 years b. 26 years c. 25 years d. 28 years e. Cannot be determined

7. What is Rakhi's age?

a. 22 years b. 23 years c. 26 years d. 27 years e. None of these

8. What is Joan's age?

a. 23 years b. 26 years c. 22 years d. 25 years e. Cannot be determined

Directions for questions 9 to 12: Read the following information carefully and answer the questions given below it.

Amongst Ravi, Shankar and Krishnan are a doctor, a lawyer and a police officer. They are married to Rita, Geet and Sophia (not necessarily in that order). Each of the wives has a profession to help augment the husband's earnings. The following additional information is also given.

I. Krishnan's wife is an artist.

II. The lawyer's wife is a teacher.

III. Ravi is cheating on his wife by having a good time with Geet.

IV. Rita is married to the police officer.

V. Sophia is an expert cook.

9. Who is the police officer?

a. Ravi b. Shankar c. Krishnan d. Geet e. Either (a) or (b)

10. Who is the lawyer?

a. Krishnan b. Ravi c. Shankar

d. Data insufficient e. Either (b) or (c)

11. Who is the doctor?

a. Ravi b. Krishnan c. Shankar

d. Data insufficient e. Either (a) or (b)

12. Who is Ravi's wife?

a. Sophia b. Geet c. Rita

d. Data insufficient e. Either (a) or (b)

Directions for questions 13 to 16: Read the following information carefully and answer the questions given below it.

Two of Anand, Sanjay and Vivek are fighting with each other. You have the following information.

I. The shorter between Anand and Sanjay is older of the two fighters.

II. The younger between Sanjay and Vivek is shorter of the two fighters.

III. The taller between Anand and Vivek is younger of the two fighters.

13. Who is not fighting?

a. Vivek b. Sanjay c. Anand d. Data insufficient e. Either (a) or (b)

14. Who is the oldest among them?

a. Vivek b. Sanjay c. Anand d. Either (b) or (c) e. Data insufficient

15. Who is the youngest among them?

a. Vivek b. Sanjay c. Anand d. Either (a) or (c) e. Data insufficient

16. Who is the tallest among them?

a. Vivek b. Sanjay c. Anand d. Either (b) or (c) e. Data insufficient

Directions for questions 17 and 18: Read the following information carefully and answer the questions given below it.

One of Sujith, his wife, their son and Sujith's mother, is a doctor and another is a lawyer.

I. If the doctor is younger than the lawyer, then the doctor and the lawyer are not blood relatives.

II. If the doctor is a woman, then the doctor and the lawyer are blood relatives.

III. If the lawyer is a man, then the doctor is a man.

17. Who is the doctor?

a. Sujith b. Sujith's wife c. Sujith's son

d. Sujith's mother e. Cannot be determined

18. Who is the lawyer?

a. Sujith's son b. Sujith's wife c. Either (a) or (b)

d. Sujith e. Cannot be determined

Directions for questions 19 and 20: Read the information carefully given below and answer the questions that follow.

A total of nine cards consisting of four kings, four queens and one Joker were there with Sujith, Ajay and Sanjay.

I. Ajay had two cards, Sujith had three cards, and Sanjay had four cards.

II. The man with the most cards did not have the joker.

III. Everyone has at least one king.

19. Who had the joker?

a. Ajay b. Sanjay c. Sujith

d. Ajay or Sujith e. Sujith or Sanjay

20. Who can have three queens?

a. Sujith b. Sanjay c. Sanjay or Sujith

II. If the doctor is a woman, then the doctor and the lawyer are blood relatives.

d. All of these e. None of these

III. If the lawyer is a man, then the doctor is a man.

Scoring table

17. Who is the doctor?

a. Sujith b. Sujith's wife c. Sujith's son

d. Sujith's mother e. Cannot be determined

18. Who is the lawyer?

a. Sujith's son b. Sujith's wife c. Either (a) or (b)

d. Sujith e. Cannot be determined

Directions for questions 19 and 20: Read the information carefully given below and answer the questions that follow.

A total of nine cards consisting of four kings, four queens and one Joker were there with Sujith, Ajay and Sanjay.

I. Ajay had two cards, Sujith had three cards, and Sanjay had four cards.

II. The man with the most cards did not have the joker.

III. Everyone has at least one king.

19. Who had the joker?

a. Ajay b. Sanjay c. Sujith

d. Ajay or Sujith e. Sujith or Sanjay

20. Who can have three queens?

a. Sujith b. Sanjay c. Sanjay or Sujith

Total questions	Total attempted	Total correct	Total wrong	Score	Time taken
20					

Practice Exercise - B3

Directions for questions 1 and 2: Read the following information carefully and answer the questions given below it.

My house has a number. There are three conditions.

- I. If my house number is a multiple of 3, then it is a number from 50 to 59.
- II. If my house number is not a multiple of 4, then it is a number from 60 to 69.
- III. If my house number is not a multiple of 6, then it is a number from 70 to 79.

1. What is my house number?

- a. 72 b. 76 c. 68
d. 54 e. None of these

2. Which of conditions is not necessary in order to get my house number?

- a. I b. II c. III
d. I and II e. None of these

Directions for questions 3 to 6: Read the following information carefully and answer the questions given below it.

The owner of the mansion has been murdered. The visitors to the mansion were Aditya, Vijay and Puneet.

The following additional information is also given.

I. The murderer, who was one of the three visitors, arrived at the mansion later than at least one of the other two visitors.

II. A detective, who was one of the three visitors, arrived at the mansion earlier than at least one of the other two visitors.

III. The detective arrived at the mansion at midnight.

IV. Neither Aditya nor Vijay arrived at the mansion after midnight.

V. The earlier arriver between Vijay and Puneet was not the detective.

VI. The later arriver between Aditya and Puneet was not the murderer.

3. Who arrived at the mansion earliest?

- a. Puneet b. Aditya c. Vijay
d. Either (b) or (c) e. Data insufficient

4. Who is the murderer?

- a. Puneet b. Aditya c. Vijay
d. Either (a) or (b) e. Data insufficient

5. Who is the detective?

- a. Puneet b. Vijay c. Aditya
d. Either (a) or (c) e. Data insufficient

6. Who arrived at the mansion in the last ?

- a. Puneet b. Vijay c. Aditya
d. Either (a) or (b) e. None of these

Directions for questions 7 to 9: Read the following information carefully and answer the questions given below it.

Puneet and Guruvinder are friends. Puneet has three sons while Guruvinder has two. Product of the ages of Guruvinder's sons is equal to the product of ages of Puneet's sons. The maximum and minimum age differences between any two of Puneet's son's are 2 years and 1 year respectively. The age difference between the sons of Guruvinder is 1 year. One of Guruvinder's sons had fallen sick when he was nine-year-old. Guruvinder had got married on February 29th, 19 years back. Ages of all the sons of Puneet and Guruvinder are integers.

7. What is the age of the youngest son of Puneet?

- a. 1 year
- b. 2 years
- c. 3 years
- d. 4 years
- e. None of these

8. What is the age of the eldest son of Puneet?

- a. 9 years
- b. 10 years
- c. 7 years
- d. 8 years
- e. Data insufficient

9. What is the age of Guruvinder's eldest son?

- a. 13 years
- b. 14 years
- c. 16 years
- d. 12 years
- e. None of these

10. How many circles of radius r can be arranged around a circle of radius r so that all the circles touch the central circle?

- a. 3
- b. 4
- c. 5
- d. 6
- e. 7

Directions for questions 11 to 13: Read the following information carefully and answer the questions given below it.

Sum of the ages of four brothers P, Q, R and S is 45. When 2 is added to the age of P, 2 is subtracted from the age of Q, the age of R is multiplied by 2, and the age of S is divided by 2, then you get the same number, when these new ages are added. Also, the sum of the ages of P and Q is half the sum of the ages of R and S.

11. Who is the eldest one?

- a. P
- b. S
- c. Q
- d. R
- e. Data insufficient

12. Who is the youngest one?

- a. P
- b. Q
- c. Either P or Q
- d. S
- e. Data insufficient

13. If P is 2 years younger than R, what is Q's age?

- a. 7 years
- b. 8 years
- c. 10 years
- d. 9 years
- e. Data insufficient

Directions for questions 14 to 18: Read the following information carefully and answer the questions given below it.

In a big hostel, there are 1,000 rooms. In that hostel only even numbers are used for room numbers, i.e. the room numbers are 2, 4, 6, ..., 1998, 2000. All the rooms have one resident each. One fine morning, the warden calls all the residents and tells them to go back to their rooms as well as multiples of their room numbers. When a guy visits a room and finds the door open, he closes it, and if the door is closed, he opens it. All 1,000 guys do this operation. All the doors were open initially.

14. The last room that is closed is room number

a. 1936 b. 2000 c. 1922

d. 1966 e. None of these

15. The 38th room that is open is room number

a. 80 b. 88 c. 76

d. 72 e. None of these

16. If only 500 guys, i.e. residents of room number 2 to 1000 do the task, then the last room that is closed is room number

a. 2000 b. 1936 c. 1849

d. 1746 e. None of these

17. In the case of question number 16, how many rooms will be closed in all?

a. 513 b. 31 c. 13

d. 315 e. 246

18. If you are a lazy person, you would like to stay in a room whose number is

a. more than 500 b. more than 1000 c. 500

d. 2000 e. 250

a. 4 b. 2 c. 1

d. 3 e. None of these

20. If $300 < PQR < 400$, then R is

a. 1 b. 2 c. 3

d. 4 e. Data insufficient

Scoring table

Total questions	Total attempted	Total correct	Total wrong	Score	Time taken
20					

Directions for questions 19 and 20: Read the following information carefully and answer the questions given below it.

PQR is a three-digit number. $P^3 + Q^3 + R^3 = PQR$

19. If $PQR < 200$, then Q is

Practice Exercise - B4

Directions for questions 1 to 5: Read the following information carefully and answer the questions given below.

I. There is a family of six persons – L, M, N, O, P and Q. They are professor, businessman, chartered account, bank manager, engineer and medical representative, not necessarily in that order.

II. There are two married couples in the family.

III. O, the bank manager is married to the lady professor.

IV. Q, the medical representative, is the son of M and brother of P.

V. N, the chartered accountant, is the daughter-in-law of L.

VI. The businessman is married to the chartered accountant.

VII. P is an unmarried engineer.

VIII. L is the grandmother of Q.

1. How is P related to Q?

a. Brother b. Sister c. Cousin

d. Either brother or sister e. None of these

2. Which of the following is the profession of M?

a. Professor b. Chartered accountant c. Businessman

d. Medical representative e. Cannot be determined

3. Which of the following is the profession of L?

a. Professor b. Chartered accountant c. Businessman

d. Engineer e. Bank Manager

4. Which of the following is one of the couples?

a. QO b. OM c. PL

d. ON e. None of these

5. How is O related to Q?

a. Father b. Grandfather c. Uncle

d. Brother e. Cannot be determined

Directions for questions 6 to 10: Read the following information and answer the questions that follow.

I. There are six students (A, B, C, D, E and F) in a group. Each student can opt for only three choices out of the six which are music, reading, painting, badminton, cricket and tennis.

II. A, C and F like reading.

III. D does not like badminton, but likes music.

IV. Both B and E like painting and music .

V. A and D do not like painting, but they like cricket.

VI. All students except one like badminton.

VII. Two students like tennis.

VIII. F does not like cricket, music and tennis.

6. Which pair of students has the same combination of choices?

- a. A and C
- b. C and D
- c. B and E
- d. D and F
- e. D and E

7. Who among the following students likes both tennis and cricket?

- a. A and B
- b. C
- c. B and D
- d. D
- e. C and D

8. How many students like painting and badminton?

- a. 1
- b. 2
- c. 3
- d. 4
- e. 5

9. Who among the following do not like music?

- a. A, C and D
- b. A, B and C
- c. A, C and F

- d. B, D and F
- e. A, B and F

10. Which of the following is the most popular choice?

- a. Tennis
- b. Badminton
- c. Reading
- d. Painting
- e. Cricket

Directions for questions 11 to 15: Read the following information carefully and answer the questions that follow.

Five professors A, B, C, D and E residing at five different cities, teach five different subjects. This additional information is also given.

I. A does not stay at either Bangalore or Lucknow. He teaches philosophy.

II. B does not stay at either Hyderabad or Lucknow. He teaches mathematics.

III. D stays at Jaipur and does not teach economics.

IV. E does not stay either at Bangalore or at Delhi. He teaches geography.

V. C does not teach history and he stays at Delhi.

11. Who stays at Bangalore?

- a. A
- b. C
- c. D
- d. E
- e. Either (a) or (b)

12. Which of the following subjects does C teach?

- a. Philosophy
- b. Mathematics
- c. History
- d. Economics
- e. Either (b) or (c)

13. At which of the following places does E stay?

- a. Bangalore
- b. Hyderabad
- c. Lucknow
- d. Delhi
- e. Cannot be determined

14. Which of the following subjects does D teach?

- a. Mathematics
- b. Philosophy
- c. Economics
- d. History
- e. Either (a) or (b)

15. Which of the following combinations is wrong?

- a. A - Hyderabad
- b. B - Geography
- c. C - Delhi
- d. D - History
- e. None of these

Scoring table

III. D stays at Jaipur and does not teach economics.

IV. E does not stay either at Bangalore or at Delhi. He teaches geography.

V. C does not teach history and he stays at Delhi.

11. Who stays at Bangalore?

a. A b. B c. C d. D e. Either (a) or (b)

12. Which of the following subjects does C teach?

a. Philosophy b. Mathematics c. History

d. Economics e. Either (b) or (c)

13. At which of the following places does E stay?

a. Bangalore b. Hyderabad c. Lucknow

d. Delhi e. Cannot be determined

14. Which of the following subjects does D teach?

a. Mathematics b. Philosophy c. Economics

d. History e. Either (a) or (b)

15. Which of the following combinations is wrong?

a. A - Hyderabad b. B - Geography c. C - Delhi

d. D - History e. None of these

Total questions	Total attempted	Total correct	Total wrong	Score	Time taken
15					



Scoring table

Practice Exercise - B5

1. Peter, Qamar, Roger, Steve and Tikolo are five friends sitting in a row facing East. Peter has an equal number of friends on his either side. There is only one person sitting between Qamar and Peter. Roger and Steve have a common neighbour. Who is sitting to the immediate left of Tikolo?

- a. Roger
- b. Steve
- c. Peter
- d. Cannot be determined

2. Each of the four people - Aman, Binay, Kamal and Samar - has a distinct height. Kamal is not shorter than Aman. Binay is not taller than Samar. Aman is taller than Samar. Who is the shortest among the four?

- a. Samar
- b. Binay
- c. Aman
- d. Cannot be determined

3. Billu, Haplu, Jerry and Tom appeared in a test in which each of them scored distinct marks. The marks scored by Haplu were more than the sum of the marks scored by Billu and Jerry. The sum of the marks scored by Haplu and Billu was equal to sum of the marks scored by Tom and Jerry. The sum of the marks scored by Haplu and Jerry was less than the sum of the marks scored by Tom and Billu. Who scored the least among the four?

- a. Billu
- b. Jerry
- c. Tom
- d. Cannot be determined

4. Cim Jorbett wants to cross a forest that will take him six days. A man can carry only enough provisions to last for four days. How many men would he need to assist him in crossing the forest?

- a. 3
- b. 1
- c. 4
- d. 2

5. Four men, one of whom was a murderer, made the following statements when interrogated by the police.

Amar: Kamal is the murderer.

Pawan: I am not the murderer.

Vimal: I am not the murderer.

Kamal: Vimal is the murderer.

If only one of these four statements is true, then who is the murderer?

- a. Amar
- b. Pawan
- c. Vimal
- d. Kamal

6. Ramesh, Suresh and Tarun worked as Accountant, Cashier and Supervisor in a superstore, not necessarily in the same order. If Tarun is the Cashier, Suresh is the Supervisor. If Tarun is the Supervisor, Suresh is the Accountant. If Suresh is not the Cashier, Ramesh is the Supervisor. Who is the Accountant?

- a. Suresh
- b. Ramesh
- c. Tarun
- d. Cannot be determined

Directions for questions 7 and 8: Answer the questions on the basis of the information given below:

Each of the four students - Akhil, Boman, Chaman and Dinu - was wearing a shirt of distinct colour while taking a test. They were ranked 1 to 4 based on their performance in the test. Akhil was wearing a red shirt. Chaman stood 3rd in the test. The student wearing yellow shirt stood 2nd. Dinu was not wearing a yellow shirt and he was not ranked 4th in the test.

7. Who stood 4th in the test?

- a. Akhil
- b. Dinu
- c. Boman
- d. Cannot be determined

8. If one of the four was wearing a green shirt, then who could he be?

- a. Dinu
- b. Chaman
- c. Boman
- d. Either (a) or (b)

Directions for questions 9 and 10: Answer the questions on the basis of the information given below:

Five friends - Batuk, Reshma, Salma, Tina and Veer - are movie buffs. All five plan to watch the movie "Mat Maro Dam" in the next three days starting on Friday. Each person will watch just one show of the movie. At least one of the five people watches the movie on each of the three days. Reshma will watch the movie at least a day before both Batuk and Veer. Veer will watch the movie at least a day before either Salma or Tina or both.

9. If just one of the five friends watches the movie on Saturday, then who all watch the movie on Friday?

- a. Only Reshma
- b. Reshma, Tina
- c. Reshma, Salma
- d. (a), (b) or (c)

10. If just one of the five friends watches the movie on Sunday, when does Batuk watch it?

- a. Friday
- b. Saturday
- c. Sunday
- d. Either (b) or (c)

Directions for questions 11 and 12: Answer the questions on the basis of the information given below:

Four men whose last names were Sharma, Puri, Mishra and Singh, and first names were Rahul, Jugal, Shivam and Rakesh played four rounds of a game. The winner of the first round was to collect ₹10 from each of the others, the winner of the second round was to collect ₹20 from each of the others, and so on. Each man won exactly one round of the game. Shivam won the first round, Puri the second, Jugal the third and Mishra the fourth. At the beginning of the game Rakesh had the most money and at the end Sharma had the most.

11. What is the first name of Sharma?

- a. Shivam
- b. Jugal
- c. Rahul
- d. Cannot be determined

12. How much money did Singh gain or lose at the end of the game?

- a. Lost ₹60
- b. Gained ₹20

- c. Nothing
- d. Cannot be determined

Directions for questions 13 and 14: Answer the questions on the basis of the information given below:

A, B, C and D are four boys comprising exactly two distinct pairs of brothers. C is older than either boy of the other pair of brothers. D is older than his brother. The sum of the ages of C and D is less than the sum of the ages of A and B. D is younger than B.

13. Who is the oldest among the four boys?

- a. B
- b. C
- c. A
- d. Cannot be determined

14. Who is the brother of D?

- a. C
- b. B
- c. A
- d. Cannot be determined

Directions for questions 15 to 17: Answer the questions on the basis of the information given below:

The prestigious Ramji Cricket Tournament is played in March every year. The final of the tournament is played between the two best teams. The only teams that could reach the final of Ramji Cricket Tournament from 2004 to 2010 were Ahmedabad, Bengaluru, Chennai and Delhi.

Each of Ahmedabad, Bengaluru and Chennai reached the final exactly four times and no team reached the final three years in a row during the mentioned period. Some data about the finalists of the tournament from 2004 to 2010 is given below.

2004	Ahmedabad	Bengaluru
2005	Chennai	
2006	Delhi	
2007	Ahmedabad	
2008	Bengaluru	
2009	Chennai	
2010	Delhi	

15. If Bengaluru played the final against Chennai in 2005, then which team played the final against Chennai in 2009?

- a. Delhi b. Ahmedabad c. Bengaluru d. Cannot be determined

16. If Ahmedabad played the final against Delhi at least once, then against which team did Delhi play its other final?

- a. Chennai b. Ahmedabad c. Either (a) or (b) d. Neither (a) nor (b)

17. If Ahmedabad played the final against Chennai in 2005, then which team played the final against Bengaluru in 2008?

- a. Chennai b. Ahmedabad c. Delhi d. Either (a) or (b)

Directions for questions 18 to 20: Answer the questions on the basis of the information given below:

Berkshire Club has to nominate four different people for the posts of President, Vice-President, Treasurer and Secretary. The six people eligible for nomination are Adam, Billy, Campbell, Darell, Edward and Finn. The following conditions need to be met while doing the nomination.

- (i) Edward can't be nominated when both Adam and Billy are nominated.
- (ii) Darell can't be nominated with Edward or Finn.
- (iii) Campbell can't be nominated with Billy unless Finn is nominated too.

(iv) Billy can't be nominated as Vice-President or as Secretary.

(v) Finn can't be nominated except as President, and that too can be done only when Campbell is not nominated as Vice-President.

(vi) Adam can't be nominated without Billy. Adam cannot be nominated as Vice-President.

18. Which two people can't be nominated?

- a. Darell, Edward b. Darell, Finn

- c. Adam, Campbell d. Adam, Darell

19. Who is nominated as Treasurer?

- a. Billy b. Campbell c. Edward d. Adam

20. Who is nominated as Secretary?

- a. Edward b. Adam c. Campbell d. Darell

Scoring table

Total questions	Total attempted	Total correct	Total wrong	Score	Time taken
20					

Practice Exercise - B6

1. The game of Tic-Tac-Toe is played in a large square divided into nine small squares. The rules of the game are as follows:

- (i) Each one of the two players in turn places his or her mark - usually X or O - in a small square.
- (ii) The player who first gets three marks in a horizontal, vertical or diagonal line wins. If both the players fail to do so the game ends in a draw.
- (iii) A player will always place his or her mark in a line that already contains (a) two of his or her own marks or (b) two of his opponent's marks, giving (a) priority over (b).

X	X	
X	O	
O	O	

Only the last mark to be placed in the game shown above is not given. Which mark - X or O wins the game?

- a. X b. O
- c. Game ends in a draw d. Cannot be determined

2. Choudhary and Gupta couples are good friends and play badminton regularly. They want to find the best player among them. A player who does not lose any match is the best player. Only three matches are played and no match ends in a draw. It is also known that:

(i) Either Choudhary couple or Gupta couple play the first match among themselves and it is the only match in between a couple.

(ii) A player who loses does not play any other match.

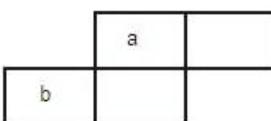
(iii) Choudharys win more matches than Guptas.

(iv) Females win only one game and males win two games.

Who was declared the best player?

- a. Mr.Choudhary b. Mrs.Choudhary c. Mr.Gupta d. Mrs. Gupta

3. The number of stairs in temples: A, B and C can be related to the diagram given below such that when just one digit is written in each box:



a across (the two digit number) represents the number of stairs in temple A.

a down (the two digit number) represents the sum of the number of stairs in temples A and B.

b across (the two digit number) is the sum of the number of stairs in temples A,B and C.

Two among the three temples A, B, and C have equal stairs. Which temple has a different number of stairs from the other two?

- a. A b. B c. C d. Cannot be determined

4. There are three brothers Ram, Shyam and Mohan. It is known that:

(i) If Mohan is the youngest, then he is the tallest.

(ii) If Ram is the oldest, only then he is not the tallest.

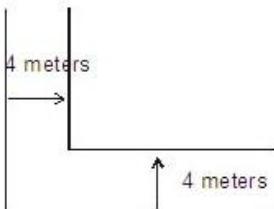
(iii) Only when Shyam is the oldest, he is also the shortest.

(iv) Ram is older than Mohan and Mohan is younger than Shyam.

Who is the shortest among the three?

- a. Ram b. Shyam c. Mohan d. Either (a) or (b)

5. A river 4 meters wide makes a 90-degree turn as shown in figure. With how many planks, each 3.9 meters long, is it possible to cross the river by bridging it?



- a. 1 b. 2 c. 3 d. It is not possible

6. A shopkeeper has 24 kg of Basmati rice. A customer wants only 9 kg of rice. The shopkeeper has a pan balance but has misplaced all the weights. He wants to give his customer exactly 9 kg of rice without wasting his customer's time. What is the minimum number of weighings in which he can do it?

- a. 2 b. 3 c. 4 d. It is not possible

Directions for questions 7 and 8: Answer the questions on the basis of the information given below:

Abhishek, Himanshu and Saral decide to buy one of the three types of latest HD colour television among - LCD, LED and Plasma - to watch the World Cup. Each of them wants to buy a different type of television from the other two. Each of three types of television is manufactured by exactly one of the three companies - Samsung, Sony and LG - not

necessarily in the same order. Abhishek decides to buy neither LED nor LG. Saral decides to buy neither LCD nor Sony. Sony manufactures the LED.

7. Who decides to buy the LED?

- a. Saral b. Abhishek c. Himanshu d. Cannot be determined

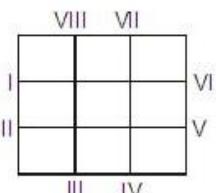
8. Which of the following combinations is correct?

- a. LG-LED b. Samsung-Plasma c. Himanshu-Sony d. Plasma-Abhishek

Directions for questions 9 and 10: Answer the questions on the basis of the information given below:

There are four couples - Mr. and Mrs. A; Mr. and Mrs. B; Mr. and Mrs. C and Mr. and Mrs. D - sitting at a square table (as shown below). One of the couples had a fight and are not sitting together. So all the couples except one are sitting together, i.e. the husband and the wife sit adjacent to each other. It is also known that the quarrelling husband and wife are so furious that they do not even want to look at each other. So they do not sit directly across each other either.

(Directly across means that the people are sitting on the two ends of the same horizontal or vertical straight line.)



9. Which position is likely to be occupied by the quarrelling couple if it is known that positions III and IV are occupied by a non-quarrelling couple?

- a. II, VII

b. V, VII

c. Either (a) or (b)

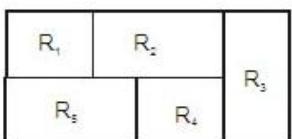
d. It is impossible for them not to be adjacent to each other.

10. It is also known that the person sitting directly across Mrs. A was a man who sat on Mr. B's immediate left. The person sitting on Mrs. C's immediate left was a man who sat across Mr. D. Which couple had a fight?

a. Mr. and Mrs. A b. Mr. and Mrs. B c. Mr. and Mrs. C d. Mr. and Mrs. D

Directions for questions 11 and 12: Answer the questions on the basis of the information given below:

A, B, C, D and E go on a treasure hunt. They accidentally camp on a piece of land that has treasure hidden beneath it. Not knowing this, they make five rectangular tents, one for each of them, as shown in the figure given below:



The dimensions of R_1 and R_4 are the same. Also, the dimensions of R_2 , R_3 and R_5 are the same. Two tents are said to border each other if they have a common wall or at least some part of a wall is common for both. For example R_1 borders on R_2 and R_5 .

It is later observed that the treasure is beneath the tent of E. One of the other four comes to know about it before others and steals the treasure. It is also known that:

(i) the tents of E and the thief border on the same number of tents.

(ii) E's tent borders on A's and B's tents.

(iii) the tents of C and D are of same dimensions.

(iv) B's tent does not border on C's tent.

11. Who among the five friends occupies R_2 ?

a. A b. C c. D d. E

12. Who is the thief?

a. A b. B c. C d. D

Directions for questions 13 and 14: Answer the questions on the basis of the information given below:

A town has two libraries: Gyanodaya and La Gyaan which have a very good collection of new as well as old books. They try to procure all new books as soon as they are released. Only 4 new books were released this month - Maya, Osho, Ramdev and Saiji. Due to huge demand the suppliers were unable to fulfill the entire demand and agreed to supply to the libraries with the following conditions:

(i) Both the libraries were supplied exactly three of the books.

(ii) At least one of the two libraries is supplied both Maya and Saiji.

(iii) A library that is supplied Osho would also be supplied Ramdev.

(iv) Maya was supplied to Gyanodaya.

13. Which of the following could be a complete and accurate list of the books supplied to each of the libraries?

a. Gyanodaya: Maya, Osho, Saiji; La Gyaan: Maya, Osho, Saiji

b. Gyanodaya: Maya, Osho, Ramdev; La Gyaan: Maya, Osho, Ramdev

c. Gyanodaya: Maya, Saiji, Ramdev; La Gyaan: Maya, Osho, Saiji

d. Gyanodaya: Maya, Sajji, Ramdev; La Gyaan: Maya, Osho, Ramdev

14. If both the libraries are supplied Sajji, which of the following could be true?

a. The number of libraries supplied with Maya is equal to the number of libraries supplied with Osho.

b. The number of libraries supplied with Maya is greater than the number of libraries supplied with Sajji.

c. Gyanodaya is supplied both Maya and Osho.

d. La Gyaan is supplied both Maya and Osho.

Directions for questions 15 to 17: Answer the questions on the basis of the information given below:

Saral loves fishing as well as travelling. So he visits one of the eight rivers - Ganga, Hindon, Jamuna, Kaveri, Lakha, Mandakini, Pushpa and Tigris - on eight consecutive Sundays. He visits each river exactly once and one at a time i.e. on a given Sunday he visits only one river. Saral goes to these rivers in an order consistent with the following conditions:

(i) Both Pushpa and Ganga are visited before Kaveri.

(ii) Both Hindon and Lakha are visited before Jamuna.

(iii) Kaveri is visited before Mandakini but after Lakha.

(iv) Kaveri is visited after Tigris.

15. Which of the following could be true?

a. Jamuna is the first river visited.

b. Kaveri is the second river visited.

c. Mandakini is the sixth river visited.

d. Ganga is the seventh river visited.

16. If Mandakini is the seventh river visited, whereas Pushpa, Ganga and Tigris are the first three rivers visited, then any one of the following could be the fifth river visited except:

a. Hindon b. Jamuna c. Kaveri d. Lakha

17. If Lakha is the fifth river visited, then which one of the following could be true?

a. Jamuna is visited before Ganga.

b. Jamuna is visited before Tigris.

c. Kaveri is visited before Hindon.

d. Mandakini is visited before Jamuna.

Directions for questions 18 to 20: Answer the questions on the basis of the information given below:

Ravi is the owner of a Maruti Suzuki workshop. He has six mechanics - Samir, Uthappa, Walthaty, Xavier, Yuvi, Zaheer. Each mechanic services at least one of the following three models of cars - Ritz, Swift and Vitara - and no other model. The following conditions apply:

(i) Xavier and exactly three other mechanics service Ritz.

(ii) Yuvi services both Swift and Vitara.

(iii) Samir does not service any model of car that Yuvi services.

(iv) Zaheer services more models of cars than Yuvi services.

- b. Kaveri is the second river visited.
 c. Mandakini is the sixth river visited.
 d. Ganga is the seventh river visited.

16. If Mandakini is the seventh river visited, whereas Pushpa, Ganga and Tigris are the first three rivers visited, then any one of the following could be the fifth river visited except:

- a. Hindon b. Jamuna c. Kaveri d. Lakha

17. If Lakha is the fifth river visited, then which one of the following could be true?

- a. Jamuna is visited before Ganga.
 b. Jamuna is visited before Tigris.
 c. Kaveri is visited before Hindon.
 d. Mandakini is visited before Jamuna.

Directions for questions 18 to 20: Answer the questions on the basis of the information given below:

Ravi is the owner of a Maruti Suzuki workshop. He has six mechanics - Samir, Uthappa, Walthaty, Xavier, Yuvi, Zaheer. Each mechanic services at least one of the following three models of cars - Ritz, Swift and Vitara - and no other model. The following conditions apply:

- (i) Xavier and exactly three other mechanics service Ritz.
 (ii) Yuvi services both Swift and Vitara.
 (iii) Samir does not service any model of car that Yuvi services.
 (iv) Zaheer services more models of cars than Yuvi services.

- (v) Walthaty does not service any models of cars that Samir services.
 (vi) Uthappa services exactly two models of cars.
 18. For how many of the six mechanics is it possible to determine exactly what all models of cars each of them services?
 a. Two b. Three c. Four d. Five

19. Which one of the following pairs could comprise two mechanics who service exactly the same models of cars?

- a. Samir and Uthappa
 b. Uthappa and Yuvi
 c. Uthappa and Xavier
 d. Walthaty and Xavier

20. Which one of the following statements must be true?

- a. There is exactly one model of cars that both Uthappa and Walthaty service.
 b. There is exactly one model of cars that both Uthappa and Xavier service.
 c. There is exactly one model of cars that both Uthappa and Yuvi service.
 d. There is exactly one model of cars that both Yuvi and Xavier service.

Scoring table

Total questions	Total attempted	Total correct	Total wrong	Score	Time taken
20					

Practice Exercise - B7

1. Arjun, Budhia, Chotu and Lala are comparing the number of sheep that they own. If Arjun gives one-third of his sheep to Budhia, the two will have the same number of sheep. Also, if Arjun gives one-fourth of his sheep to Chotu, the two will have the same number of sheep. Similarly, if Arjun gives one-fifth of his sheep to Lala, the two will have the same number of sheep. What is the minimum number of sheep that the four of them together have?

- a. 60 b. 73 c. 107 d. 146

2. Arjun and Pandit stole some diamonds from a jewellery shop and distributed the diamonds between them. Arjun said to Pandit, "I have three times the number of diamonds that you have. However, if I give you as many diamonds as your age in years, I will be left with twice the number of diamonds that you will have." Also, if Pandit gives Arjun as many diamonds as Arjun's age in years, Arjun will have eleven times the number of diamonds that Pandit will be left with. If Pandit is 24 years old, what is the age of Arjun?

- a. 72 b. 24 c. 36 d. 48

3. Akshay, Parmeet, Calvin and Binay ran a 400m race. Aman, Sunil and Puneet made the following predictions regarding the winner.

- Aman said that either Akshay or Binay will win.
- Sunil said that Akshay will not win.
- Puneet said that neither Binay nor Calvin will win.

It was found later that only one of the three had made a correct prediction. Who won the race?

- a. Akshay b. Parmeet c. Calvin d. Binay
4. A man says, "I have all but 9 goats, all but 13 dogs, all but 14 cats". How many pets does he have?
a. 36 b. 18 c. 24 d. 30
5. Mr. Red, Mr. White and Mr. Green were talking through teleconference. Mr. White said, "Each of us is wearing a suit of a distinct colour among red, white and green. However, none of us is wearing a suit whose colour matches with his name." The person wearing the green suit replied, "Yes, you are right". Which of the following is correct?
a. Mr. White is wearing the green suit.
b. Mr. Red is wearing the green suit.
c. Mr. Green is wearing the red suit.
d. Mr. Red is wearing the white suit.
6. Mamta, Sushma, Lalita and Uma visited Atal on a particular day. They reached at his home at 6:00, 7:00, 9:00 and 11:00 respectively. Each time is either AM or PM. Lalita didn't visit Atal between Sushma and Uma. At least one female visited him between Mamta and Sushma. At least one of Lalita and Uma visited him before Mamta. How much time after Sushma did Uma visit Atal?
a. 4 hrs. b. 16 hrs. c. 8 hrs. d. Cannot be determined

Directions for questions 7 and 8: Answer the questions on the basis of the information given below:

In a five digit number, the third digit is twice the first digit whereas the last digit is three more than the first digit. Also, the second digit is two more than the fourth digit. There are exactly three pairs of two digits in the number whose sum is 12. No three digits in the number are same.

7. What is the first digit of the number?

- a. 2 b. 3 c. 4 d. Cannot be determined

8. What is the sum of the digits of the number?

- a. 27 b. 31 c. 33 d. None of these

Directions for questions 9 and 10: Answer the questions on the basis of the information given below:

Seven players of a handball team lined up in a row to get their photograph clicked. The captain was asked to stand in the center of the line-up. It is also known that:

- (i) Exactly four players stood between Amar and Chaman.
- (ii) Exactly three players stood between Golu and Ehsaan.
- (iii) Exactly two people stood between Dinu and Farhaan.
- (iv) Exactly one person stood between Golu and Dinu.
- (v) No person stood between Chaman and Farhaan.
- (vi) Bholu was one of the players of the team.

9. Who was the captain of the team?

- a. Bholu b. Golu c. Dinu d. Farhaan

10. Which two players were standing at the ends?

- a. Golu and Chaman b. Ehsaan and Chaman

- c. Amar and Ehsaan d. Either (a) or (b)

Directions for questions 11 and 12: Answer the questions on the basis of the information given below:

In a zoo there are 3 tigers, 4 lions, 5 elephants and 5 monkeys. These animals are to be put into

3 cages, Cage I, II and III, where each cage can accommodate a maximum of 6 animals. Some restrictions that apply are:

- (i) A monkey and a lion cannot be put together in a cage.
- (ii) If an elephant is there in a cage, no tiger can be put in that cage.
- (iii) Exactly 2 lions are there in one of the cages; Cage II does not have any lion.

11. Cage II has

- a. 2 elephants, 3 monkeys b. 1 elephant, 5 monkeys
- c. 1 elephant, 4 monkeys d. 1 tiger, 5 monkeys

12. Which cage has lowest number of animals?

- a. Cage I b. Cage II c. Cage III d. Either (a) or (c)

Directions for question 13 and 14: Answer the questions on the basis of the information given below:

In the Pacific mall, there are two parking lots A and B. B is on the first floor whereas A is on the second floor. Also, in each of A and B, four cars are parked in four slots I, II, III and IV. Slot I in A is directly above Slot I in B, Slot II in A is directly above Slot II in B, and so on. Each of the eight cars parked in these slots is of a distinct color among - Red,

Yellow, Magenta, Purple, Black, Green, Orange and White. It is also known that the Green and Purple cars are in A but neither of them is directly above Black or Orange cars, which are in B. Cars in slot II and III of B are Yellow and Magenta respectively.

13. If the Red car is directly above the Black car and the Green car is in slot III, then the exact position of how many cars can be determined?

- a. 4 b. 5 c. 6 d. 8

14. If the Purple car is adjacent to the White car, then which two cars are adjacent to the Green car?

- a. Purple and Red b. Purple and White
- c. Red and White d. Cannot be determined

Directions for questions 15 to 17: Answer the questions on the basis of the information given below:

In Kiran General Store, three workers are required on each day from Monday to Saturday. The staff consists of six workers, each of whom works on exactly three days in a week. The store remains closed on Sundays. None of the workers works on three consecutive days in a week. It is also known that:

- (i) A doesn't work on the first two days of the week whereas C doesn't work on the last two days.
- (ii) Neither B nor D works on Monday or Saturday.
- (iii) Exactly two workers, who work on Friday, also work on Wednesday.
- (iv) D, E and C work together on exactly one day. F doesn't work on Tuesday.
- (v) Five distinct workers work on Monday and Tuesday and the same is true for Friday and Saturday also.

15. Which of the following worker/s work/s on Tuesday, Wednesday and Friday?

- a. B and D b. B only c. D only d. A and B

16. Which one of the following pairs never work together?

- a. C and F b. B and E c. E and F d. A and D

17. On which day do C, D and E work together?

- a. Tuesday b. Wednesday c. Thursday d. Monday

Directions for questions 18 to 20: Answer the questions on the basis of the information given below:

Ankur, Basti, Chandan and Esha live in the same society and park their cars in the same parking lot. Their parking slots are in a row and are numbered 1 to 4 from left to right. Also, one of them is a Doctor. It is also known that:

- (i) If Chandan's parking slot is not adjacent to that of Basti, then the Doctor is Ankur and he parks his car in slot 1.
 - (ii) If Ankur's parking slot is to the right of that of Chandan, then the Doctor is Esha and she parks her car in slot 4.
 - (iii) If Basti's parking slot is not adjacent to that of Esha, then the Doctor is Chandan and he parks his car in slot 3.
 - (iv) If Esha's parking slot is to the right of that of Ankur, then the Doctor is Basti and he parks his car in slot 2.
18. Who is the Doctor?
- a. Ankur b. Chandan c. Esha d. Basti
19. Which two of the following sit together?

15. Which of the following worker/s work/s on Tuesday, Wednesday and Friday?

- a. B and D
- b. B only
- c. D only
- d. A and B

16. Which one of the following pairs never work together?

- a. C and F
- b. B and E
- c. E and F
- d. A and D

17. On which day do C, D and E work together?

- a. Tuesday
- b. Wednesday
- c. Thursday
- d. Monday

Directions for questions 18 to 20: Answer the questions on the basis of the information given below:

Ankur, Basti, Chandan and Esha live in the same society and park their cars in the same parking lot. Their parking slots are in a row and are numbered 1 to 4 from left to right. Also, one of them is a Doctor. It is also known that:

(i) If Chandan's parking slot is not adjacent to that of Basti, then the Doctor is Ankur and he parks his car in slot 1.

(ii) If Ankur's parking slot is to the right of that of Chandan, then the Doctor is Esha and she parks her car in slot 4.

(iii) If Basti's parking slot is not adjacent to that of Esha, then the Doctor is Chandan and he parks his car in slot 3.

(iv) If Esha's parking slot is to the right of that of Ankur, then the Doctor is Basti and he parks his car in slot 2.

18. Who is the Doctor?

- a. Ankur
- b. Chandan
- c. Esha
- d. Basti

19. Which two of the following sit together?

- a. Esha and Chandan
- b. Ankur and Basti

- c. Esha and Basti
- d. Ankur and Chandan

20. Whose car is parked in slot 4?

- a. Ankur
- b. Basti
- c. Chandan
- d. Esha

Scoring table

Total questions	Total attempted	Total correct	Total wrong	Score	Time taken
20					

Practice Exercise - B8

1. Each face of a cube is painted with a distinct colour among red, blue, green, yellow, pink and orange. Red coloured face is adjacent to the blue coloured face. Green coloured face is opposite the yellow coloured face. Which of the following statements is necessarily true?

- a. Pink coloured face is adjacent to red coloured face.
- b. Orange coloured face is adjacent to green coloured face.
- c. Orange coloured face is opposite red coloured face.
- d. Pink coloured face is opposite blue coloured face.

2. Five boys are to be selected for a group activity out of eight boys P, Q, R, S, W, X, Y and Z.

The following restrictions hold true:

- (i) Exactly one out of P and Y must be selected.
- (ii) At least one out of S and Z must be selected for Q to get selected.
- (iii) If R is selected then either W or X must be selected, but not both.
- (iv) S cannot be selected with W; and Q cannot be selected with X.

Which one of the following can be true?

- a. Q is selected with S but Z is not selected.
- b. Q is selected with Z but S is not selected.

c. Q is selected with both S and Z.

d. All of these are acceptable.

3. Each person among - Himanshu, Puneet and Saral - is wearing a distinct coloured shirt. The person wearing the blue shirt is the oldest. Himanshu, who is not the youngest, is wearing the white shirt. Puneet is younger than Saral who is not the one wearing the green shirt. Who among the three is wearing the green shirt?

- a. The youngest person b. The oldest person
- c. Puneet d. Both (a) and (c)

4. A man distributed 14 candies among four children - Akoo, Bakoo, Chakoo and Dakoo - such that each child received a distinct number of candies. It is also known that:

- (i) Akoo received fewer candies than Bakoo.
- (ii) Dakoo received twice as many candies as Bakoo.
- (iii) The child who received the maximum number of candies wasn't Chakoo.

What is the number of candies received by Chakoo?

- a. 3 b. 4 c. 5 d. Cannot be determined

5. There are four people - Gautam, Keshav, Nikhil and Sudeepto. One of them is a dancer, one a dentist, one a magician and one a writer (not necessarily in the same order). It is also known that:

- (i) Both Gautam and Nikhil are big fans of the magician.
- (ii) Both Keshav and the writer go to meet the dentist every month.
- (iii) The writer, whose biography of Sudeepto was a best seller, is planning to write a biography of Gautam.

(iv) Gautam has never met Nikhil.

Who among the four is the dentist?

a. Gautam b. Nikhil c. Sudeepto d. Either (a) or (c)

6. Two among the four friends - Ankita, Kriti, Monika and Shreya - were born in India. The remaining two were born in Japan. The following conditions hold true:

(i) Either Ankita or Monika was born in Japan.

(ii) At least one of Kriti and Monika was not born in India.

(iii) Ankita and Kriti were not born in the same country.

Which two were born in India?

a. Monika and Shreya b. Kriti and Shreya

c. Ankita and Shreya d. None of these

Directions for questions 7 and 8: Answer the questions on the basis of the information given below:

Four brothers Raja, Ram, Mohan and Roy are standing in a row with each of them facing East. Each brother has a distinct age. Raja who is the oldest is standing to the immediate right of Mohan. Mohan is not the youngest. Roy is at one of the ends and is older than Ram. Mohan and Roy are not standing adjacent to each other. The youngest brother is at one of the ends.

7. Who among the four is at the rightmost end?

a. Raja b. Ram c. Mohan d. Roy

8. How many brothers are older than the one who is at the rightmost end?

a. 0 b. 1 c. 2 d. Either (b) or (c)

Directions for questions 9 and 10: Answer the questions on the basis of the information given below:

In Ethan India resort, there are six rooms - 401 to 406 - from left to right, in the same order. They are named as A, B, C, D, E and F, in no particular order. Also, two adjacent rooms can be connected to each other. It is also known that:

(i) Neither A nor B is at any of the ends. They are not connected to each other.

(ii) The room connected to C is adjacent to B.

(iii) E is Room no. 406 and is connected to A.

(iv) Rooms D and B are separated by exactly two rooms.

9. How many pairs of rooms are connected to each other?

a. 1 b. 2 c. 3 d. Cannot be determined

10. Which of the following rooms can be connected with two rooms?

a. F b. D c. B d. A

Directions for questions 11 and 12: Answer the questions on the basis of the information given below:

Suraj has to study five different subjects in a day. He studies at most three Language subjects and at least two Science subject. The break-up is as follows: A, B, C and D are Language subjects, whereas P, Q, R, S and T are Science subjects. The following restrictions hold true:

(i) If Suraj studies A or B, then he cannot study Q.

(ii) If Suraj studies P, then he cannot study T.

(iii) If Suraj doesn't study D, then he cannot study P also.

(iv) If Suraj studies C, then he must study either R or S, but not both.

11. If Suraj studies exactly two Language subjects, then which of the following can be those two?

I. A and B

II. A and C

III. B and C

IV. B and D

a. Only I b. Only II c. II and III d. I and IV

12. Which of the following statements is definitely false?

a. If Suraj studies exactly one Language subject, then he must study either P or T.

b. If Suraj studies exactly two Science subjects, then he cannot study Q.

c. If Suraj studies exactly three Science subjects, then he must study S.

d. None of these

Directions for questions 13 and 14: Answer the questions on the basis of the information given below:

A flat each is to be allotted to exactly four people among Ashish, Bimal, Chatur, Dheeraj, Ekant, Fardeen, Grijesh and Harish. The following restrictions hold true:

(i) If Chatur is allotted a flat, then Ekant cannot be allotted a flat.

(ii) If Harish is allotted a flat, then Bimal must be allotted a flat.

(iii) If Dheeraj is allotted a flat, then exactly one of Fardeen and Grijesh must be allotted a flat.

(iv) If Ashish is not allotted a flat, then Bimal cannot be allotted a flat and vice versa.

13. If Chatur is allotted a flat, then which of the following persons can never be allotted a flat?

a. Dheeraj b. Fardeen c. Grijesh d. Harish

14. If Ashish is not allotted a flat, then which four must be allotted flats?

a. Dheeraj, Ekant, Fardeen and Harish

b. Dheeraj, Bimal, Grijesh and Harish

c. Chatur, Fardeen, Grijesh and Harish

d. The given situation is not possible

Directions for questions 15 to 17: Answer the questions on the basis of the information given below:

Six items - P, Q, R, S, T and U - are to be distributed among 3 boxes - B₁, B₂ and B₃, following the restrictions given below:

(i) The number of items in each box is distinct and each box has at least one ball.

(ii) B₁ should get more items than B₃.

(iii) T and U must be in the same box.

(iv) P is in B₁.

(v) R and S cannot be in the same box.

(vi) Neither Q nor S is in B₂.

15. If B₁ gets one item more than B₂, then which of the following is definitely true?

a. S is in B₃. b. R is in B₃.

c. Q is in B₁. d. Both T and U are in B₁.

16. If B₁ does not get the maximum number of items among the three boxes, then which of the following is definitely true?

a. Q is in B₁. b. S is in B₃. c. R is in B₂. d. None of these

17. If R is in B₂, then which of the following cannot be true?

a. Both T and U are in B₃. b. B₂ has more items than B₁.

c. B₁ has more items than B₂. d. None of these

Directions for questions 18 to 20: Answer the questions on the basis of the information given below:

Five chess players - Ankit, Feroz, Gagan, Jatin and Manoj - played some matches among themselves. Also, a player could play exactly one match with any of the other players. It is also known that:

(i) Manoj played a match with Feroz.

(ii) Ankit played exactly two matches but neither of them was with Gagan.

(iii) Feroz played the maximum number of matches.

(iv) Only Manoj, Jatin and Gagan played the same total number of matches.

18. Ankit played with which of the following players?

a. Jatin and Manoj b. Jatin and Feroz

c. Feroz and Manoj d. Cannot be determined

19. Gagan played with which of the following player(s)?

a. Feroz b. Manoj

c. Jatin and Feroz d. Feroz, Jatin and Manoj

20. Which of the following statement(s) is/are true?

I. The number of matches played by Feroz is four.

II. The number of matches played by Feroz is three.

III. Manoj didn't play with Feroz.

IV. Manoj didn't play with Ankit.

a. Only I b. Only II c. Only I and III d. Only II and IV.

Scoring table

Total questions	Total attempted	Total correct	Total wrong	Score	Time taken
20					

Practice Exercise - B9

1. If A is stronger than E, C is weaker than B, D is stronger than A and E is stronger than B, then who among the five is the weakest?

- a. A b. C c. B d. D

2. In the figure given below, each small square needs to be filled with a letter among R, O, B and P such that each row, each column, each diagonal and each set of the four highlighted boxes contains all the given four letters. Which letter would replace the question mark?

R		
	O	
		B
?		P

- a. O b. B c. P d. Either (a) or (b)

3. A four-letter code is required to open a safe. The code is made of letters A, B, C and D only. If the code entered is correct, the safe opens; if an incorrect code is entered, an error message is displayed. The message tells the number of letters at incorrect positions. Given below is a sequence of codes and error messages that were displayed:

Code Entered	Error Message
DACB	4 letters at incorrect positions
ADCB	4 letters at incorrect positions
DCBA	3 letters at incorrect positions

If B appears before C in the correct code, then which is the second last letter in the code?

- a. A b. B c. C d. D

4. Pitampura Club provides the facility for three games - Basketball, Tennis and Squash. A, B, C and D are four players who go to the club either in the Morning shift or the Evening shift. All the people in one shift go together. A goes before the Basketball player. B and D play Tennis and exactly one of them goes to the club with A. Which of the following is definitely correct?

- a. B goes to the club in the Evening shift.
- b. A plays Squash.
- c. C goes to the club in the Evening shift.
- d. A and B go to the club in the same shift.

5. Some people stayed in a resort for seven days. On each day they purchased some Bisleri bottles, which were available in packets of 2, 4, 5 and 8 bottles only. They purchased exactly one packet of bottles in a day. The total number of days on which a packet of either 2 or 8 bottles was purchased was less than the number of days on which a packet of 4 bottles was purchased. Also, the number of days on which a packet of either 4 or 8 bottles was purchased was less than the number of days on which a packet of 5 bottles was purchased. What is the maximum number of bottles that they could have purchased?

- a. 36 b. 32 c. 27 d. None of these

6. A runs faster than B, B runs slower than C, C runs faster than both D and E, D runs slower than E, E runs faster than F and F is not the slowest. If C runs faster than A then D runs slower than B and faster than F. Who is the fastest?

- a. A b. E c. C d. None of these

Directions for questions 7 and 8: Answer the questions on the basis of the information given below:

An electronic lock is controlled by six switches - A, B, C, D, E and F. The conditions given below should be met to open the lock:

- (i) A must be switched ON before C.
 - (ii) F must be switched ON after B.
 - (iii) If E is switched ON before A, only then D is switched ON after E, otherwise D is switched ON before A.
 - (iv) If E is switched ON after A, then E is also switched ON after C but before B.
7. If D is switched ON before E, then which should be the 5th switch to be switched ON to open the lock?
- a. E b. F c. B d. A
8. If B, D and C are the 1st, 3rd and 5th switches to be switched ON, then at which position should A be switched ON to open the lock?
- a. 2nd b. 4th c. 6th d. Cannot be determined

Directions for questions 9 and 10: Answer the questions on the basis of the information given below:

Six friends are sitting at a circular table. It is also known that:

- (i) B is not sitting opposite A. B is sitting adjacent to neither F nor C.
 - (ii) Two friends are sitting between A and E.
 - (iii) A is sitting adjacent to neither F nor B.
9. If F is sitting four places to the right of B, then who is sitting to the immediate left of C?
- a. E b. F c. B d. A

10. Which of the following can never sit to the immediate right of D?

- a. B b. A c. E d. Cannot be determined

Directions for question 11 and 12: Answer the questions on the basis of the information given below:

In a class of five students - Ajay, Bijay, Chandragupta, Dheeraj and Ehsaan - two lists are prepared based on the heights and the ages of the students. The students are assigned ranks in these lists. In the list according to ages, the youngest student is awarded rank 1 and the oldest student is awarded rank 5. In the list according to the heights, the tallest student is awarded rank 5 and the shortest student is awarded rank 1. It is also known that:

- (i) There is only one student who has the same rank in both the lists.
- (ii) Ajay is the youngest among the five and is taller than at least two other people.
- (iii) The tallest person is Dheeraj and he is younger to only one person Chandragupta.
- (iv) Bijay is the shortest person and is older Ehsaan.

11. Who among the five students is the fourth tallest?

- a. Ajay b. Chandragupta c. Ehsaan d. Cannot be determined

12. Which student has the same rank in both the lists?

- a. Ajay b. Bijay c. Chandragupta d. Ehsaan

Directions for question 13 and 14: Answer the questions on the basis of the information given below:

Six balls are to be put in three similar boxes such that each box contains a different number of balls and no box remains empty. Each of the six balls is of a distinct colour

among Pink, Blue, Red, White, Orange and Black. Also, the following rules must be followed:

- (i) Red ball and Blue ball must always be placed together.
 - (ii) If Orange ball is placed with Pink ball, then White ball must be placed with Black ball.
 - (iii) Neither Black ball nor White ball can be placed with Red ball.
 - (iv) Neither Orange ball nor Pink ball can be placed with Blue ball.
13. If a box contains exactly 3 balls then which of the following balls can never be put in that box?

- a. Red b. White c. Black d. Pink

14. If a box contains exactly one ball then which of the following balls can be put in that box?
- a. Red b. Orange c. Blue d. White

Directions for questions 15 to 17: Answer the questions on the basis of the information given below:

Jumbo circus has four performers - Jai, Ram, Kishan and Shyam. One day, each of them presented a distinct performance among - Magic, Acrobatics, Juggling and Trapeze (not necessarily in the same order). No two of them performed at the same time. Some other facts are given below:

- (i) Magician's was not the last performance.
- (ii) Trapeze artist performed immediately after Shyam.
- (iii) Juggler's was the first performance.

(iv) Ram does not like the Juggler and so he never performs either immediately before or immediately after him.

(v) Shyam, who is the Acrobat, is the youngest. He is never the last person to perform.

15. Who was the third person to perform?
a. Trapeze artist b. Acrobat c. Juggler d. Magician

16. If Kishan is the Juggler, then who was the second person to perform?

- a. Ram b. Kishan c. Shyam d. Jai

17. Which of the following additional statements is sufficient to correctly identify all the performance-performer combinations?

- a. Ram is not the Magician.
- b. Shyam was the third person to perform.
- c. Jai is not the Acrobat.
- d. Kishan was the first person to perform.

Directions for questions 18 to 20: Answer the questions on the basis of the information given below:

Eight employees of a company go to Goa on an official trip and stay at Hotel Pride. They stay in four rooms, with two employees in each room. The four rooms are of different types - Penthouse, Deluxe Suite, Suite and Quarter - in the decreasing order of quality. A senior employee will always stay in a room which is better than the one/s in which his/her junior/s is/are staying.

- (i) A, B, C and D stay in different rooms.
- (ii) H stays in a Suite. A's room is better than H's room.

(iv) Ram does not like the Juggler and so he never performs either immediately before or immediately after him.

(v) Shyam, who is the Acrobat, is the youngest. He is never the last person to perform.

15. Who was the third person to perform?

- a. Trapeze artist b. Acrobat c. Juggler d. Magician

16. If Kishan is the Juggler, then who was the second person to perform?

- a. Ram b. Kishan c. Shyam d. Jai

17. Which of the following additional statements is sufficient to correctly identify all the performance-performer combinations?

- a. Ram is not the Magician.
- b. Shyam was the third person to perform.
- c. Jai is not the Acrobat.
- d. Kishan was the first person to perform.

Directions for questions 18 to 20: Answer the questions on the basis of the information given below:

Eight employees of a company go to Goa on an official trip and stay at Hotel Pride. They stay in four rooms, with two employees in each room. The four rooms are of different types - Penthouse, Deluxe Suite, Suite and Quarter - in the decreasing order of quality. A senior employee will always stay in a room which is better than the one/s in which his/her junior/s is/are staying.

(i) A, B, C and D stay in different rooms.

(ii) H stays in a Suite. A's room is better than H's room.

(iii) C is not junior to H; D is not junior to E.

(iv) F's room is better than both B's and G's.

(v) F stays in the best room while D stays in the worst room.

18. G is junior to which of the following employees?

- a. F b. H c. D d. Cannot be determined

19. If B is junior to only two employees, then who among the following is junior to B?

- a. A b. C c. G d. Cannot be determined

20. If B is junior to only four employees, then who among the following is one of the two most senior employees?

- a. A b. C c. G d. Cannot be determined

Scoring table

Total questions	Total attempted	Total correct	Total wrong	Score	Time taken
20					

Practice Exercise - B10

1. Each of the four persons - Harish, Malini, Kavya and Ehsan - reached Delhi by a distinct mode of transport among plane, train, car and bus. It is known that:

- (i) The person who came by car reached after Harish and Malini.
- (ii) Kavya and the person who came by bus reached together.
- (iii) The person who came by plane wasn't the first to reach among the four.

Ehsan travelled by which of the following modes of transport?

- a. Car
- b. Bus
- c. Either (a) or (b)
- d. None of these

2. Three books were kept on a shelf in library. A student came, searched for the books and then left. It was then noticed that none of the three books was on its original position. Another student came and exchanged the positions of just two books and left. Which of the following statements is definitely true regarding the final positions of the books?

- a. Two of the books were on their original positions.
- b. One of the books was on its original position.
- c. None of the books was on its original position.
- d. Nothing can be said about the positions of the books.

3. Five friends Anita, Babita, Charu, Divya and Ellie are standing in a row in the decreasing order of their heights or the increasing order of their weights. Anita is taller than Ellie and heavier than Divya. The number of friends shorter than Babita is same as the number of friends lighter than Charu. Who is standing in the middle?

- a. Anita
- b. Divya
- c. Ellie
- d. Cannot be determined

4. Ria, Tia, Gia, Sia and Dia have four fruits each. The fruits are either bananas or guavas. The number of bananas with each is different and hence, so is the number of guavas. The sum of the number of guavas with Ria and Sia is half the total number of bananas. Dia has the least number of bananas. What is the difference between the number of bananas with Gia and number of guavas with Tia?

- a. 0
- b. 1
- c. 2
- d. 3

5. Two people among Asha, Ravi, Karan, Kshama, Sohan, and Fana have two coins each, two have three coins each and two have four coins each. It is known that:

- (i) Asha does not have the same number of coins as are there with Ravi or Karan.
- (ii) Ravi does not have the same number of coins as are there with Karan or Kshama.
- (iii) Karan does not have the same number of coins as are there with Kshama or Sohan.

Who has the same number of coins as are there with Asha?

- a. Kshama
- b. Sohan
- c. Fana
- d. Cannot be determined

6. Sixteen students are standing in 4×4 square formation. Aru is standing at the lower left hand corner with a letter in her hand. Bindu is standing at the upper right hand corner. The letter can be passed from one student to other only in the right or the upward direction. In how many ways can the letter be passed to Bindu?

- a. 10
- b. 12
- c. 15
- d. 20

Directions for questions 7 and 8: Answer the questions on the basis of the information given below:

Rajat, Sharad, Zamar, Rinku and Waheed participated in a Chess tournament consisting of three rounds. In every round three top players were awarded Laptop, Desktop and

Notebook. After the end of the tournament it was noticed that:

- (i) Rajat won three awards of two different types.
- (ii) Sharad won one Notebook and one Desktop.
- (iii) Rinku got one Desktop only.
- (iv) Waheed got one Laptop only.
- (v) Sharad and Rinku won an award in the same round.
- (vi) Zamar won awards in two rounds but didn't win Desktop.

7. Apart from Waheed, who all won the Laptop(s)?

- a. Rajat b. Zamar
- c. Both Rajat and Zamar d. Both Zamar and Rinku

8. Which two persons won the awards in the same round?

- a. Zamar and Waheed b. Sharad and Waheed
- c. Zamar and Rinku d. None of these

Directions for questions 9 and 10: Answer the questions on the basis of the information given below:

Two identical six-faced dice, with numbers from 1 to 6 written on their faces, are kept on a table one over the other. For three different types of settings, the following sets of numbers are not visible: (1, 3, 4), (2, 4, 5) and (3, 5, 6).

9. Which of the following could be the numbers written on the opposite faces?

- a. 2 and 4 b. 2 and 5 c. Both (a) and (b) d. None of these

10. Which of the following could be the sum of the digits on the opposite faces?

- a. 8 b. 9 c. 10 d. None of these

Directions for questions 11 and 12: Answer the questions on the basis of the information given below:

Six students Baba, Diya, Goru, Isha, Neha and Raja are sitting at a circular table. Each of them is doing his/her MBA from a distinct B-school. It is also given that:

- (i) Baba is sitting opposite the FMS student and is not the NMIMS student.
- (ii) Goru is sitting at an equal distance from the XLRI student and the NMIMS student.
- (iii) The students from NMIMS and MDI are sitting next to each other.
- (iv) The student from MICA sits second to the right of Diya but not the left of Neha.
- (v) Baba sits to the immediate right of Neha, the IMT student.

11. Diya is doing her MBA from which of the following colleges?

- a. IMT b. NMIMS c. MDI d. XLRI

12. Which of the following statements cannot be true?

- a. Raja sits next to Baba.
- b. Goru sits next to Isha.
- c. Neha is sitting at an equal distance from Goru and Isha.
- d. Raja is sitting at an equal distance from Neha and Diya.

Directions for questions 13 and 14: Answer the questions on the basis of the information given below:

Each of Rekha, Sonal, Kirti, Hema and Bhavna studies a distinct subject among Physics, Chemistry, Biology, Maths and English. Three statements are given below.

- (i) Rekha studies Physics and Sonal studies Chemistry.
- (ii) Sonal studies Maths and Kirti studies Biology.
- (iii) Hema studies Maths and Bhavna studies English.

In each of the given statements, one piece of information is true and one is false.

13. Which of the following friends cannot study Physics?

- a. Rekha b. Sonal c. Hema d. Bhavna

14. Which of the following friends cannot study Maths?

- a. Rekha b. Sonal c. Hema d. Bhavna

Directions for questions 15 to 17: Answer the questions on the basis of the information given below:

Anita, Babli, Chaman, Dheeraj, Ehsan, Feroz and Gauri were invited to three different parties, where no other person was invited. Each person attended at least one of the three parties. Each of the three parties was attended by a distinct number of people. Any two persons who went to the same party definitely met during the party. It is also given that:

- (i) Both Feroz and Ehsan met exactly two persons during the parties.
- (ii) Babli and Ehsan went to only one party each and could not meet.
- (iii) Feroz and Gauri never met each other and one of them went to two parties.
- (iv) Babli met Chaman as well as Dheeraj only once.
- (v) Chaman didn't meet more than three persons at any party.

(vi) Chaman and Dheeraj met each other only once and one of them went to two parties.

15. Anita couldn't have met which of the following persons?

- a. Gauri b. Dheeraj c. Ehsan d. Feroz

16. Which of the following can be the exact number of people who met Chaman during the parties?

- a. 2 b. 1 c. 4 d. 5

17. What is the sum of the number of people who attended the three parties?

- a. 7 b. 8 c. 9 d. 10

Directions for questions 18 to 20: Answer the questions on the basis of the information given below:

Nine students Lavya, Mona, Niti, Osho, Pawan, Qureshi, Radha, Saumya and Tarun are standing in 3×3 square formation facing North. It is also given that:

- (i) Niti is standing immediately in front of Qureshi.
 - (ii) Qureshi is standing to the immediate right of Tarun.
 - (iii) Osho is standing to the immediate left of Lavya.
 - (iv) Pawan is standing immediately behind Radha.
 - (v) Saumya is standing to the immediate right of Mona.
18. Which of the following students is standing at the centre?
- a. Qureshi b. Radha c. Saumya d. Tarun

(vi) Chaman and Dheeraj met each other only once and one of them went to two parties.

15. Anita couldn't have met which of the following persons?

- a. Gauri b. Dheeraj c. Ehsan d. Feroz

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(ii) Qureshi is standing to the immediate right of Tarun.

(iii) Osho is standing to the immediate left of Lavya.

(iv) Pawan is standing immediately behind Radha.

(v) Saumya is standing to the immediate right of Mona.

18. Which of the following students is standing at the centre?

- a. Qureshi b. Radha c. Saumya d. Tarun

19. Which of the following students is standing at the last position in the leftmost column?

- a. Osho b. Mona c. Pawan d. Radha

20. Which of the following statements is definitely true?

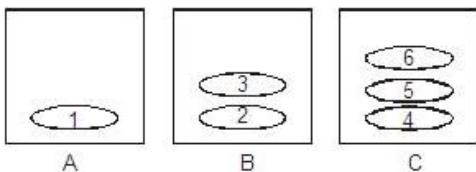
- a. Radha is standing in the first column.
- b. Qureshi and Radha are standing in different rows.
- c. Pawan and Tarun are standing at corners.
- d. None of these

Scoring table

Total questions	Total attempted	Total correct	Total wrong	Score	Time taken
20					

Practice Exercise - B11

1. Six stones marked 1 to 6 are kept in three boxes A, B and C as shown below.



Saral and Abhishek are playing a game wherein one can pick either one or all the stones from any one box at a time. The person who picks the last stone loses. Stones can be picked only from top to bottom i.e. 3 and then 2. It is Saral's turn. If played intelligently, he can win the game by picking stone(s) numbered

a. 3 b. 6 c. 3 or 6 d. 3 and 2

2. At a picnic there were: 5 adults, 7 children, 3 males and 9 females. When X arrived then the number of different man-woman pairs possible became half the different boy-girl pairs possible. (e.g. If the number of girls is 10 and boys 5, then there are 50 boy-girl pairs possible). What is 'X'?

a. Man b. Woman c. Boy d. Either (b) or (c)

3. The son of a professor's father is talking to the father of the professor's son. Then which of the following is definitely false:

- a. The professor does not take part in the conversation
b. The two people involved in the conversation are brothers

c. The professor takes part in the conversation

d. None of the above

4. Six persons A, B, C, D, E and F are wearing shirts coloured red, blue, green, yellow, white and pink respectively. They are sitting at a circular table. The person wearing red shirt is sitting opposite to the person wearing blue shirt. The person wearing white shirt is sitting opposite to the person wearing yellow shirt. The person wearing white shirt isn't sitting adjacent to the person wearing green shirt, who is sitting to the immediate right of the person wearing blue shirt. Which of the following is the correct position of F?

a To the immediate right of E b. To the immediate left of E

c. To the immediate left of A d. None of these

5. Four boys Aditya, Bhaskar, Chetan and Dilip and four girls Preeti, Rani, Sonam and Trisha are sitting at a circular table.

(i) Aditya sits opposite Rani

(ii) Chetan sits to the immediate left of Preeti

(iii) Sonam sits second to the right of Aditya

(iv) Dilip sits opposite Trisha

If no two girls sit opposite each other, then who would sit to the immediate left of Aditya and Bhaskar respectively?

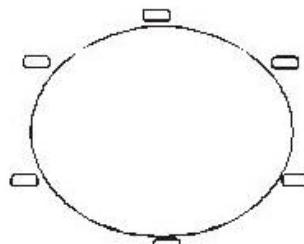
a. Dilip, Rani b. Preeti, Sonam c. Chetan, Rani d. Trisha, Sonam

6. In a group of six students standing in the decreasing order of their heights, A is taller than B and C; D is taller than C and C is taller than E; F is shorter than B and E. Also, A is not the tallest and there are as many students between C and D, as there are between B and F. Who is the second shortest?

- a. B b. C c. E d. Cannot be determined

Directions for questions 7 and 8: Answer the questions on the basis of the information given below:

Six friends, three boys (Amit, Bhim and Chandu) and three girls (Priya, Queeni and Rumjhum) sit around a circular swimming pool at 6 equally spaced seats and all are facing the center of the pool. They must follow the conditions given below.



(i) All boys or all girls can never sit adjacent to each other; however, 2 boys or 2 girls can sit adjacent to each other.

(ii) Amit should sit adjacent to neither Queeni nor Rumjhum.

(iii) Bhim must sit opposite a boy.

7. According to the given conditions, which of the following statements will always be true for a valid sitting arrangement?

a. Priya must sit one place to the left of Amit

b. Priya must sit opposite a girl

c. Priya must sit opposite a boy

d. Bhim must sit opposite Amit

8. Which of the following statement(s) will give us the exact relative positions of the six friends?

- a. Priya sits one place to the left of Amit
 b. Bhim sits to the right of Rumjhum
 c. Both (a) and (b)
 d. Cannot be determined

Directions for questions 9 and 10: Answer the questions on the basis of the information given below:

Four men A, B, C and D are standing in Four Columns as shown below not necessarily in the same order.

I	II	III	IV

(i) Each column has exactly one person.

(ii) Only one among them is intelligent, hardworking and not lazy.

(iii) Both men, who are not intelligent, are standing next to A.

(iv) C is the only man not standing next to exactly one lazy man, i.e. C stands next to 0 or 2 lazy persons and others stand next to 1 lazy person each.

(v) It is known that A is in column II.

9. In how many ways can C stand next to 2 lazy persons?

- a. Only one unique way b. Two ways
- c. Three ways d. Just not possible

10. It is also known that B is the only man standing next to exactly one hardworking man, i.e. others are standing next to 0 or 2 hardworking men. Who is the only intelligent, hardworking and not lazy man?

- a. A b. B c. C d. D

Directions for questions 11 and 12: Answer the questions on the basis of the information given below:

Five good friends Q, R, S, T and V decide to visit one of the three bars - F, H and M. Each bar is visited by at least one of the friends and each friend will visit exactly one of the bars. Each of the three bar visits will take place on different days (nights). The visits must conform to the following requirements:

- (i) The visit to F bar must take place before the H bar.
- (ii) Only one friend can go to F bar.
- (iii) The bar visit that includes Q must take place before any bar visit that includes either R or T.
- (iv) The bar visit that includes S cannot take place after any bar visit that includes V.

11. Which one of the following could be the friends included in each of the bar visits, with the bars listed in the order in which they are visited?

- a. F:Q; H:R,S; M:T,V b. F:Q; H:R,V; M:S,T c. F:R; M:Q,T; H:S,V d. M:Q; F:R,S; H:T,V

12. The group of friends who visit H bar together cannot be

- a. Q and V b. R and T c. Q, S and V d. R, S and T

Directions for questions 13 and 14: Answer the questions on the basis of the information given below:

Four Students: Gouri, Harish, Jyoti and Mahua will help each other finish important assignments in: Relation Management, Soft Skills and Tangential Thinking. Each assignment will be done by exactly two of the students, and each student will help do at least one of the assignments, subject to following constraints:

- (i) Gouri helps to finish Soft Skills if and only if Harish helps to finish the Relation Management.
- (ii) If Jyoti helps to finish Tangential Thinking, then Mahua helps in finishing Relation Management.
- (iii) No assignment is finished by Gouri and Jyoti together.

13. Which of the following could be an accurate matching of assignments that two of the students' help each other in finishing?

- a. Relation Management: Gouri and Mahua; Soft Skills: Harish and Jyoti; Tangential Thinking: Gouri and Harish
- b. Relation Management: Harish and Jyoti; Soft Skills: Gouri and Harish; Tangential Thinking: Jyoti and Mahua
- c. Relation Management: Harish and Jyoti; Soft Skills: Harish and Mahua; Tangential Thinking: Gouri and Mahua
- d. Relation Management: Gouri and Harish; Soft Skills: Jyoti and Mahua; Tangential Thinking: Jyoti and Harish

14. Which one of the following could be a pair of students who help each other finish both Relation Management and Tangential Thinking assignment?

- a. Harish and Jyoti
- b. Gouri and Mahua
- c. Harish and Mahua
- d. Both (b) and (c)

Directions for questions 15 to 17: Answer the questions on the basis of the information given below:

An individual hour-long interview will be scheduled for each of the six shortlisted candidates for the prestigious post of Indian Prestigious Officer (IPO). The shortlisted candidates are Fauzi Singh, Gabru Lal, Hero Chaudhary, Jaspal Sirohi, Kaku Dhar and Lalu Sharma. The interview will take place on the same day. Each interview will begin on the hour, with the first beginning at 1 P.M. and the last at 6 P.M. The schedule of interview must conform to the following conditions:

- (i) Jaspal must be interviewed earlier than Hero
- (ii) Gabru must be interviewed earlier than Kaku
- (iii) Gabru is interviewed either immediately before or immediately after Lalu
- (iv) Exactly one interview separates the interviews of Jaspal and Lalu

15. Which of the following is an acceptable schedule for the interviews, listed in order from 1 P.M. through 6 P.M.?

- a. Fauzi Singh, Gabru Lal, Kaku Dhar, Jaspal Sirohi, Hero Chaudhary, Lalu Sharma
- b. Fauzi Singh, Kaku Dhar, Lalu Sharma, Gabru Lal, Jaspal Sirohi, Hero Chaudhary
- c. Hero Chaudhary, Jaspal Sirohi, Gabru Lal, Lalu Sharma, Kaku Dhar, Fauzi Singh
- d. Jaspal Sirohi, Gabru Lal, Lalu Sharma, Hero Chaudhary, Kaku Dhar, Fauzi Singh

16. The order in which the interviews are scheduled is completely determined if which of the following is true?

- a. Hero's interview is scheduled to begin at 4 P.M.

- b. Jaspal's interview is scheduled to begin at 1 P.M.

- c. Jaspal's interview is scheduled to begin at 5 P.M.

- d. Lalu's interview is scheduled to begin at 2 P.M.

17. Which one of the following statements must be true?

- a. Hero's interview is scheduled to begin before 2 P.M.
- b. Hero's interview is scheduled to begin before 6 P.M.
- c. Kaku's interview is scheduled to begin before 6 P.M.
- d. Lalu's interview is scheduled to begin before 5 P.M.

Directions for questions 18 to 20: Answer the questions on the basis of the information given below:

Himanshu has five facial formulations which he uses regularly to keep his skin glowing and charming. They are Handsome & Handsome, Mystery Mist, Rejuvenating Youth, True Beauty and V. Himanshu can use these formulations only under some conditions as few of the formulations can react with each other and spoil the efforts that he has put in for years to maintain his glow and charm.

(i) Himanshu cannot use Handsome & Handsome and Rejuvenating Youth simultaneously.

(ii) Himanshu cannot use Handsome & Handsome and True Beauty simultaneously.

(iii) Himanshu cannot use V simultaneously with any of the following: Handsome and Handsome, Rejuvenating Youth and True Beauty.

18. Which one of the following is a pair that comprises two formulations that Himanshu could be using simultaneously?

a. Handsome & Handsome and Mystery Mist

b. Mystery Mist and True Beauty

c. Rejuvenating Youth and True Beauty

d. All of the above

19. Assume that Himanshu is using exactly two formulations and Mystery Mist is not one of them. Which one of the following is a list of all the formulations, other than the Mystery Mist, that Himanshu cannot be using?

a. Handsome & Handsome

b. Rejuvenating Youth

c. Rejuvenating Youth, Handsome & Handsome

d. Handsome & Handsome, V

20. Which one of the following must be true?

a. Himanshu uses at most three formulations simultaneously.

b. Himanshu uses at most four formulations simultaneously.

c. Himanshu uses at most one other formulation while using Mystery Mist.

d. Himanshu uses at least two other formulations while using Handsome & Handsome.

Scoring table

Total questions	Total attempted	Total correct	Total wrong	Score	Time taken
20					

Data Redundancy and Data Dependency

Data Redundancy

Check the following statements.

I. Ganga is my brother.

II. Kiran is my sister.

III. Ganga and Kiran are siblings.

Do we need to mention the last statement? It is implied by the first two, and hence, is redundant. Note that we cannot deduce the second statement by the first and the third taken together, OR the first statement by the second and the third taken together, because we cannot be sure about the gender of either Ganga or Kiran from the word "siblings". We see that the third statement need not be given when the first two are already stated. The exercise to single out such redundant pieces of information is explored in this subsection. The standard directions could possibly be:

In each of the following problems, a question is asked. That question is followed by information I, II, III, ...etc, which enable you to arrive at the answer to the question. The question can be answered by using some or all of the information, while the information that are not required are termed redundant. You have to identify the redundant information from the given options.

Some examples will make it clearer...

Example 1: Who is the tallest among P, Q, R and S?

Information:

I. P is taller than Q

II. P is taller than S

III. R is not as tall as S

IV. R is shorter than P

a. II b. III c. IV d. Either III or IV e. Either II or III

Solution(d) Information I: $P > Q$

Information II: $P > S$

Information III: $S > R$

Information IV: $P > R$

Through the first three information, we get to know that $P > Q$ and $P > S > R$. Hence, P is the tallest. Alternately, through the information I, II and IV, we get to know that P is taller than all of the three. Hence, P is the tallest. So either of the information III or IV is redundant.

Example 2: What is the value of x?

Information:

I. $x^3 - 5x^2 + 6x < 0$

II. $x - |x| \geq 0$

III. $2x^2 - x - 10 = 0$

a. I b. II c. III d. Either I or II e. Either II or III

Solution (a) Here we are trying to find out a unique value of x.

In information I, $x^3 - 5x^2 + 6x < 0$. Hence, $(x-3)(x-2)x < 0$

Therefore, either $x < 0$ or $2 < x < 3$

In information II, $x - |x| \geq 0$. Hence, $x \geq |x|$

But x can never be greater than $|x|$. Hence, $x = |x|$

$\Rightarrow x$ is positive

In information III, $2x^2 - x - 10 = 0$. Hence, $x = 2.5$ or $x = -2$

Therefore, value of $x = 2.5$ can be found out by combining information II and III only.

Information I is redundant in this context.

Example 3: What is the area of triangle ABC?

Information:

I. AB = 5 cm

II. $\angle BAC = 45^\circ$

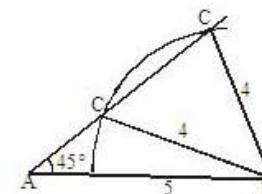
III. BC = 4 cm

IV. $\angle ACB = 62.1^\circ$

- a. I or II or III b. I or III or IV c. either I or III only
- d. Any one of the four e. I or II

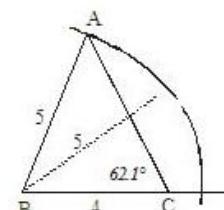
Solution (a) In this question we are looking for the area of triangle ABC. Whenever two angles and a side is given, the area can be uniquely calculated. So, either by combining information I, II and IV or information II, III and IV, we can get the answer, making information III or I redundant respectively in these two cases. In other combinations, we are taking two of the sides which we definitely require. If we see the first two options, they

check for the redundancy of information II or information IV, apart from already established redundant information I or III. We see that using I, II and III, we can draw the following figure:



Hence, the exact area of the triangle cannot be determined. So information IV can never be redundant. However, if we combine I, III and IV; we see that there is a unique triangle possible. Hence, area can be determined.

So information II is redundant in this case.



Finally, we get the answer as choice (a), which means that information I or II or III is redundant in 3 different cases.

Example 4: How is Darcy related to Anny?

Information:

I. Boxer and Darcy are brothers.

II. Tinku is Boxer's only son.

III. Anny and Michelle are sisters.

IV. Boxer's son is Michelle's brother.

a. II b. IV c. Either II or IV d. None e. III

Solution (a) For blood relation type questions, let us follow the following convention

i) + \Rightarrow male. For instance, B^+ implies that B is a male.

ii) - \Rightarrow female. For instance, R^- implies that R is a female

iii) \rightleftharpoons married couple. For instance, $L^+ \rightleftharpoons K^-$ means L is the husband of K.

iv) - \Rightarrow siblings (brother / sister). For instance, $Luv^+ - Kush^+$ implies that Luv and Kush are brothers.

v) \Downarrow \Rightarrow parental hierarchy. For instance $\begin{matrix} P^+ \\ \Downarrow \\ Q^- \end{matrix}$ means P is the father of Q, who is a female.

Now getting back to the question,

Information I: Boxer and Darcy are brothers. Or, $\text{Boxer}^+ - \text{Darcy}^+$

Information II: Tinku is Boxer's only son. Or $\begin{matrix} \text{Boxer} \\ \Downarrow \\ \text{Tinku}^+ \end{matrix}$

Information III: Anny and Michelle are sisters. Or, $\text{Anny}^- - \text{Michelle}^-$

Information IV: Boxer's son is Michelle's brother. Or,

$\begin{matrix} \text{Boxer} \\ \Downarrow \\ + - \text{Michelle} \end{matrix}$

To get the relationship between Darcy & Anny, we have to combine information I, III & IV.

$$\begin{matrix} \text{Boxer}^+ - \text{Darcy}^+ \\ \Downarrow \\ + - \text{Michelle} - \text{Anny}^- \end{matrix}$$

Therefore, Darcy is the uncle of Anny and to find this out, we do not need the name of Boxer's son. Hence information II is redundant and the answer is option (a).

Data Dependency

Let us understand dependency first. Suppose there are three friends P, Q and R, who have to pick one cap each out of three available caps: polo cap, fishing hat and skull cap. If I tell you that P picked up the polo cap, and Q did not pick up the skull cap, you would be sure that Q must have picked up fishing hat and R must have picked up the only cap remaining i.e. the skull cap. Therefore, the caps that each of them can pick gets restricted with each specification. In other words, the truth / fallacy of the statement *R picked up the skull cap* is dependent upon the previous pieces of information. This is what we would be calling Data Dependency in the remainder of this sub-section.

Example 1: What can be said regarding the following two statements?

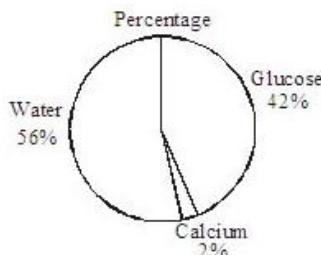
Statement I: Water forms 56% of the ORS

Statement II: ORS contains 42% glucose, 2% calcium and the remaining is water

- a. If statement I is true then statement II is true
- b. If statement II is true then statement I is true
- c. If statement I is false then statement II could be true
- d. If statement II is true then statement I could be true

- e. If statement II is false then statement I is true.

Solution (b) We see that, the Composition of ORS can be broken up as follows



If statement II is given, statement I becomes implicit. One can make out that the remaining 56% must be water. However, given statement I, we cannot deduce statement II with surely.

Therefore, the correct option is option (b).

Example 2: In a building, there are three floors: ground floor, first floor and second floor and the people living on them are Raja, Harry and Prada (one on each floor not necessarily in that order.) Raja does not live on the second floor and Harry does not live on the ground floor. What can be said regarding the following two statements?

Statement I: Harry lives on the second floor

Statement II: Prada does not live on the first floor

- a. If statement I is true then statement II is necessarily true
- b. If statement II is true then statement I is necessarily false
- c. If statement I is false then statement II is necessarily true
- d. If statement II is false then statement I is necessarily false

- e. If statement I is false then statement II is necessarily false.

Solution(c) From the data given in the question itself, we can compile the following table:

	Ground	First	Second
Raja			NO
Harry	NO		
Prada			

If statement I is true, then Harry lives on the second floor. Hence,

	Ground	First	Second
Raja			NO
Harry	NO	NO	YES
Prada			NO

Prada can live on the ground or the first floor, so statement II is not necessarily true.

If statement II is true, then Prada does not live on the first floor. Hence,

	Ground	First	Second
Raja			NO
Harry	NO		
Prada		NO	

Harry can live on first floor or second floor, so statement I is not necessarily false.

If statement I is false, then Harry doesn't live on the second floor. Hence,

	Ground	First	Second
Raja	YES		NO
Harry	NO	YES	NO
Prada			YES

e. If statement I is false then statement II is necessarily false.

Solution(c) From the data given in the question itself, we can compile the following table:

	Ground	First	Second
Raja			NO
Harry	NO		
Prada			

If statement I is true, then Harry lives on the second floor. Hence,

	Ground	First	Second
Raja			NO
Harry	NO	NO	YES
Prada			NO

Prada can live on the ground or the first floor, so statement II is not necessarily true.

If statement II is true, then Prada does not live on the first floor. Hence,

	Ground	First	Second
Raja			NO
Harry	NO		
Prada		NO	

Harry can live on first floor or second floor, so statement I is not necessarily false.

If statement I is false, then Harry doesn't live on the second floor. Hence,

	Ground	First	Second
Raja	YES		NO
Harry	NO	YES	NO
Prada			YES

Prada lives on the second floor, Statement II is necessarily true.

If statement II is false, then Prada lives on the first floor. Hence,

	Ground	First	Second
Raja	YES		NO
Harry	NO		YES
Prada		YES	

Harry lives on the second floor, Statement I is necessarily true.

Therefore, the correct option would be (c).

Practice Exercise - C1

Directions for questions 1 to 3: Answer the questions on the basis of the information given below.

In each of the following problems, a question is asked. That question is followed by hints I, II, III, ...etc, which enable you to arrive at the answer to the question. The question can be answered by using some or all of the hints, while the hint(s) that are not required are termed redundant. You have to identify the redundant hint(s) from the given options.

1. What is the value of a ?

Information:

I. $3a^3 - a^2 + 9a - 1 \geq 2$

II. $2a \geq 6a^2$

III. $a \geq 0$

- a. II b. III c. either II or III

- d. Either I or II e. None of these

2. Is the person named X intelligent?

Information:

- I. Not all morons are intelligent.

- II. There is no intelligent who is not an idiot.

III. Some morons are intelligent.

IV. X is not a moron.

V. All idiots are morons.

a. I only b. I and IV c. I and III

d. II and IV e. II and III

3. How many females attending the party were married?

Information:

I. A total of 200 people attended the party.

II. In the party, there were 116 males.

III. 50% of the males in the party were married, and each married person was accompanied by his/her spouse.

IV. There were 26 unmarried females in the party.

a. II and III b. I and IV c. Either III or I and IV

d. II and IV e. I and II

Directions for questions 4 to 11: Answer the questions on the basis of the information given below.

Some facts regarding four individuals A, B, C and D are given below:

(i) C is taller as well as heavier than D.

(ii) B, who is shorter than D, is heavier than C.

(iii) A is taller as well as lighter than B.

(iv) D is lighter than C and A.

(v) C is the tallest among all.

In each of the problems numbered 4 to 6, a question is asked. That question can be answered by using only a few of the facts given above and all the facts may not necessarily be required. You have to identify the option which **lists down sufficient facts** that enable us to arrive at the answer to the question.

4. Is B heavier than D?

a. (i), (ii) b. (ii), (iii) c. (i), (iv)

d. (ii), (v) e. None of these

5. Is the shortest individual also the heaviest of them all?

a. (iii), (iv), (v) b. (ii), (iii), (iv) c. (i), (ii), (iii)

d. Data insufficient e. None of these

6. Is D the lightest of them all?

a. (i), (ii), (iii) b. (i), (iv) c. (ii), (iv)

d. (i), (ii), (v) e. (i), (ii)

In each of the problems numbered 7 to 11, a question is asked. That question can be answered by using only few of the facts given above and all the facts may not necessarily be required. You have to identify the option which states the **minimum number of sufficient facts** (from five facts stated above) that enable us to arrive at the answer to the question.

7. What is the position of C, when all these four individuals are arranged in the ascending order of their heights?

a. 1 b. 2 c. 3

d. 4 e. 5

8. What is the position of B, when all these four individuals are arranged in the ascending order of their weights?

a. 1 b. 2 c. 3

d. 4 e. 5

9. Is D the shortest of them all?

a. 1 b. 2 c. 3

d. 4 e. 5

10. What is the position of D, when all these four individuals are arranged in the descending order of their weights?

a. 1 b. 2 c. 3

d. 4 e. 5

11. What is the position of B, when all these four individuals are arranged in the ascending order of their heights?

a. 1 b. 2 c. 3

d. 4 e. 5

Directions for questions 12 to 20: Answer the questions on the basis of the information given below.

Abdul is a local beggar who keeps an eye on all the people. He identifies five ladies:- Mrs. Laali, Mrs. Neelima, Mrs. Hariyaali, Mrs. Kesari and Mrs. Shyama by the colour of their

sarees which are Red, Blue, Green, Orange and Black (not necessarily in that order). He has just found out the number of extra-marital affairs each of these ladies has in various colonies but since he hasn't seen the face of any of the ladies, he could associate the number of affairs only with the colour of the saree those ladies wear.

Colony	Number of extra-marital affairs				
	Colour of the saree				
	Red	Blue	Green	Orange	Black
Affection	2	4	2	3	1
Adorable	4	2	4	2	3
Fondness	1	3	4	1	3

Later on, Abdul came to know from his reliable sources that

- Mrs. Kesari is having one affair more than Mrs. Neelima
- Mrs. Shyama has lesser affairs than Mrs. Laali
- In Adorable colony, Mrs. Hariyaali has the maximum number of affairs

12. What can be said regarding the following two statements?

Statement I: Mrs. Hariyaali wears the green coloured saree

Statement II: Mrs. Hariyaali wears the red coloured saree

- a. Statement I is definitely true
- b. Statement II is definitely true
- c. Exactly one of the two statements is necessarily true
- d. Both the statements are definitely false
- e. Both the statements are true.

13. What can be said regarding the following two statements?

Statement I: Green coloured saree is worn by Mrs. Kesari

Statement II: Blue coloured saree is worn by Mrs. Neelima

- a. If statement I is true then statement II is true
- b. If statement II is true then statement I is false
- c. If statement I is false then statement II is true
- d. Both statement I and statement II are definitely true
- e. If statement II is false then statement I is true.

14. What can be said regarding the following two statements?

Statement I: Mrs. Hariyaali has 2 affairs in Affection colony

Statement II: Mrs. Kesari doesn't have 2 affairs in Adorable colony.

- a. Statement I is true and statement II is true
- b. Statement I is true and statement II is false
- c. Statement I is false and statement II is true
- d. Statement I is false and statement II is false
- e. None of these.

15. What can be said regarding the following two statements?

Statement I: Mrs. Laali wears the orange coloured saree

Statement II: Mrs. Shyama does not wear the green coloured saree

- a. Statement I could be true but statement II is definitely true

- b. Statement II could be true but statement I is definitely false
 - c. Both the statements could be true together
 - d. Statement II is definitely true and statement I is definitely false
 - e. Both the statements are false.
16. What can be said regarding the following two statements?

Statement I: Mrs. Kesari doesn't wear the green coloured saree

Statement II: Mrs. Kesari doesn't wear the blue coloured saree

- a. Statement I could be false but statement II is definitely false
- b. Statement II could be true but statement I is definitely false
- c. Statement I could be false but statement II is definitely true
- d. Statement II could be true but statement I is definitely true
- e. Statement I could be true but statement II is definitely false.

17. What can be said regarding the following two statements?

Statement I: Mrs. Neelima does not have the minimum number of affairs

Statement II: Mrs. Shyama has 3 affairs in Fondness colony

- a. If statement I is false then statement II could be true
- b. If statement II is false then statement I is necessarily false
- c. If statement I is true then statement II could be true
- d. If statement I is false then statement II is necessarily true

- e. If statement I is true then statement II could be false.
18. What can be said regarding the following two statements?

Statement I: Mrs. Shyama wears the green coloured saree

Statement II: Mrs. Kesari wears the orange coloured saree

- a. If statement I is false then statement II could be true
- b. If statement II is false then statement I could be true
- c. Both statement I and statement II are necessarily false
- d. Exactly one of the two statements is true
- e. Both statements are true.

19. What can be said regarding the following two statements?

Statement I: Mrs. Hariyaali has the maximum number of affairs.

Statement II: In Affection colony, Mrs. Laali has the maximum number of affairs.

- a. If statement II is true then statement I is necessarily false
- b. If statement I is false then statement II is necessarily true
- c. Both statement I and statement II are independently true
- d. If statement I is true then statement II is necessarily true
- e. Both statement I and statements II are false.

20. What can be said regarding the following two statements?

Statement I: Mrs. Hariyaali does not wear a green coloured saree

e. If statement I is true then statement II could be false.

18. What can be said regarding the following two statements?

Statement I: Mrs. Shyama wears the green coloured saree

Statement II: Mrs. Kesari wears the orange coloured saree

a. If statement I is false then statement II could be true

b. If statement II is false then statement I could be true

c. Both statement I and statement II are necessarily false

d. Exactly one of the two statements is true

e. Both statements are true.

19. What can be said regarding the following two statements?

Statement I: Mrs. Hariyaali has the maximum number of affairs.

Statement II: In Affection colony, Mrs. Laali has the maximum number of affairs.

a. If statement II is true then statement I is necessarily false

b. If statement I is false then statement II is necessarily true

c. Both statement I and statement II are independently true

d. If statement I is true then statement II is necessarily true

e. Both statement I and statements II are false.

20. What can be said regarding the following two statements?

Statement I: Mrs. Hariyaali does not wear a green coloured saree

Statement II: Mrs. Shyama wears the Orange coloured saree

a. If statement I is true then statement II is necessarily true

b. If statement II is true then statement I is necessarily true

c. If statement I is false then statement II is necessarily true

d. If statement II is false then statement I is necessarily true

e. Both statement I and II are true

Scoring table

Total questions	Total attempted	Total correct	Total wrong	Score	Time taken
20					

Practice Exercise - C2

Directions for questions: Each question is followed by two statements, I and II. Answer each question using the following instructions:

Mark (a) if the question can be answered by using the statement I alone but not by using the statement II alone.

Mark (b) if the question can be answered by using the statement II alone but not by using the statement I alone.

Mark (c) if the question can be answered by using either of the statements alone.

Mark (d) if the question can be answered by using both the statements together but not by either of the statements alone.

Mark (e) if the question cannot be answered on the basis of the two statements.

1. What is the value of x ?

I. $x^2 - 4x + 3 = 0$

II. $x^2 - 2x + 1 = 0$

2. Is $\frac{x}{y}$ a positive number?

I. x^2y is a positive number.

II. xy is a positive number.

3. What is the value of x ?

I. $(x^2 - 7x) \geq 8$

II. $5 < x \leq 8$

4. Is xy greater than 1, and are x and y both positive?

I. $0 < x < 1$

II. $y > 1$

5. Is $x > 1$?

I. $\frac{1}{x} < 1$

II. $x^2 < 1$

6. Is x greater than 3.5?

I. $2x > 6$

II. $3x < 10.9$

7. Is it true that $x > y$?

I. $\left(\frac{x}{y}\right) > 3$

II. $x^3 > y^2$

8. What is the minimum value of $x^2 - 7x + 12$ in the domain $a \leq x \leq b$.

I. $a = 2$

II. $b = 7$

9. Does x lie between 1 and 2?

I. x^2 is greater than 1 and less than 4.

II. x^2 is greater than x and less than $2x$.

10. Is $c > b$? a, b and c are real numbers.

I. $a^2 + b^2 + c^2 = 0$

II. $a > b - c$

11. If $x \neq 0$, is $\frac{1}{x} > 1$?

I. $x > 0$

II. $x < 1$

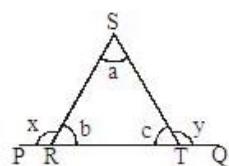
12. Is $n > p$?

n and p are real numbers.

I. $\frac{m}{n} = n + p$

II. $n > m$

13. In this figure, RST is a triangle with angle measures as shown. $PRTQ$ is a straight line. What is the value of $x + y$?



I. $a = 40$

II. $b = 30$

14. Find the height to which each end of a see-saw can rise.

I. The see-saw is 14 ft long.

II. The board is supported at the centre by a block 5 ft high.

15. What is the area of a regular hexagon?

I. The height of the hexagon is $4\sqrt{3}$.

II. One side is 8.

16. Does line l pass through the origin of the coordinate plane?

I. Line l is perpendicular to the X-axis.

II. Line l passes through the point $(6, 0)$.

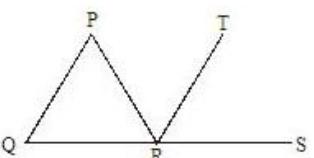
17. Are two triangles congruent?

I. Both triangles are right-angled.

II. Both triangles have the same perimeter.

18. In the given figure, QRS is a straight line and TR bisects $\angle PRS$.

Is $TR \parallel PQ$?



I. $PQ = PR$

II. $b = 30$

14. Find the height to which each end of a see-saw can rise.

I. The see-saw is 14 ft long.

II. The board is supported at the centre by a block 5 ft high.

15. What is the area of a regular hexagon?

I. The height of the hexagon is $4\sqrt{3}$.

II. One side is 8.

16. Does line l pass through the origin of the coordinate plane?

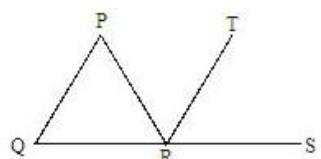
I. Line l is perpendicular to the X-axis.

II. Line l passes through the point (6, 0).

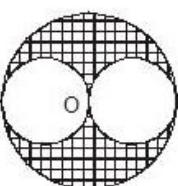
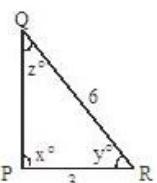
17. Are two triangles congruent?

I. Both triangles are right-angled.

II. Both triangles have the same perimeter.

18. In the given figure, QRS is a straight line and TR bisects $\angle PRS$.Is $TR \parallel PQ$?I. $PQ = PR$ II. $QR = PR$

19. What is the radius of the circle with centre O if two circles of equal size are touching each other at the circumference of the bigger circle as shown in the figure?

I. The area of the shaded region is 8π .II. The circumference of one of the smaller circles is 4π .20. What is the area of $\triangle PQR$ below?

I. The measures of x, y and z are in the ratio 3 : 2 : 1 respectively.

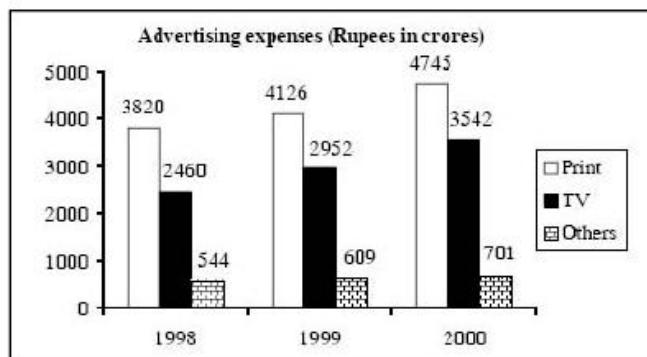
II. $QP = 3\sqrt{3}$ **Scoring table**

Total questions	Total attempted	Total correct	Total wrong	Score	Time taken
20					

LRDI Practice Test - 1

Directions for questions 1 to 4: Refer the chart given below and answer the questions.

The chart provides details about advertising expenses in various media from 1998 to 2000.



1. Average annual growth rate of total advertising expenses from 1998 to 2000 is
 - a. 14.7% b. 15.8% c. 16.6% d. 17.4% e. 13.5%

2. Which media showed the highest growth rate of advertisement expenses in 2000, compared to previous year?
 - a. Print b. TV c. Others
 - d. Both TV and Others e. Cannot be determined

3. Amount spent on TV is what percentage of the total advertisement spent in 1999?
 - a. 13.4% b. 17.8% c. 21.6% d. 24.2% e. 16.5%

a. 36% b. 39% c. 30.4% d. 39.6% e. 38.4%

4. The percentage share of print media is characterised by which of the following in the period 1998-2000?

- a. Continuously increasing
- b. Continuously decreasing
- c. Increase in 1999 and decrease in 2000
- d. Constant
- e. None of these

Directions for questions 5 to 8: Answer the questions based on the following information.

The table below gives the export of various gems and jewellery (US dollars in millions) from September 1997 to September 1998.

	Sept. 1998	Sept. 1997	April/Sept. 1998	April/Sept. 1997	%increase in 1998
Diamonds	512.02	459.89	2365.23	2076.72	13.89
Coloured gemstones	16.63	10.12	79.88	53.9	48.2
Pearls	0.28	0.54	1.73	1.67	3.59
Gold jewellery	80.16	81.22	389.48	382.42	1.85
Non-gold jewellery	3.37	2.97	23.5	12.63	86.06
Synthetic stones	0.02	0.16	0.16	1.04	-84.62
Costume/Fashion jewellery	0	0.28	0	1.68	-100.00
Carats of diamonds in millions	2.76	2.13	12.94	9.36	38.2

5. Exports in September 1998 of diamonds are what percentage of the half yearly exports for the corresponding half yearly period?

- a. 13.4% b. 17.8% c. 21.6% d. 24.2% e. 16.5%

6. Exports of pearls have decreased by what percentage in September 1998 as compared to the same period in the previous year?

- a. 46.4% b. 48.1% c. 49.9% d. 51.2% e. 40.19%

7. Exports of pearls in September 1998 was what percentage of exports of coloured gemstones for the same period?

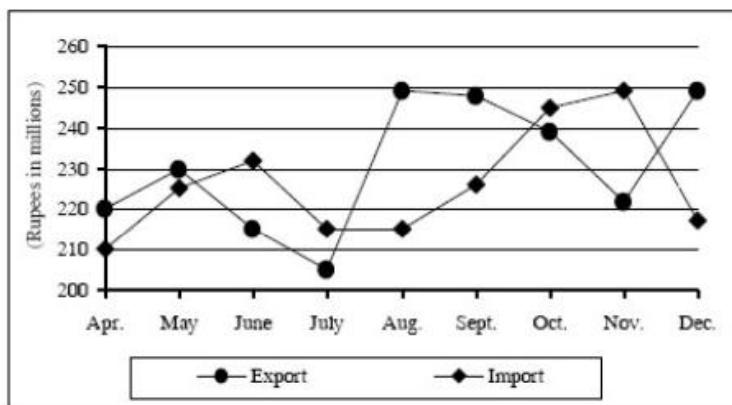
- a. 1.50% b. 1.92% c. 1.82% d. 1.32% e. 1.68%

8. In the half yearly period April-September 1998, diamonds constitute what percentage of total exports?

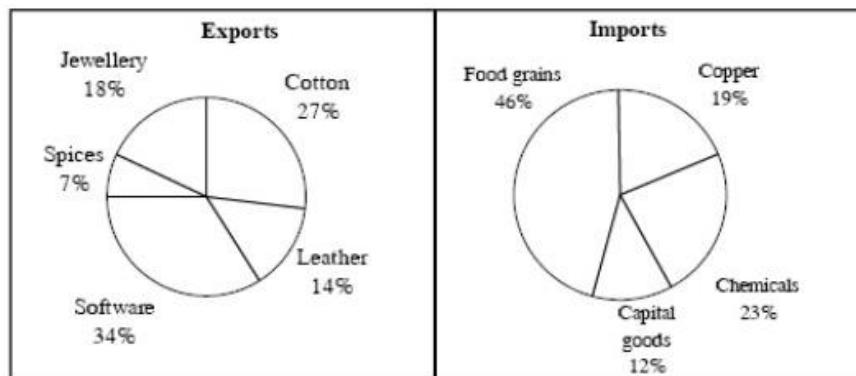
- a. 74.6% b. 78.6% c. 75% d. 87.9% e. 82.7%

Directions for questions 9 to 13: Answer the questions based on the following line graph.

The following line graph shows the export and import of India from April to December 1998.



The following pie charts give the break-up of export and import in May 1998.



9. What was the import surplus over the period April to December 1998 (rupees in millions)?

- a. -32 b. 40 c. 53

- d. 43 e. None of these

10. If the export earnings of jewellery and leather were used to import food grains in May, what percentage of food grains export could not be paid for?

- a. 24% b. 26% c. 28.88%

- d. 31% e. 25%

11. If, in June, a new export head electronic goods was added accounting for 7.25% of exports, the rest were in the same proportion as their share of exports in May. What was the value of cotton exported in June (rupees in millions)?

- a. ₹50 million b. ₹53.8 million c. ₹56 million

d. ₹59 million e. ₹61 million

12. If the chemical imports in May were to be paid for by total jewellery exports and part by export of spices, what percentage of spice exports would go towards import of chemicals?

a. 45% b. 60% c. 58% d. 56% e. 64.28%

13. Assume that the same distribution of exports and imports remains for April. If exports earnings are collected in dollars and converted to rupees at ₹.42 to a dollar, at what exchange rate should chemicals be imported such that export earnings for cotton and import spend for chemicals are equal?

a. ₹31.23 b. ₹32.82 c. ₹34.25 d. ₹36.02 e. ₹29.91

Directions for questions 14 to 16: Answer the questions on the basis of the information given below.

In the recently played Premier Hockey League, 5 teams participated in the League. The strategy of the tournament was such that every team has to play every other team 5 times, i.e. a total of 20 matches per team and then points were awarded for W (Win), L (Loss) and T (Tie). The following chart gives the number of matches won, matches lost and matches tied by different teams. The number of matches won, lost and tied by Assam is denoted by X, Y, Z respectively

Team	W	L	T
Haryana	2	15	3
Maharashtra	7	9	4
Punjab	6	12	2
Bengal	10	8	2
Assam	X	Y	Z

14. Find X.

a. 0 b. 1 c. 19 d. 20 e. 2

15. Find Y.

a. 0 b. 1 c. 19 d. 20 e. 11

16. Find Z.

a. 0 b. 11 c. 19 d. 20 e. 1

Directions for questions 17 to 19: Answer the questions on the basis of the information given below.

Kitto, a baby monkey, eats oranges from a particular tree in Bander Bagicha. Kitto is the only one to eat from that particular tree. It follows a certain pattern of eating the oranges – Starting with 1 on a particular day and then on the next day eating one more than the previous day. That particular orange tree is also very particular about producing oranges. In the season (June and July), it produces 8 oranges everyday whereas in off-season (May, August, September), it produces only 5 oranges everyday. Kitto reached Bander Bagicha on the morning of 1st of June and by then, the tree was ready with its very first fruition since May. (i.e., starting with zero orange on April 30)

17. According to its eating plan, on which day will Kitto run short of oranges?

a. 26th June b. 27th June c. 28th June d. 25th June e. Never

18. If there is no off-season and the tree keeps on producing 8 oranges per day (for the period May to September), then on which day will Kitto run short of oranges according to its eating plan?

a. 1st July b. 2nd July c. 3rd July d. 4th July e. None of these

19. Kitto changes its plan and keeps an upper limit of 15 oranges a day (i.e. eats 15 oranges per day once it reaches that level in its eating plan), keeping everything else

same. What will be the number of uneaten oranges on the tree at the start of day on 1st July?

- a. 47 b. 43 c. 36 d. 57 e. 50

Directions for questions 20 to 25: Each question is followed by two statements, I and II. Answer each question using the following instructions:

Mark (a) if the question can be answered by using the statement I alone but not by using the statement II alone.

Mark (b) if the question can be answered by using the statement II alone but not by using the statement I alone.

Mark (c) if the question can be answered by using either of the statements alone.

Mark (d) if the question can be answered by using both the statements together but not by either of the statements alone.

Mark (e) if the question cannot be answered on the basis of the two statements.

20. What is Santosh's ranking among the boys in his class?

I. There are 25 students in the class and Santosh's rank is second from the bottom.

II. There is only one girl in the class and her rank is not the last.

21. What is the code for the word 'love' in a certain coded language?

I. 'I love you' is coded as 'tika mika sika' and 'you love me' is coded as 'sika mika pika'.

II. 'You are great' is coded as 'chika rika mika'.

22. What is the code for the word 'God' in a certain coded language?

I. 'God is everywhere' is coded as 'tau mau pau'.

II. 'There is no god' is coded as 'mau sau kau pau'.

23. Three boys X, Y and Z ran a 100 m race. It is known that X did not come second, Y did not come third, and Z did not come first in the race. Who came first?

I. Z did not finish last in the race.

II. Y finished second in the race.

24. Out of five members (A, B, C, D and E) of a family, how many members are males?

I. A is father of E, whose only son is C.

II. E has two sisters, B and D.

25. Among Manish, Mukul and Rohit, who is the tallest?

I. Manish is taller than Mukul who is not taller than Rohit.

II. Rohit is not taller than Manish.

Scoring table

Total questions	Total attempted	Total correct	Total wrong	Score	Time taken
25					

LRDI Practice Test - 2

Directions for questions 1 to 3: Answer the questions based on the following data.

Shot Gun jeans – the world famous jeans from Ghatkopar east has a system of demand estimation so that the production can be planned as per the demand. However, because of limitation in production capacity, at times the production is less than the demand. The table below gives the estimated and the actual demand for Shot Gun jeans along with the target and actual production for the period 1990-95 in the units of thousand pairs.

Year	Demand		Production	
	Estimated	Actual	Target	Actual
1990-91	152	130	155	150
1991-92	165	155	155	155
1992-93	185	160	165	165
1993-94	200	175	180	175
1994-95	210	190	190	190

1. Which of the following statements is/are true?

- I. The estimates of demand for Shot Gun jeans were higher than actual figures for all years.
- II. The production targets of Shot Gun jeans were equal to or higher than the actual production figures for all years.
- III. The actual demand was less than or equal to actual supply for all years.

a. I only b. I and II only c. II and III only

d. I, II and III e. II only

2. If the actual demand for Shot Gun jeans in 1993-94 was 14% higher than the figure mentioned, the new demand-supply gap, if the production remains same would have been

a. 23,00 pairs b. 2,450 pairs c. 4,250 pairs

d. 14,000 pairs e. 24,500 pairs

3. If for 1995-96, the actual demand for Shot Gun jeans goes up by 10% over actual demand in 1994-95, while the production for 1995-96 falls by 15% over 1994-95, then the demand-supply gap would be

a. 47,500 pairs b. 50,000 pairs c. 4,250 pairs

d. 8,000 pairs e. 5,000 pairs

Directions for questions 4 to 8: Answer the questions based on the following tables.

Indian MNC's

Indian multinationals are on a global shopping spree for companies. Between 2001 - 03, 120 foreign firms worth US\$ 1.6 billion were acquired by Indian companies. Now, they are expanding their Merger and Acquisition (M&A) activities into new markets like Spain, Brazil, the rest of South America and Europe.

India Inc - Global Buying Spree

Sector	Buyer	Acquisition	Acquisition Value
Telecom	Reliance Industries	Flag Telecom, Bermuda	US\$ 212 m
Automobile	Tata Motors	Daewoo, Korea	US\$ 118 m
IT	Infosys Technologies	Expert Information Services, Australia	US\$ 3.1 m
Pharma	Wockhardt	CP Pharmaceuticals, UK	US\$ 18 m
Pharma	Cadila Health	Alpharma SAS, France	US\$ 5.7 m
Metals	Hindalco	Straits Ply, Australia	US\$ 56.4 m
IT	Wipro	NerveWire Inc. USA	US\$ 18.5 m
Chemical	Aditya Birla	Dashiqiao Chem, China	US\$ 8.5 m
Chemical	United Phosphorus	Oryzalin Herbicide, USA	US\$ 21.3 m

Source: Wall Street Journal; IBEF Research

- Indian firms have about 440 investments in the UK making India the 8th largest investor in that country.
- 1441 Indian companies have operations in Singapore.
- 92 Indian-American owned companies in the USA generated business of US\$ 2.2 billion and provided employment to about 19,000 people in 2002.
- NYSE, NASDAQ and London Stock Exchange are international stock exchanges. Seven Indian companies are listed on the NYSE and three on the NASDAQ, while over 15 companies are listed on the London Stock Exchange.
- 4. From the data given, which sector had the minimum value of acquisition in the period 2001 - 03 ?
 - a. Pharma b. IT c. Chemical d. Metals e. Automobile

5. Among the data given, how many acquisitions were made below the average acquisition value for the Indian MNCs in the period 2001 - 03 ?

- a. 0 b. 3 c. 6 d. 12 e. 13

6. Which of the following sequence of countries is correct in terms of total acquisition value?

- a. Bermuda > Australia > Korea > France
- b. USA > UK > France > China
- c. Australia > USA > France > UK
- d. Australia > USA > UK > China
- e. Australia > UK > China > USA

7. If Indian companies are listed in only 3 international stock exchanges - NYSE, NASDAQ and London Stock Exchange, how many different Indian companies are listed in international stock exchanges ?

- a. 25 b. 22 c. 15 d. 11 e. Cannot be determined

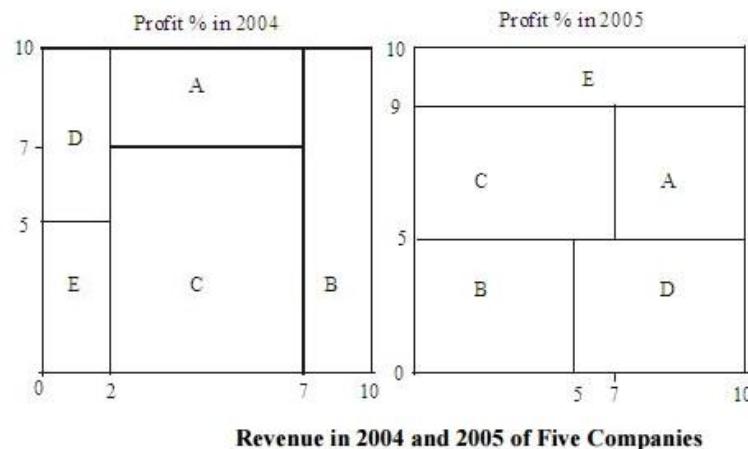
8. If the top 9 acquisitions (in terms of value) are listed in the given table, then find out the ratio of top 3 acquisitions (in terms of value) to that of the total acquisition value (for the top 9 acquisitions) for the period 2001 - 03 ?

- a. 1 : 2 b. 3 : 4 c. 5 : 6 d. 3 : 2 e. Cannot be determined

Directions for questions 9 to 11: Answer the questions on the basis of the information given below.

The square charts represent the percentage profit earned by the five companies in years 2004 and 2005. In this chart, the numerical value of the area covered by each of A, B, C,

D and E is equal to the percentage profit earned. The companies: Alta Vista, Bultaco, Coleco, Dixons and Eletropaulo are disguised in the charts as A, B, C, D and E, in no particular order. The table represents the revenue (in rupees crore) of these five companies in years 2004 and 2005.



Further, it is known as:

1. Revenue = Expenditure + Profit and Profit % = Total profit x 100 / Expenditure.
2. Among the five companies, "Dixons" earned the minimum profit in both the years 2004 and 2005.

3. Among the five companies, Eletropaulo had the maximum difference between the profit earned in the years 2004 and 2005 profits.

9. Among the five companies, Coleco earned the highest profit in year 2004. Which company earned the second highest profit in 2004?

- a. Both Alta Vista and Bultaco
- b. Both Bultaco and Eletropaulo
- c. Both Eletropaulo and Alta Vista
- d. Alta Vista
- e. Both Alta Vista and Eletropaulo

10. Among the five companies, Alta Vista earned the second highest profit in the year 2005. From the following choices, identify the name of the companies, which may have earned the highest profit in 2005.

- a. Both Bultaco and Dixons b. Both Coleco and Eletropaulo
- c. Both Eletropaulo and Dixons d. Both Bultaco and Coleco
- e. Both Coleco and Dixons

11. Among the five companies, Bultaco spent the maximum amount in both the years 2004 and 2005. Which of the following companies had the second highest percentage increase in profit in the year 2005 over 2004?

- a. Coleco and Dixons b. Alta Vista and Dixons
- c. Coleco and Alta Vista d. Bultaco and Coleco
- e. Data Insufficient

Directions for questions 12 and 13: Answer the questions on the basis of the information given below.

6 birds, all of a different kind, ($X_1, X_2, X_3, X_4, X_5, X_6$) are put in pairs in 3 cages. However, the pairs (X_1, X_2), (X_2, X_3), (X_3, X_4), (X_4, X_5), and (X_5, X_6) cannot be put together in a cage.

12. All the three pairs cannot be determined if it is known that X_1 is put together in a cage with

- a. X_3
- b. X_4
- c. X_5
- d. X_6
- e. Either (a) or (c)

13. If one of the pairs in a cage is given, then what is the probability that all the other required pairs can be determined?

- a. $\frac{2}{5}$
- b. $\frac{1}{2}$
- c. $\frac{5}{11}$
- d. $\frac{3}{5}$
- e. None of these

Directions for questions 14 to 16: In the following questions, a statement is given and a conclusion is drawn from that statement combined with some other information. The statement along with that additional information is sufficient to infer the stated conclusion correctly. You have to find that particular additional information from the given options:

Anny, Bobby and Citra are three sisters. They work in a company as Manager, Assistant Manager and Executive (not necessarily in that order) and the monthly salary drawn by the persons at these positions is in the ratio 15 : 12 : 8. The monthly expenditures of Anny, Bobby and Citra are in the ratio 5 : 4 : 3. No person spends more than she earns.

14. Statement: Anny does not draw the maximum and Executive does not spend the minimum.

Conclusion: Anny is the Assistant Manager

- a. Citra is the Executive
- b. Bobby is the Manager

- c. Citra is not the Assistant Manager
- d. Bobby is the Executive

- e. Citra is the Manager

15. Statement: Bobby is the Executive and the expenses of the Manager are maximum.

Conclusion: Citra saves the maximum

- a. Anny works as the Manager and her savings are twice her expenditure

- b. Anny works as the Assistant Manager and her salary is four times her expenditure

- c. Citra works as the Assistant Manager and her salary is twice her savings

- d. Citra works as the Manager and her salary is ₹15,000, which is ₹5,000 more than her expenditure

- e. Citra as the Assistant Manager and her salary is thrice her savings.

16. Statement: Citra's savings are equal to her expenditure, which is 25% less than the savings of the Assistant Manager.

Conclusion: Saving of the Executive is ₹12,000 per month.

- a. Executive spends ₹12,000 per month

- b. Bobby is the Manager and the monthly salary of Citra is ₹36,000 per month

- c. Anny is the Assistant Manager and her savings are ₹20,000 per month

- d. Monthly salary of the Manager is ₹24,000 per month which is ₹4,000 more than the expenditure of Anny

- e. Anny is the Assistant Manager and her savings are ₹25,000 per month.

Directions for questions 17 to 21: Each question is followed by two statements, I and II. Answer each question using the following instructions:

Mark (a) if the question can be answered by using the statement I alone but not by using the statement II alone.

Mark (b) if the question can be answered by using the statement II alone but not by using the statement I alone.

Mark (c) if the question can be answered by using either of the statements alone.

Mark (d) if the question can be answered by using both the statements together but not by either of the statements alone.

Mark (e) if the question cannot be answered on the basis of the two statements.

17. What is the digit in the unit's place of a number with 2 digits?

I. The sum of the digits of the number is 16.

II. If the digits are interchanged, the number remains the same.

18. If x is an odd integer, is y an odd integer?

I. The average of x and y is an odd integer.

II. The average of x , y and $(y + 1)$ is an integer.

19. When one ball is drawn at random from a bag containing 25 balls, what is the chance that it is pink?

I. The bag contains 5 red and 7 green balls.

II. The bag contains 4 pink balls after the first ball is drawn.

20. What is the probability that B wins the race?

I. Probability that A wins is 0.6.

II. A and B are the only contestants.

21. How many families in the village have both a radio and a TV?

I. The village has 2,500 families.

II. 680 families have TVs and 275 families have radios.

Scoring table

Total questions	Total attempted	Total correct	Total wrong	Score	Time taken
21					

LRDI Practice Test - 3

DIRECTIONS for Questions 1 to 4: Answer the questions on the basis of the information given below:

The following table provides information about the marks obtained by 10 students across 5 Mock Tests held in the year 2006-07. Each Mock Test had three sections namely Maths, Physics and Chemistry. The marks obtained in Maths and Physics sections as a percentage of the total marks obtained by each student in that particular Mock Test are given below.

Students	Mock Tests									
	Test 1		Test 2		Test 3		Test 4		Test 5	
	Maths	Physics	Maths	Physics	Maths	Physics	Maths	Physics	Maths	Physics
P	20%	45%	30%	45%	16%	40%	35%	25%	36%	16%
Q	25%	40%	20%	10%	20%	20%	24%	40%	35%	30%
R	40%	30%	50%	30%	40%	15%	32%	24%	22%	33%
S	10%	60%	15%	35%	25%	40%	32%	40%	36%	28%
T	35%	35%	20%	45%	36%	48%	25%	45%	20%	45%
U	25%	15%	36%	18%	24%	20%	30%	20%	12%	30%
V	40%	20%	42%	28%	36%	20%	24%	48%	32%	18%
W	20%	20%	38%	48%	18%	24%	22%	44%	16%	36%
X	40%	15%	20%	25%	20%	32%	40%	15%	35%	40%
Y	36%	24%	40%	10%	25%	20%	20%	45%	25%	30%

The following table provides information about the ratio of the marks obtained by students in the Mock tests 1, 2, 3, 4 and 5 in that order.

Students	P	Q	R	S	T	U	V	W	X	Y
Ratio	3:2:3:4:5	2:1:3:4:6	6:5:6:6:7	3:1:2:4:5	4:2:5:5:6	2:1:3:4:5	2:1:2:4:5	3:2:3:4:5	4:1:3:2:5	5:4:6:7:8

For every student **Variant Index (V.I.)** is calculated in each of the Mock Tests by the formula:

$V.I. = 2(c + p) - m$ where c, p and m denote the marks obtained by a particular student in Chemistry, Physics and Maths sections in a particular Mock Test. The descending order of the students based on the marks obtained in Mock Test 1 is S, T, W, Y, P, Q, X, U, V and R. Also, it is given that the aggregate marks obtained by each of P, Q, R, S, T, U, V, W, X and Y across all the Mock Tests combined are all integers.

1. Based on the information given, who could have possibly scored the highest aggregate marks in Mock Test 5 among the given students?
 a. T b. U c. V d. W e. X

2. Which of the following is definitely less than the V.I. of W in Mock Test 4?
 I. V.I. of V in Mock Test 5
 II. V.I. of Q in Mock Test 2
 III. V.I. of X in Mock Test 5
 IV. V.I. of P in Mock Test 2
 a. I, II and III b. I, II and IV c. I, III and IV
 d. II, III and IV e. None of these

3. How many of the following definitely got less marks in Chemistry in the mentioned Mock Tests, as compared to T's marks in Chemistry in Mock Test 4?
 I. R in Mock Test 3
 II. Y in Mock Test 2
 III. X in Mock Test 1

IV. S in Mock Test 4

V. R in Mock Test 5

a. 4 b. 3 c. 2 d. 1 e. 0

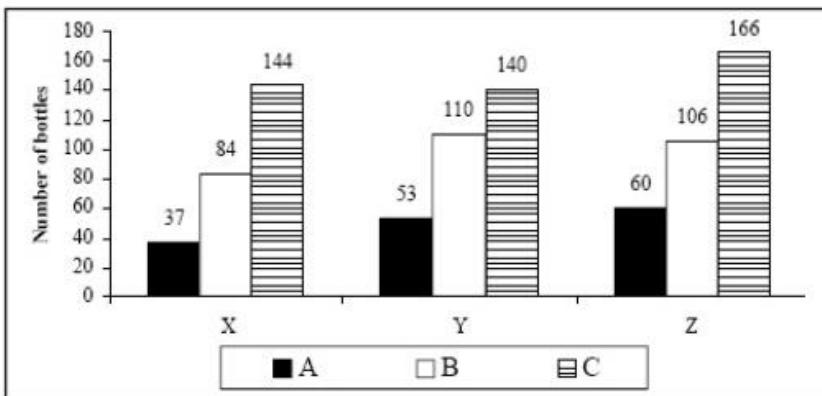
4. Find the ratio of the V.I. of T in Mock Test 3 to the V.I. of R in Mock Test 5, if the ratio of the aggregate marks across all the Mock Tests, obtained by T and R is in the ratio 33:23.

a. 132 : 69 b. 450 : 469 c. 165 : 69

d. 1320 : 539 e. 231 : 92

DIRECTIONS for Questions 5 to 9: Answer the questions on the basis of the information given below.

A small unit of a manufacturing company manufactures only three different varieties of lubricant oil namely X, Y and Z. On each day, the number of bottles of each varieties of lubricants manufactured is either 2 or 4 or 5. Similarly, the number of bottles of each varieties of lubricants sold on each day is either 1 or 2 or 3. It is also given that, on a particular day, the number of bottles of each varieties of lubricants manufactured or sold is different from the number of bottles of any other variety of lubricants, manufactured or sold. The following bar graph provides information about the number of bottles of X, Y and Z left unsold at the end of three consecutive months in a year (A, B, and C). Assume that each of these month had 30 days and also assume that there were no bottles of X, Y or Z left unsold before the beginning of month A.



5. If maximum possible number of bottles of Z were manufactured in the month A, then find the least possible number of days in which 4 bottles of Y were manufactured in month A.

a. 8 b. 10 c. 12 d. 14 e. 6

6. Find the maximum possible number of days on which 5 bottles of Z were manufactured across all the three months.

a. 78 b. 80 c. 82 d. 85 e. 76

7. Find the minimum possible number of days on which 5 bottles of X were manufactured across all the three months.

a. 0 b. 18 c. 16 d. 15 e. 12

8. If the ratio of the number of days on which 2, 4 and 5 bottles of Y were manufactured in month B is 1 : 2 : 3 and the number of days on which 3 bottles of Y were sold in month B is minimum possible, then find the number of days on which 2 bottles of Y were sold in month B.

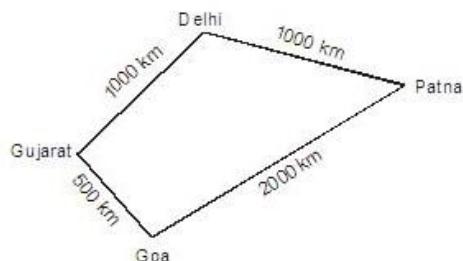
a. 24 b. 23 c. 22 d. 21 e. 20

9. Number of days on which 2 bottles of Y were manufactured in the month A and C are 'J' and 'M' respectively. Find the maximum possible value of (J-M).

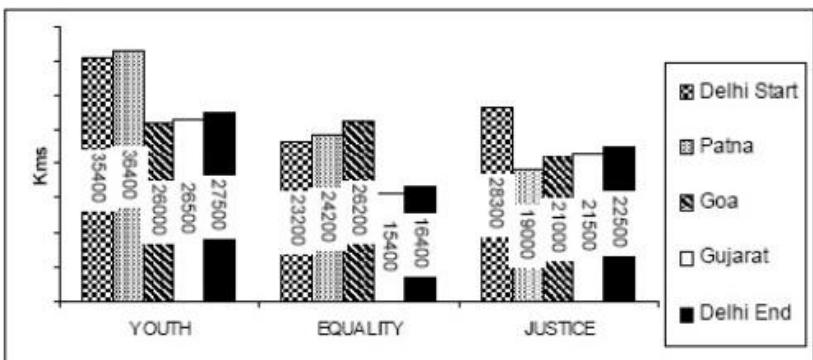
a. 21 b. 22 c. 23 d. 24 e. 20

DIRECTIONS for Questions 10 to 14: Answer the questions on the basis of the information given below.

To protest against the latest discriminating policy of the government, three organisations of protestors namely Youth, Equality and Justice decided to take a car rally with a fleet of 3 cars, 4 cars and 5 cars, not necessarily in the same order, via the circuit route Delhi-Patna-Goa-Gujarat-Delhi. Delhi is the home city whereas Patna, Goa and Gujarat are intermediate cities. Their route is as shown below:



The following graph shows the average odometer reading of the cars used by these organisations at the given cities, just before their departure for the next city. It is known that the agitated protestors of each organisation burnt one of their cars, but the mentioned three organizations had done so in three distinct intermediate cities. The burnt car was always noted to show above 50000 kms but not more than 70000 kms on its odometer. Also, one of the protesters exchanged one of their old cars with a brand new car at one of the intermediate cities. No other case of exclusion or inclusion of car was reported.



10. How many cars did the organisation Youth start with?

a. 3 b. 4 c. 5

d. Either 3 or 4 e. Either 4 or 5

11. How many cars did the organisation whose protestor exchanged his car, start with?

a. 3 b. 4 c. 5

d. Either 3 or 4 e. Either 4 or 5

12. What was the odometer reading of the car burnt in Goa, when it started the rally?

a. 55800 kms b. 50400 kms c. 63200 kms d. 59700 kms e. None of these

13. In which city was the new car exchanged with the old car?

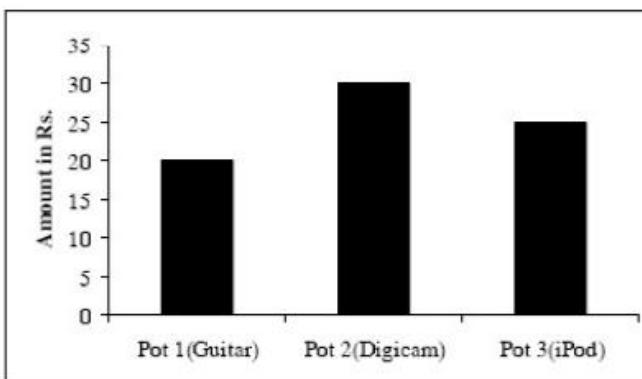
a. Patna b. Goa c. Gujarat d. Either (1) or (3) e. Either (2) or (3)

14. Given that one of the cars burnt had 69200 kms as its odometer reading, what was the odometer reading of the old car that was exchanged with a new car at the time of exchange?

- a. 700 kms b. 1300 kms c. 19000 kms
d. 35200 kms e. 300 kms

DIRECTIONS for Questions 15 to 19: Answer the questions on the basis of the information given below. .

Roxy is saving money to buy a guitar, an iPod and a digicam. For this purpose he started saving money in three different pots designated individually for those items. He started with certain sum of money in each pot. However the money is in the form of 50p and ₹1 coins only with at least 1 coin of each denomination in each pot. Initially the sum of the number of 50p coins in all three pots taken together is equal to sum of the number of ₹1 coins in all three pots taken together. At the beginning of each day he puts equal amount of money in each pot. However in each pot he puts at least a total of 10 coins and a maximum of 10 coins of each type. On the other hand Moby, Roxy's younger brother steals a total of 20 coins from exactly 2 pots (integral multiple of a rupee from each pot) at the end of each day, such that Roxy doesn't get to know about the theft. However Moby doesn't steal money from the same pot for three consecutive days. Following graph shows the initial amount of money in each pot.



15. What is the minimum possible number of ₹1 coins initially in the pot designated for digicam?

- a. 5 b. 1 c. 7 d. 2 e. 8

16. If number of coins initially in all the pots is multiple of 5 then which of the following cannot be the sum of number of coins in the pot designated for guitar?

- a. 25 b. 30 c. 35 d. 40 e. All of the above

17. How many of these cannot be the initial ratio of the number of Re 1 coins and 50p coins in Pot 2?

A. 3 : 14

B. 7 : 6

C. 4 : 3

D. 2 : 9

E. 5 : 2

- a. 1 b. 2 c. 3 d. 4 e. 5

Additional information for questions 18 and 19:

Initially, Pot 1 has maximum possible 50p coins and Moby starts stealing from Pot 2 and Pot 3.

18. If Roxy puts maximum possible amount everyday in each pot then what is the minimum possible number of days after which there will be no 50p coin in Pot 1?

- a. 17 b. 15 c. 19 d. 21 e. 20

15. What is the minimum possible number of ₹1 coins initially in the pot designated for digicam?

- a. 5 b. 1 c. 7 d. 2 e. 8

16. If number of coins initially in all the pots is multiple of 5 then which of the following cannot be the sum of number of coins in the pot designated for guitar?

- a. 25 b. 30 c. 35 d. 40 e. All of the above

17. How many of these cannot be the initial ratio of the number of Re 1 coins and 50p coins in Pot 2?

A. 3 : 14

B. 7 : 6

C. 4 : 3

D. 2 : 9

E. 5 : 2

- a. 1 b. 2 c. 3 d. 4 e. 5

Additional information for questions 18 and 19:

Initially, Pot 1 has maximum possible 50p coins and Moby starts stealing from Pot 2 and Pot 3.

18. If Roxy puts maximum possible amount everyday in each pot then what is the minimum possible number of days after which there will be no 50p coin in Pot 1?

- a. 17 b. 15 c. 19 d. 21 e. 20

19. Moby also wants Roxy to buy a guitar, but he is unable to control his urge to steal. So he carries on stealing money from the pots, the way he had been doing. But everyday after stealing, he puts back all the stolen ₹1 coins in the pot designated for guitar. It is also given that box Pot 2 and Pot 3 from the second day onwards always had more than 19 ₹1 coins in each of them. If a guitar cost ₹500 then what is the minimum possible number of days after which that particular pot will have enough money to buy a guitar?

- a. 14 b. 16 c. 19 d. 13 e. 11

Scoring table

Total questions	Total attempted	Total correct	Total wrong	Score	Time taken
19					

Answer key

DI Practice Exercises

Practice exercise - A1

1	b	2	c	3	a	4	c	5	c	6	a	7	d	8	c	9	b	10	c
11	d	12	a	13	b	14	c	15	d										



Practice exercise - A2

1	a	2	d	3	d	4	c	5	e	6	d	7	b	8	e	9	c	10	a
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	----	---



Practice exercise - A3

1	b	2	b	3	b	4	e	5	b	6	a	7	e	8	a	9	c	10	c
11	a	12	e	13	c	14	e	15	c	16	b	17	e	18	c	19	b	20	a
21	a	22	e	23	a														



Practice exercise - A4

1	d	2	c	3	b	4	b	5	e	6	b	7	a	8	b	9	a	10	c
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	----	---



Practice exercise - A5

1	c	2	e	3	b	4	c	5	b	6	c	7	a	8	c	9	c	10	c
11	e	12	c	13	c	14	a	15	d										



Logical Reasoning Practice Exercises**Practice exercise - B1**

1	a	2	d	3	a	4	e	5	a	6	c	7	d	8	e	9	e	10	c
11	b	12	c	13	a	14	c	15	d	16	c	17	a	18	d	19	b	20	d



Practice exercise - B2

1	d	2	d	3	c	4	b	5	b	6	b	7	b	8	c	9	c	10	c
11	a	12	a	13	a	14	a	15	c	16	c	17	a	18	c	19	d	20	b



Practice exercise - B3

1	b	2	e	3	c	4	b	5	c	6	a	7	e	8	c	9	e	10	d
11	b	12	c	13	a	14	c	15	b	16	a	17	a	18	b	19	e	20	e



Practice exercise - B4

1	d	2	c	3	a	4	e	5	b	6	c	7	d	8	c	9	c	10	b
11	b	12	d	13	c	14	d	15	b										



Practice exercise - B5

1	d	2	b	3	b	4	d	5	b	6	c	7	a	8	d	9	d	10	b
11	b	12	a	13	a	14	c	15	b	16	a	17	d	18	d	19	a	20	c



Practice exercise - B6

1	a	2	d	3	b	4	a	5	b	6	b	7	c	8	c	9	a	10	c
11	c	12	a	13	d	14	a	15	c	16	b	17	d	18	b	19	c	20	c



Practice exercise - B7

1	b	2	d	3	c	4	b	5	b	6	a	7	c	8	b	9	a	10	d
11	b	12	d	13	a	14	a	15	b	16	b	17	c	18	b	19	d	20	b



Practice exercise - B8

1	b	2	b	3	d	4	b	5	c	6	c	7	d	8	d	9	d	10	a
11	d	12	c	13	a	14	d	15	c	16	c	17	d	18	b	19	a	20	d



Practice exercise - B9

1	b	2	d	3	a	4	c	5	a	6	a	7	c	8	b	9	d	10	c
11	c	12	d	13	a	14	b	15	b	16	d	17	d	18	a	19	b	20	d



Practice exercise - B10

1	c	2	b	3	a	4	d	5	a	6	d	7	a	8	a	9	c	10	b
11	d	12	d	13	b	14	d	15	b	16	d	17	c	18	d	19	c	20	a



Practice exercise - B11

1	a	2	d	3	d	4	b	5	b	6	c	7	b	8	d	9	d	10	c
11	a	12	c	13	a	14	b	15	d	16	c	17	d	18	d	19	d	20	a



Data Redundancy and Data Dependency

Practice exercise - C1

1	b	2	c	3	c	4	a	5	c	6	c	7	a	8	c	9	a	10	b
11	c	12	c	13	a	14	a	15	d	16	c	17	a	18	c	19	d	20	b



Practice exercise - C2

1	b	2	b	3	d	4	e	5	b	6	e	7	d	8	d	9	b	10	a
11	d	12	e	13	a	14	b	15	c	16	d	17	e	18	b	19	c	20	c



LRDI Practice Test - 1

1	b	2	b	3	e	4	b	5	c	6	b	7	e	8	e	9	e	10	c
11	b	12	e	13	c	14	c	15	a	16	e	17	b	18	b	19	e	20	d
21	d	22	e	23	c	24	e	25	e										



LRDI Practice Test - 2

1	d	2	e	3	a	4	b	5	b	6	d	7	e	8	c	9	a	10	b
11	e	12	b	13	b	14	d	15	c	16	a	17	d	18	a	19	e	20	e
21	e																		



LRDI Practice Test - 3

1	b	2	d	3	e	4	b	5	c	6	d	7	a	8	c	9	b	10	a
11	c	12	e	13	d	14	b	15	c	16	d	17	b	18	d	19	a		



Explanations: Fundamentals of Logical Reasoning & Data Interpretation (Part-II)

Practice exercise - A1

1. b Number of Esteems = 10% of 40% of 2.5 lakh = 4% of 2.5 lakh = 0.1 lakh.

2. c 60% of 40% of total car sales = 48000, i.e. 24% of total sales = 48000.

Thus, total sales = $48000 / 0.24 = 2$ lakh.

3. a HM market share = 15%.

Zen market share = 20% of 40% = 8%.

Therefore, difference = $(15 - 8)\% = 7\% = 7\%$ of 2.5 lakh = 17500.

4. c Number of Maruti cars sold = 40% of 2 lakh = 80000.

Sale of Maruti 800 = 48000.

Increase of Maruti 800 sold = 25% of 48000 = 12000.

New total sales of Maruti = 92000 = 0.92 lakh.

New total car sales = $200000 + 12000 = 2.12$ lakh.

Percentage share of Maruti = $\frac{0.92}{2.12} \times 100 = 43.4\%$.

Thus, percentage points by which Maruti share has increased = $43.4 - 40 = 3.4$ points.

5. c The number accounted for by Hyundai and Daewoo = $(10 + 25)\% \text{ of } 4 \text{ lakh} = 35\% \text{ of } 4 \text{ lakh} = 1.4 \text{ lakh.}$

6. a Number of Santros = 75% of 25% of 4 lakh = 75000.

7. d Number of Santros = 75000 (from question 6).

Number of Zen = 20% of 40% of 4 lakh = 32000.

Difference between Santro and Zen sales = 43000.

8. c Sales of Maruti 800 in Mumbai = 60% of 40% of 5% of total India sales = 0.012×24 lakh = 28800.

9. b Sales in 2004 = 1.15×4 lakh = 4.6 lakh.

Thus, HM sales = 15% of 4.6 lakh = 69000.

10. c Maruti sales in 2003 = 40% of 4 lakh = 1.6 lakh.

Increase in Maruti sale in 2004 = 20% of 1.6 lakh = 0.32 lakh.

Thus, Maruti sales in = $1.6 + 0.32 = 1.92$ lakh and total sales = $4 + 0.32 = 4.32$ lakh.

Percentage share of Maruti = $(1.92/4.32) \times 100 = 44.44\%$.

11. d Hyundai's sales in 2003 = 25% of 4 lakh = 1 lakh.

Hyundai's sales in 2004 = 90% of 1 lakh = 0.9 lakh.

Total sales in 2004 = 130% of 4 lakhs = 5.2 lakh.

Hyundai's share of sales = $(0.9/5.2) \times 100 = 17.3\%$.

12. a Total sales in 2004 = 5.2 lakh. (Refer question 11)

Daewoo's sales in 2003 = 10% of 4 lakh = 0.4 lakh.

Daewoo's share in 2004 = $(0.4/5.2) \times 100 = 7.7\%$.

6. a Number of Santros = 75% of 25% of 4 lakh = 75000.

7. d Number of Santros = 75000 (from question 6).

Number of Zen = 20% of 40% of 4 lakh = 32000.

Difference between Santro and Zen sales = 43000.

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Thus, HM sales = 15% of 4.6 lakh = 69000.

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Percentage share of Maruti = $(1.92/4.32) \times 100 = 44.44\%$.

11. d Hyundai's sales in 2003 = 25% of 4 lakh = 1 lakh.

Hyundai's sales in 2004 = 90% of 1 lakh = 0.9 lakh.

Total sales in 2004 = 130% of 4 lakhs = 5.2 lakh.

Hyundai's share of sales = $(0.9/5.2) \times 100 = 17.3\%$.

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Daewoo's sales in 2003 = 10% of 4 lakh = 0.4 lakh.

Daewoo's share in 2004 = $(0.4/5.2) \times 100 = 7.7\%$.

13. b Sales of Maruti in 2003 = 40% of 4 lakh = 1.6 lakh.

Increase in sales of Esteem in 2004 = 40000.

Thus, sales of Maruti in 2004 = 2 lakhs.

Total sales in 2004 = 1.2×4 lakh = 4.8 lakh.

Percentage share of Maruti in 2004 = $(2/4.8) \times 100 = 41.67\%$.

14. c Sales of Esteem in 2003 = 16000.

Sales of Esteem in 2004 = $40000 + 16000 = 56000$.

Sales of Maruti in 2004 = 2 lakh. (Refer question 13)

Esteem's share in Maruti sales = $(0.56/2) \times 100 = 28\%$.

15. d Sales of Opel in 2003 = 25% of 10% of 4 lakh = 10000.

Practice exercise - A2

We are making table for convenience sake. You can avoid making it. The following figures, based on the graph, have been used for the calculations.

Year	Shareholders wealth	Total debt	Net fixed assets	Net working capital
1999	125	410	180	350
2000	280	350	250	375
2001	475	430	335	550
2002	750	675	550	745
2003	1150	800	760	100

Following abbreviations have been used.

SW = Shareholder's wealth **TD** = Total debt

NFA = Net fixed assets **NWC** = Net working capital

1. a Average of the total debt is 556.

Hence, the total debt is above the average for 2 years (2002 and 2003).

2. d NWC in 1999 = 350, NWC in 2003 = 1000.

If NWC in 1999 = 100, then

$$\text{NWC in 2003} = \frac{1000}{350} \times 100 = 285.6$$

$$3. d \text{ NFA growth rate in 2000} = \frac{250 - 180}{180} = 38.9\%.$$

$$\text{NFA growth rate in 2002} = \frac{550 - 335}{335} = 64.2\%.$$

Hence, the difference is 25.3%.

$$4. c \text{ Total growth} = 1150 - 125 = 1025.$$

$$\text{Thus, average annual growth} = \frac{1025}{4} = 256.$$

$$\text{Thus, SW in 2004} = \text{SW in 2003} + 256 = 1150 + 256 = 1406.$$

$$5. e \text{ Average annual growth rate} \frac{1150 - 125}{125 \times 4} \times 100 = 205\%$$

(Refer question 4)

Growth rate is less than 205% for all the choices.

6. d The word compounded has no relevance and the item which has grown the maximum will have the highest CAGR and average annual growth rate.

So shareholder's wealth has grown the maximum.

$$7. b \text{ NWC growth rate in 2002} = \frac{745 - 550}{550} \times 100 = 35.45\%.$$

$$\text{SW growth rate in 2003} = \frac{1150 - 750}{750} \times 100 = 53.33\%.$$

$$\text{Thus, NWC is less than SW by} \frac{53.33 - 35.45}{53.33} \times 100 = 33\%.$$

Alternatively, you can approximate, since choices are far apart.

$$\text{NWC growth rate in 2002} \approx \frac{750 - 550}{550} = \frac{200}{550} = \frac{4}{11} = 36.36\% \left[\frac{1}{11} = 9.09\% \right]$$

$$\text{SW growth rate in 2003} \approx \frac{1150 - 750}{750} = \frac{400}{750} = \frac{8}{15} = 53\%.$$

$$\text{NWC is less than SW by} \frac{53 - 36}{53} = \frac{17}{53} \approx \frac{1}{3} = 33.3\%.$$

Hence, the difference is 25.3%.

4. c Total growth = $1150 - 125 = 1025$.

Thus, average annual growth = $\frac{1025}{4} = 256$.

Thus, SW in 2004 = SW in 2003 + 256 = $1150 + 256 = 1406$.

5. e Average annual growth rate $\frac{1150 - 125}{125 \times 4} \times 100 = 205\%$

(Refer question 4)

Growth rate is less than 205% for all the choices.

6. d The word compounded has no relevance and the item which has grown the maximum will have the highest CAGR and average annual growth rate.

So shareholder's wealth has grown the maximum.

7. b NWC growth rate in 2002 = $\frac{745 - 550}{550} \times 100 = 35.45\%$.

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SW growth rate in 2003 $\approx \frac{1150 - 750}{750} = \frac{400}{750} = \frac{8}{15} = 53\%$.

NWC is less than SW by $\frac{53 - 36}{53} = \frac{17}{53} \approx \frac{1}{3} = 33.3\%$.

8. e Growth rate of NWC is less than that of SW for all the years.

9. c Growth rate of:

NFA in 2000-2002 = 120% and TD in 2000-2002 = 92%.

SW in 1999-2000 = 124% and SW in 2002-2003 = 53%.

TD in 2001-2002 = 56% and NWC in 2001-2002 = 35%.

TD in 2002-2003 = 23% and SW 2001-2002 = 58%.

10. a While doing this visually, the only doubt is whether for the year 2001 the NWC is above average or not. Assume the average as the value in 2001 and use the method of deviation. If sum of deviation is +, average is above the value of 2001 or else other way round. In this case the sum of deviation would be $-200 - 175 + 225 + 450$ which will obviously be positive. Thus average will be greater than that for year 2001. Hence, (a) is correct.

Practice exercise - A3

1. b Percentage change in the average price for 2000 = 50%

$$2001 = 16.66\%$$

$$2002 = 14.28\%$$

$$2003 = 37.5\%$$

One does not need to calculate this.

One can just check it visually. The changes are 1, 0.5, 0.5, -1.5 and the base are 2, 3, 3.5, 4.5. The year where change is maximum and base is least will have the highest growth rate.

2. b Production of Maa-roti in 2000 = 30,000 and

Production of Maa-roti in 2003 = 60,000

$$\text{Average annual growth rate for 2000-2003} = \frac{60,000 - 30,000}{30,000} \times 100 \times \frac{1}{3} = 33.3\%$$

$$3. b \text{ Average price per car} = \frac{40 \times 2 + 30 \times 3 + 50 \times 3.5 + 40 \times 4 + 60 \times 2.5}{220} = ₹2.97 \text{ lakh}$$

4. e Cannot be determined because total cars produced by the car industry is not known for any year.

5. b Production of Maa-roti in 2001 = 50,000

$$\text{Percentage share of Maa-roti} = \frac{50,000}{200,000} \times 100 = 25\%$$

6. a Production 2001 = Production 1996 $\times 1.08 \times 1.15$,

$$\text{Production in 1999} = \frac{200000}{1.08 \times 1.15} = 161030$$

7. e The assumption that production = sales is not valid unless it is specifically stated.

8. a Cars sold in 2000 = 80% of 30,000 = 24,000

Price per car in 2000 = ₹3 lakh

Revenue in 2000 = 24,000 \times 3 lakh = 72,000 lakh

9. c Revenue in 2000 = 72,000 lakh (Refer question 8)

In 2001, the entire production of 2001 and 20% 2000 production is sold = 56,000

Revenue in 2001 = 56000 \times 3.5 = 196000 lakh

Revenue 2000 + 2001 = 2,68,000 lakh

10. c Revenue for each year is given below:

1999 : 40 \times 2 = ₹80,000 lakh

2000 : 30 \times 3 = ₹90,000 lakh

2001 : 50 \times 3.5 = ₹1,75,000 lakh

2002 : 40 \times 4 = ₹1,60,000 lakh

2003 : 60 \times 2.5 = ₹1,50,000 lakh

Thus, in 2001 Maa-roti has the highest growth.

11. a 2001. Calculate from question 10.

12. e Again, we cannot assume that production = sales.

13. c Average price per car for Maa-roti = ₹4 lakh

Average price per car of car industry = ₹4.5 lakh

Market share of Maa-roti = 62.5%

Let average price of rest of the car industry = p, then $0.625 \times 4 + 0.375 p = 4.5$

Thus, p = ₹5.33 lakh

Recollect that in case of averages, oral calculations are far better as follows : 62.5% is $5/8$ and thus 8 items have an average price of 4.5 and 5 of them have an average of 4. Thus these 5 were "given" a total of $0.5 \times 5 = 2.5$ by rest 3 and thus rest 3 will have an average of $4.5 + \frac{2.5}{3} = 4.5 + 0.83 = 5.33$

14. e FC = Fixed cost VC = Variable cost/unit

SP = Selling price N = Number of units sold

Break Even Point = BEP is the production level at which the company is in a no profit or no loss situation.

BEP = $FC / (SP - VC)$, since the question does not give us all the required data, we cannot determine the BEP.

15. c 40,000 cars are produced in 1999

If 10% gets rejected, net production = 36,000

Turnover = 36,000 × 2 lakh = 72,000 lakh = 720 crore

16. b Number of Maa-roti Omni produced in 2001 = 15% of 50,000 = 7500

17. e Since we do not have the average price per car for Maa-roti 800 for the two years, we cannot determine the ratio of sales revenue.

18. c Ratio of Maa-roti Gypsy produced in 2002 to 2001 = $\frac{5\% \text{ of } 40,000}{10\% \text{ of } 50,000} = \frac{200}{500} = 2:5$

19. b Maa-roti Esteem

Production 2001 = 20% of 50,000 = 10,000

Production 2002 = 22% of 40,000 = 8,800

$$\text{Growth rate} = \frac{8800 - 10000}{10000} \times 100 = -12\%$$

20. a Refer to question 10 for data, simple annual growth rate = $\frac{150000 - 80000}{80000} \times 100 \times \frac{1}{4} = 21.8\%$

21. a Refer to question 9 for data. For CAGR apply formula for CI, $A = P (1 + r/100)^n$

$A = 1,50,000$ lakh, $P = 80,000$ lakh and $n = 4$ time periods, $150 = 80 (1 + r/100)^4$ thus $r = 17\%$

22. e Only the average price per car is given. The number of cars produced is not given thus the average price per car for 2001-2004 cannot be determined.

23. a In 1999 Maa-roti produced 40,000 cars, which is 20% more than in 1998, thus production in 1998

$$= \frac{40000}{1.2} = 33333$$

Practice Exercise - A4

The following figures, based on the graph, have been used for the calculations.
Abbreviations used are :

Int. = Interest **Depn.** = Depreciation

NP = Net Profit **OI** = Other Income

Year	OPBDIT	Int.	Depn.	NP	Tax	OI
1999	110	30	5	75	0	1
2000	285	80	20	165	20	2
2001	395	80	50	205	60	4
2002	520	110	80	285	85	10
2003	380	145	120	10	105	6

1. d Operating profit after interest and taxes but before depreciation = Net profit + Depreciation, this is highest for 2002.

2. c Refer to the table above, tax and depreciation have witnessed a constant growth across the years.

3. b NP has grown from 75 in 1999 to 165 in 2000, hence percentage increase in NP for 1999-2000 = 120%.

OPBDIT has grown from 395 in 2001 to 560 in 2002, hence percentage increase in OPBDIT for

2001-2002 = 41.8%

Thus, difference = $120 - 41.8 = 78.2\%$.

4. b Interest grows from 30 in 1999 to 145 in 2003, thus simple annual growth rate
 $= \left(\frac{145 - 30}{30} \right) \times \frac{1}{4} = 95.8\%$

5. e For CAGR, use the formula for compound interest $145 = 30(1 + r/100)^4$ thus $r = 48.3\%$

Alternative method:

Total growth from 1999 to 2003 is 400%.

Now, let us take a convenient value, say 50% (4 year)

Use $a + b + \frac{ab}{100}$

$50 + 50 + \frac{50 \times 50}{100} = 125$

$125 + 125 + \frac{125 \times 125}{100} \approx 400\%$

So CAGR is closer to 50%, hence the answer is 48%.

6. b The company would have been placed in the MAT category in 1999 because its tax for the year is zero.

7. a OPBDIT 2002 = 520 and OPBDIT 2003 = 380

OPBDIT 2003 as a percentage of OPBDIT 2002 = $\frac{380}{520} = 73.1\%$

8. b NP and OPBDIT increase till 2002, after which both of them decrease.

9. a Interest in 1999 = 30, then interest in 2003 = 145, thus if interest in 1999 = 100, then interest in 2003

Thus, difference = $120 - 41.8 = 78.2\%$.

$$= 145 \times \frac{100}{30} = 483$$

4. b Interest grows from 30 in 1999 to 145 in 2003, thus simple annual growth rate
 $= \left(\frac{145 - 30}{30} \right) \times \frac{1}{4} = 95.8\%$

10. c The maximum depreciation was in 2003, hence maximum assets were acquired in 2002.

5. e For CAGR, use the formula for compound interest $145 = 30(1 + r/100)^4$ thus $r = 48.3\%$

Alternative method:

Total growth from 1999 to 2003 is 400%.

Now, let us take a convenient value, say 50% (4 year)

Use $a + b + \frac{ab}{100}$

$$50 + 50 + \frac{50 \times 50}{100} = 125$$

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So CAGR is closer to 50%, hence the answer is 48%.

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$$\text{OPBDIT 2003 as a percentage of OPBDIT 2002} = \frac{380}{520} = 73.1\%$$

8. b NP and OPBDIT increase till 2002, after which both of them decrease.

9. a Interest in 1999 = 30, then interest in 2003 = 145, thus if interest in 1999 = 100, then interest in 2003

Practice Exercise - A5

The set can be solved in two ways:

A. Adding an extra column for points in Set A and tabulating all points before proceeding. This approach will involve repeating this step for atleast 60% of the teams again after question 6. This approach, though time consuming, is likely to give guaranteed results. For anyone who finds this set tough to conceptualize, this may be the preferred approach

B. Take each question as and when it comes and tackle it on merit.

For questions 1 to 15:

1. c (32 teams) \times (6 Games Played) / 2 = 96 (it takes two teams to play a match) matches will be played in round 1, 8 matches in round 2, 4 in Quarter-finals, 2 in Semi-finals & 1 in the final

$$\text{Total} = 96 + 8 + 4 + 2 + 1 = 111$$

Short-cut: Answer has to be > 96 eliminating options a & b instantly

Common-error - counting each match twice forgetting that two teams are playing and hence not dividing by 2

2. e Will be either 3 or 4 depending on whether the second round was a 'home' match or not.

3. b All teams play atleast 3 away matches in the first round and another 3 away matches in the quarter-final, semi-final and final.

Remember, 'neutral' venue is also an away match for any team.

4. c The fact that the question exists means that only 1 of the 4 options can be right. Check each one till we find a team which, based on its score after 5 games, played can still reach

the 2nd round.

After tabulating the points, we can see that only Benfica has a chance to qualify for the next round. Other teams given in the options will never qualify for the next round.

Sure-shot Approach: Ideally the points for the groups to which each option pertains should be calculated and noted for future use. (1 at a time: and not all at the start). People trying this question mentally stand a good chance at getting it wrong.

Common Speed Breaker: Checking all 4 options inspite of having found the right option, just to be doubly sure, often costs students extra time in the exam. Be sure of yourself!

5. b Easy, the team which has the most money at this stage, which is the team which has won all the games it has played - Arsenal. This question is a rare example of where scanning the data rather than reviewing the options would give a faster solution.

6. c Add results / points for new instructions given and then use options. Need to be done only for the 4 options, not for entire data set.

Anderlecht is yet to score a point so far in the tournament and playing "away" in the last match of the 1st round will result in a loss for them, thus earning 'zero' point from the competition.

7. a All home teams win their matches in their last first round matches. Lyon , Inter Milan, Barcelona, Liverpool and Arsenal have 16, 12, 13, 11 and 18 points respectively.

8. e Cannot be determined because the scores from the last set of matches of round 1 are not available

9. c Can be counted and is equal to 77.

Short-cut: The total number of games won in the last round was 16 and this was an exception as there were no draws in this set, hence, the total number of game won in all 6

rounds has to be $< 6 \times 16 = 96$. This rules out Option (d).

Option (a) is less than 16 (last set wins) and has to be wrong.

Simple observation shows that 38 cannot be the answer, so it has to be 77

10. c Review the options.

Option (a): Even after losing the last match of their group, Juventas and Bayern Munich, with 12 points each will reach the next round, leaving behind club Brugge with 9 points.

Option (b): Rangers by virtue of winning the last match of the group, will end with 9 points, Thus will qualify from group H as a 'runners-up' behind Inter Milan.

Option (c): Lille, after losing the last match of the group (because Lille is playing away in the last match) will end up with only 6 points. So, from group D, Benfica and Villareal will qualify with 8 and 10 points respectively.

So, option (c) is the right answer choice.

11. e Irrespective of their last group match's result both Arsenal and Inter Milan will end up as group winners and hence will also end up losing in the round of 16. Between Juventas and Bayern Munich it cannot be decided who will end up as group runner up as goal difference for last match is not known. Hence answer should be cannot be determined.

12. c As Arsenal has won the most number of games (6) till this stage they are ahead of all teams on the money earners list. Juventus have won 5 & have 0 draws, Liverpool have won 4 & have 2 draws and are hence also behind. Rangers with 2 wins and 3 draw's is not in the reckoning. The key in this question is that the actual values of amount earned need not be calculated.

13. c Again doesn't need to be calculated, the two teams records (wins, draws & losses) need to be compared and are found to be identical

14. a Options (c) & (d) are out as Arsenal has been knocked out as seen in the last question, leaving Juventus as an automatic choice and just a check required between Liverpool & Rangers.

Since all 'Draws' took place in 1st round, comparing the number of draws by Liverpool and Rangers, we get Rangers had 3 draws, while Liverpool had 2 draws. So option (a) is the correct choice.

15. d We have no data on quarter-final results, hence this question only checks on the teams which have definitely been knocked out and hence cannot be in the final. AC Milan & Lyon have both been knocked out, making this an easy choice.

Logical Reasoning

Practice Exercise - B1

For questions 1 to 3:

Note: Jayesh is to the right of Alok, i.e. J, A. Pramod is between Bhagat and Subodh, i.e. B, P, S. Subodh is between Jayesh and Pramod. So the sequence is:

Bhagat Pramod Subodh Jayesh Alok

1. a Alok is at the extreme left end.
2. d Subodh is in the middle.
3. a Statement I is superfluous.

For questions 4 to 8: According to the question from II, we get

D
C

From III, we get

- B
- E
- -
- -
E or -
B -

From IV, we get

- B
- E
- G
E or -
G E
E -
B -

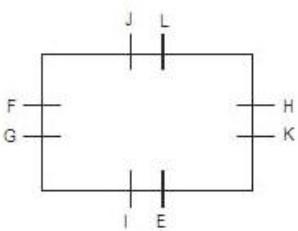
From V, we get
the final sequence
as

B
E
G
E
D ... (1)
C
A

Now on the basis of the sequence given in (1), we can solve rest of the questions very easily.

4. e 5. a 6. c 7. d 8. e

For questions 9 to 13: On the basis of the given information, we arrive at the following sitting plan that does not violate any of the given conditions.



And on the basis of the above figure rest of the questions are solved as follows:

9. e K is seated between E and H.

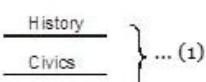
10. c Three persons H, L and J or G, I and E are seated between K and F.

11. b The three lady members are E, H and G.

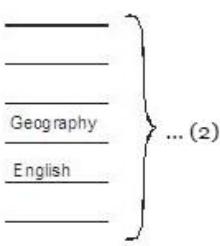
12. c J is to the immediate left of F.

13. a Clearly, J is a male member.

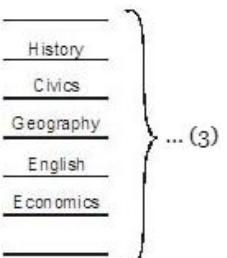
For questions 14 and 15: According to the given question from II, we get



From III, we get



From IV (1) and (2), we get



Since history and civics cannot be at any other place than this, according to the given conditions.

On the basis of this very arrangement, rest of the questions can be solved very easily.

14. c Clearly, C gives us the clue that the science book is placed at the bottom. Thus, we know that there are three books between the civics and science books.

15. d Clearly, history, civics and geography are the three books kept above the English book. To deduce this, no additional information is required.

For questions 16 to 20:

From the given information in the question:

From II, we get Dr Choudhary teaches zoology in Mumbai University.

From III, we get Dr Natrajan is neither in Osmania nor in Delhi University. Therefore, he will be either at Mumbai or Gujarat University. Similarly, as he teaches neither geology nor history, therefore, he must be teaching physics or botany.

... (1)

From IV,

From IV (1) and (2), we get

History
Civics
Geography
English
Economics

} ... (3)

Since history and civics cannot be at any other place than this, according to the given conditions.

On the basis of this very arrangement, rest of the questions can be solved very easily.

14. c Clearly, C gives us the clue that the science book is placed at the bottom. Thus, we know that there are three books between the civics and science books.

15. d Clearly, history, civics and geography are the three books kept above the English book. To deduce this, no additional information is required.

For questions 16 to 20:

From the given information in the question:

From II, we get Dr Choudhary teaches zoology in Mumbai University.

From III, we get Dr Natarajan is neither in Osmania nor in Delhi University. Therefore, he will be either at Mumbai or Gujarat University. Similarly, as he teaches neither geology nor history, therefore, he must be teaching physics or botany.

... (1)

From IV,

Dr Zia → Physics but as he is not teaching in either Mumbai or Osmania University, he must be teaching either in Delhi or Gujarat University ... (2)

From V, we get Dr Joshi teaches history in Delhi University. ... (3)

From (1) and (2), we conclude that Dr Natarajan teaches botany.

And from (1), (2) and VI, we get both Natarajan and Zia teach in Gujarat University. Finally, on summarisation we can prepare the following table.

Names	University	Subject
Dr Joshi	Delhi	History
Dr Davar	Osmania	Geology
Dr Natarajan	Gujarat	Botany
Dr Choudhary	Mumbai	Zoology
Dr Zia	Gujarat	Physics

On the basis of the above table, rest of the questions can be solved very easily.

16. c 17. a 18. d 19. b 20. d

Practice exercise - B2

For questions 1 to 4: The given information can be tabulated as follows.

	Department					
	Civil		Mechanical		Electrical	
	Male	Female	Male	Female	Male	Female
Professor	A	E	H, I	L	O, P	S
Lecturer	B, C, D	F, G	J, K	M, N	Q, R	T

Further, following constraints are added.

$$\begin{array}{l}
 \text{Male lecturer in Civil Department} \quad \times \quad \text{Female lecturer in Electrical Department} \\
 \text{(i)} \quad \therefore (\text{B, C, D}) \quad \times \quad \text{T... (Not allowed)}
 \end{array}$$

$$\begin{array}{l}
 \text{Female professor} \quad \times \quad \text{Male lecturer} \\
 \text{(ii)} \quad \therefore (\text{E, L, S}) \quad \times \quad \text{B, C, D, J, K, Q, R} \\
 \qquad \qquad \qquad \text{(Not allowed)}
 \end{array}$$

As given that BCD cannot be with T and ELS cannot be with BCDJKQR, then using these conditions we can solve rest of the questions very easily.

(1) Choice (a) is not valid as no lecturer from electrical department is there. Choice (b) is not valid as no lecturer from civil department is there. Choice (c) is not valid as no lecturer from mechanical department is there. Therefore, choice (d) is the only valid choice as it justifies all the given conditions.

(2) According to the question, HIL cannot go with BCDFG. ... (1)

The delegation must have minimum three professors. ... (2)

Representation from every department must also be there. ... (3)

Checking from the above conditions, we get

- (a) is not valid as it violates (1).
 - (b) is not valid as A, H, D are males.
 - (c) is again not valid as it violates (1).
 - (d) obviously, it is the valid choice because it fulfills all the conditions.
- (3) According to the question, only civil and electrical departments must be used. ... (1)

Committee must have two professors and two lecturers. ... (2)

There should be at least two female members in it. ... (3)

On applying these conditions, we see only (c) is the combination which does not violate any condition.

(4) From the question we get the following conditions.

Only mechanical department people are used in forming the committee. ... (1)

One must be a lady out of four members ... (2)

I must be one of the members. ... (3)

I cannot work with L or N. ... (4)

M cannot work with N or J. ... (5)

On checking these conditions, we get

- (a) is not valid as it violates condition (4).
- (c) is not valid as no ladies are there.

(d) is not valid as it violates condition (5).

Hence, logically, also choice (b) is the only valid one and it also does not violate any of the given conditions.

1. d 2. d 3. c 4. b

For questions 5 to 8:

Sakshi says that she is the eldest if and only if Rakhi is not the youngest. Therefore, we have (1) $S > R > J$ OR reverse of the above statement, i.e. if Rakhi is the youngest, then Joan is the oldest. Hence, (2) $J > S > R$.

Therefore, Rakhi is younger than Sakshi, in both cases.

Rakhi also says that Sakshi is elder than her. Since two people cannot be lying simultaneously, it is obviously Joan who is lying. As Sakshi is not 27 years of age, so according to Rakhi, she can be of 26 years of age. Because of the difference of three years between Rakhi and Sakshi, Rakhi is 23-year-old and obviously from the last statement, Joan is of 22 years.

Another way of solving this problem is by assuming (one by one), that one of the girls is lying, and the other two are not and then trying out all permutations and combinations.

5. b 6. b 7. b 8. c

For questions 9 to 12:

As given that Rita is married to a police officer and Sophia is a cook, the lawyer's wife which is left is a teacher and she must be Geet. Hence, logically, Rita (artist) is married to Krishnan (police officer). Here out of the remaining options, Ravi and Geet cannot be husband and wife (because they are having an affair). Now we can have the following table.

Husband	Wife
Shankar (Lawyer)	Geet (Teacher)
Ravi (Doctor)	Sophia (Cook)
Krishnan (Police officer)	Rita (Artist)

On the basis of the given information above, Shankar is married to Geet; Ravi is married to Sophia; Krishnan is married to Rita; and on the basis of the above conclusions, we can solve rest of the questions very easily.

9. c 10. c 11. a 12. a

For questions 13 to 16:

The problem can be solved by making an assumption and then checking if there is any contradiction.

Assumption:- Anand is not fighting. So Sanjay and Vivek are fighting.

From (i) Since Sanjay is the one fighting so

Height $S < A \dots (1)$

Age $V < S$

From (ii) Younger of Sanjay and Vivek is Vivek. Therefore Height $V < S \dots (2)$

From (iii) Younger of two fighters is Vivek. Therefore

Height $A < V$

This contradicts the relation from (1) and (2)

of $V < S < A$.

So assumption is wrong

Assumption:- Sanjay is not fighting

From (i) Height $A < S$

Age $V < A \dots (1)$

From (ii) Height $V < A \dots (2)$

Age $V < S$

From (iii)

Taller of Anand and Vivek is Anand from (2)

Younger of Anand and Vivek is Vivek from (1)

These have to be same person which they are not.

So the assumption is also wrong.

Thus Vivek is not fighting.

From (ii) Height $S < A \dots (1)$

Age $S < V$

From (iii) Height $V < A$

Age $A < S$

Thus by Age $A < S < V$

From (i) by height $S < A$

Thus there is no contradiction as (1) also states same.

Finally Sanjay and Anand are fighting. Vivek is not

Heightwise $S < A$ and $V < A$

Agewise $A < S < V$

On the basis of the above conclusions rest of the questions can be solved very easily.

13. a 14. a 15. c 16. c

For questions 17 and 18:

Doctor cannot be a woman. (As the two women,

Sujith's mother and his wife are not blood relatives.) Son cannot be the doctor because he is the youngest of them and all people are his blood relatives.

= Sujith is the doctor. Lawyer can be anyone except Sujith and his mother (Sujith's mother also because of condition I).

17. a 18. c

For questions 19 and 20:

The joker can be with Ajay or Sujith, since Sanjay cannot have it.

Three queens can only be with Sanjay, as 3 queens plus a minimum of 1 king add up to a minimum of 4 cards.

19. d 20. b

Practice Exercise - B3**For questions 1 and 2:**

Here, the best method to solve these questions is going by choices. In (1) choice (b) is only valid choice as it is between 70 and 79 and is not a multiple of 6, whereas other choices are not valid as they do not follow the given criteria.

In (2) obviously, none of the information is superfluous. Therefore, choice (e) is the answer.

1. b 2. e

For questions 3 to 6:

According to the given conditions in the question.

From III and IV, we get that Puneet arrived at the mansion after midnight and because the detective arrived at the mansion at midnight, therefore, Puneet is not the detective ...
(i)

Now the detective can be either Aditya or Vijay.

From II, we get that the detective came at the second number (then only II is justified).

From III and V, we can conclude that Vijay was the earlier arriver between Puneet and Vijay, therefore, he is not the detective. Similarly, from (i) Puneet is not the detective. Therefore, logically, it is Aditya who is the detective and arrived at the mansion at the second number. ... (ii)

From IV, I and VI, we conclude that Vijay came first. Aditya (the detective) came second and Puneet came third. Now from VI Puneet was not the murderer and from I and IV it was Aditya, the detective, who was the murderer (iii)

Using (i), (ii) and (iii) rest of the questions can be solved very easily.

3. c 4. b 5. c 6. a

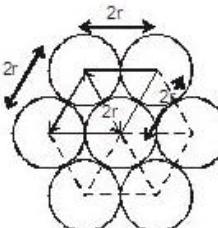
For questions 7 to 9: Simple! You are being asked about the product of which two consecutive integers is equal to product of three consecutive integers. You have two such sets.

(i) $1 \times 2 \times 3 = 2 \times 3$ (This is not possible in this case.)

(ii) $5 \times 6 \times 7 = 14 \times 15$

7. e 8. c 9. e

10. d



In fact you will get a hexagon joining the centres of all the external circles.

For questions 11 to 13:

We have

$$P + Q + R + S = 45 \dots (i)$$

$$\text{and } (P + 2) + (Q - 2) + 2R + \frac{1}{2}S = 45 \dots (ii)$$

$$2(P + Q) = R + S \dots (iii)$$

Solving the equations, we have their ages as follows.

P	Q	R	S
?	?	10	20

11. b 12. c 13. a

For questions 14 to 18: If a room has an odd number of visitors, it will be closed.

Any room number that is twice a perfect square will have an odd number of visitors. The room with the largest such number (twice a perfect square) will be the last room to have an odd number of visitors.

Note that the 38th room with an open door will be the 38th room whose number is not twice a perfect square, which happens to be 88.

As 2000 is in open state initially. And if all the occupants have to do the job then it will remain open as well. Now as occupant of 2000 will not have to do that. And action done by all the occupants from 2 to 1000 will bring that in closed state.

Number of room closed upto 1000 = 22

Since there are 22 twice a perfect square numbers.

Number of remaining room = 500

Number of twice a perfect number between 1000 and 2000 = 9.

All rooms with twice a perfect square between 1000 and 2000 will be open.

$$\therefore \text{Number of room closed} = 22 + 500 - 9 = 513$$

As regards question 18, anyone who lives in a room with a number greater than 1000 will obviously have to visit only that particular room, as it will not have any multiple which is not greater than 2000.

14. c 15. b 16. a 17. a 18. b

19. e The only such number below 200 is 153.

Therefore, Q is 5.

20. e You have two such numbers: 370 or 371.

Therefore, R may be 0 or 1.

Practice Exercise - B4**For questions 1 to 5:**

According to the given information in the question,

we get

O is a bank manager and is a male (as he is married to a lady professor) ... (X)

Q is a medical representative and is a male (as he is the son of M ... (Y)

N is a chartered accountant and is a female (as she is the daughter-in-law of L) ... (Z)

As given in VI that businessman is married to the chartered accountant, this would mean that the businessman cannot be L (as N, chartered accountant, is the daughter-in-law of L), O, Q and P (as they are having different professions, other than business). Therefore, logically M is the businessman with whom N is married. So M is businessman (male). ... (A)

Given that P is an unmarried engineer.

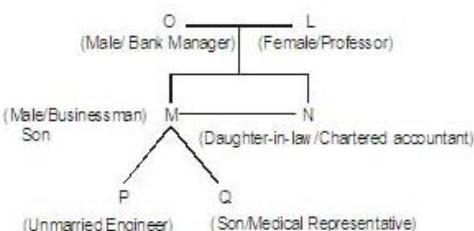
Here as we know the profession of all the members except L and only profession unclaimed is professorship, therefore, L is a professor and because L is the grandmother of Q, therefore, L is female ... (B)

From III, II and (B), we can very clearly conclude that O, the male bank manager is married to lady professor L.

Using (A) and (V), we get that M is the son of L and O.

From (IV), we get that Q and P are kids of M ... (C)

So, all the conclusions using (X), (Y), (Z), (A), (B) and (C) can be depicted with the help of this family tree with the help of which rest of the question can be solved very easily.



1. d
2. c
3. a
4. e
5. b

For questions 6 to 10: The given information can be tabulated as follows.

Choices	Students					
	A	B	C	D	E	F
1	R	M	R	M	M	R
2	B	P	B	C	P	B
3	C	B	T	T	B	P

R ⇒ Reading B ⇒ Badminton

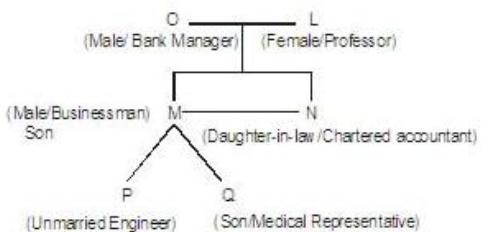
C ⇒ Cricket M ⇒ Music

P ⇒ Painting T ⇒ Tennis

Note: The best way to solve this problem is to fill the information given logically and complete the table. On the basis of the given information the third choice for both C and D would be tennis.

6. c
7. d
8. c
9. c
10. b

For questions 11 to 15: The given information can be tabulated as follows:



1. d 2. c 3. a 4. e 5. b

For questions 6 to 10: The given information can be tabulated as follows.

Choices	Students					
	A	B	C	D	E	F
1	R	M	R	M	M	R
2	B	P	B	C	P	B
3	C	B	T	T	B	P

R \Rightarrow Reading B \Rightarrow Badminton

C \Rightarrow Cricket M \Rightarrow Music

P \Rightarrow Painting T \Rightarrow Tennis

Note: The best way to solve this problem is to fill the information given logically and complete the table. On the basis of the given information the third choice for both C and D would be tennis.

6. c 7. d 8. c 9. c 10. b

For questions 11 to 15: The given information can be tabulated as follows:

Name	Subject	City
A	Philosophy (given)	Hyderabad ... from (i)
B	Mathematics (given)	Bangalore ... from (ii)
C	Economics (as D does not teach economics therefore, C teaches it.)	Delhi (given)
D	History (as only history is left)	Jaipur (given)
E	Geography (given)	Lucknow ... from (iv)

11. b 12. d 13. c 14. d 15. b

Practice Exercise - B5

1. d The seating arrangement of the five people would look like one of the following:

Qamar - Roger - Peter - Steve - Tikolo

Qamar - Steve - Peter - Roger - Tikolo

Tikolo - Roger - Peter - Steve - Qamar

Tikolo - Steve - Peter - Roger - Qamar

Thus, we cannot determine who is sitting to the immediate left of Tikolo.

2. b We can see that

Kamal > Aman, Aman > Samar and Samar > Binay

On combining the three statements we get

Kamal > Aman > Samar > Binay

Hence, Binay is the shortest person.

3. b $H > B + J \dots(i)$

$H + B = T + J \dots(ii)$

$H + J < T + B \dots(iii)$

From (i)

$H > B, J$

Adding (ii) and (iii):

$2H < 2T \text{ or } H < T$

From (ii):

$T - H = B - J$

So $J < B$

Combining the three results $T > H > B > J$

4. d He will need two more men. Let a man requires x units of provisions every day to survive. When the three people start they can carry only $12x$ units of provisions. On the first day they exhaust $3x$ units and are left with $9x$ units. Then one assistant comes back with x units. Cim and the other assistant move ahead, carrying $8x$ units of provisions. On the second day the two men exhaust $2x$ units and are left with $6x$ units. Then the second assistant also comes back with $2x$ units and Cim Jorbett crosses the forest with $4x$ units.

5. b Since both second and third statements can't be false at the same time, one of them has to be true. Then both first and fourth statements are false. So Vimal is not the murderer and the third statement is true. Hence, the second statement is false and Pawan is the murderer.

6. c The only arrangement where all the conditions are met:

Ramesh	Suresh	Tarun
Supervisor	Cashier	Accountant

For questions 7 and 8:

The given information can be tabulated as:

Rank	Name	Shirt colour
1		
2		Yellow
3	Chaman	
4		

Since Dinu was not wearing a yellow shirt and he was not ranked 4th, Dinu must have been ranked 1st. Now Akhil could not have stood 2nd since he was not wearing a yellow shirt, but a red one. So Akhil must have been ranked 4th and Boman ranked 2nd.

The completed table would look like:

Rank	Name	Shirt colour
1	Dinu	
2	Boman	Yellow
3	Chaman	
4	Akhil	Red

7. a 8. d

For questions 9 and 10:

9. d There are three possible cases:

Day	Case 1	Case 2	Case 3
Friday	Reshma	Reshma, Tina	Reshma, Salma
Saturday	Veer	Veer	Veer
Sunday	Batuk, Salma, Tina	Batuk, Salma	Batuk, Tina

10. b There are four possible cases:

Day	Case 1	Case 2	Case 3	Case 4
Friday	Reshma, Salma	Reshma	Reshma, Tina	Reshma
Saturday	Veer, Batuk	Veer, Batuk, Salma	Veer, Batuk	Veer, Batuk, Tina
Sunday	Tina	Tina	Salma	Salma

For questions 11 and 12:

The data can be tabulated as given below:

Round	Winner's first name	Winner's last name	Net Gain/Loss
1	Shivam		Lost ₹60
2		Puri	Lost ₹20
3	Jugal		Gained ₹20
4		Mishra	Gained ₹60

It's given that at the beginning Rakesh had the most money and at the end Sharma had the most. It means that Sharma definitely did better than Rakesh in the game. This is possible only if Sharma won Round 3 and Rakesh won Round 2.

So the completed table would look like:

Round	Winner's first name	Winner's last name	Net Gain/Loss
1	Shivam	Singh	Lost ₹60
2	Rakesh	Puri	Lost ₹20
3	Jugal	Sharma	Gained ₹20
4	Rahul	Mishra	Gained ₹60

11. b 12. a

For questions 13 and 14:

D's brother < D < B

Since C is older than either boy of the other pair of brothers, C is older than at least two of the other boys. So C cannot be D's brother. It means that A is D's brother.

Hence, A < D < B

Since A + B > C + D, C cannot be the oldest among the four.

Hence, A < D < C < B

13. a

14. c

For questions 15 to 17: There are three possible cases according to the given conditions:

	2004	2005	2006	2007	2008	2009	2010
	Ahmedabad	Chennai	Delhi	Ahmedabad	Bengaluru	Chennai	Delhi
Case-1	Bengaluru	Ahmedabad	Chennai	Bengaluru	Chennai	Ahmedabad	Bengaluru
Case-2	Bengaluru	Bengaluru	Chennai	Bengaluru	Chennai	Ahmedabad	Ahmedabad
Case-3	Bengaluru	Ahmedabad	Bengaluru	Chennai	Ahmedabad	Bengaluru	Chennai

15. b The given condition falls under Case-2. Ahmedabad played against Chennai in the final in 2009.

16. a Ahmedabad could have played against Delhi in the final in 2010 only (Case-2). The other team was Chennai in 2006.

17. d The given condition falls under both Case-1 and Case-3. Either Chennai or Ahmedabad played against Bengaluru in the final in 2008.

For questions 18 to 20:

If Darell is nominated, Edward and Finn can't be (Statement (ii)). So the four people nominated will be Adam, Billy, Campbell and Darell. But this violates Statement (iii). It means that Darell can't be nominated under any circumstances.

Now four people are to be nominated from Adam, Billy, Campbell, Edward and Finn. If Adam and Billy both are nominated then Edward cannot be nominated (Statement (i)). So the four people will be Adam, Billy, Campbell and Finn. But none of the four can be nominated as Vice-President. So this case is not possible. Hence, Adam and Billy can't be nominated together. Since Adam can't be nominated without Billy (Statement (vi)), the

one to be left out will be Adam. So the four people nominated will be Billy, Campbell, Edward and Finn.

Finn can be nominated only as President. Since Billy and Campbell can't be Vice-President, Edward will be Vice-President. Since Billy can't be Secretary, Campbell will be Secretary and Billy will be Treasurer.

18. d 19. a 20. c

Practice Exercise - B6

1. a Let us name the squares for the sake of convenience.

1	2	3
4	5	6
7	8	9

Clearly the position 2 and 7 must have been the last respective moves of X and O. So at the end of move 5 the position could have been

X	X	
X	O	
	O	

Case (i)

X		
X	O	
O	O	

Case (ii)

Case-ii is not probable, as O is violating rule (iii - a) and he should have finished the game by putting the third O next to the two O's already present. So Case-i is feasible. The third X must have been put in position 1. One of the possible series of X's and O's can be as follows:

X:2-4-1- 3

O:5-8-7

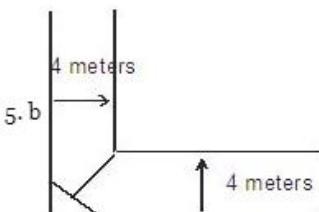
So X will win the game.

2. d Winner of the first match has to win the second match also otherwise this would lead to another match between a couple. Also, the person cannot be a woman because if a woman wins the first match she has to lose the second match because the two women together have won only one match. So the first match is won by a male who also wins his

second match and finally loses his third match to a female. Also, given that Choudharys win more matches than Guptas, the winner of the first match was Mr.Choudhary and the female who eventually is declared winner as she has won the last game is Mrs.Gupta.

3. b Since the number of stairs in temples A and B starts with same digit, the number of stairs in B has to be a single digit number. Also, since the sum of A and B does not change when the number of stairs of C is added, it has to be ending in 0. So it cannot be a single digit number. So the temple with a different number of stairs is B.

4. a Since Mohan is younger than both Ram and Shyam, he is the youngest. This means that Mohan is the tallest as well. So Ram is the oldest and Shyam is not the shortest. Since Mohan is the tallest, Ram is the shortest.



5. b In the first weighing he can get two lots of 12 kg. In the second weighing he can get two lots of 6 kg. In the third weighing he can further divide one of the 6 kg lot into two lots 3 kg. The shopkeeper can then give the customer $(6 + 3 = 9)$ kg of rice.

For questions 7 and 8:

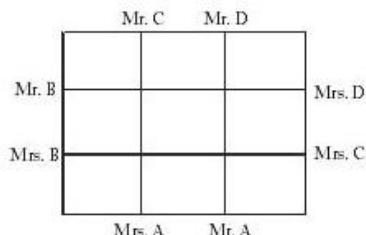
Abhishek doesn't want to purchase LED or LG. Since LED is manufactured by Sony, the three different products are LED of Sony, the LG product and product purchased by Abhishek i.e. Samsung product. Saral would not buy LCD or Sony, so he must buy the LG product and hence Himanshu would buy Sony. The final table looks like:

Buyer	Abhishek	Himanshu	Saral
Manufacturer	Samsung	Sony	LG
Product	LCD	LED	Plasma

7. c 8. c

For questions 9 and 10:

If III and IV are occupied by one couple then two more couples should be adjacent and the quarreling couple shouldn't be adjacent or directly across. Hence, the quarrelling couple should occupy seats II and VII or V and VIII. The only possibility according to the second question is shown below:

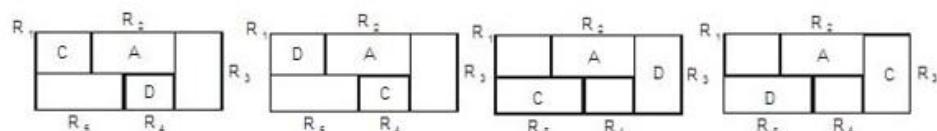


9. a 10. c

For questions 11 and 12:

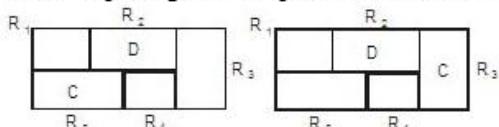
It can be seen that R_2 shares border with all other tents and no other tent has that many adjoining borders. So B, C and E cannot occupy R_2 .

R_2 can be occupied by A or D only. The dimensions of C's tent are the same as that of D's tent. The possible cases when A occupies R_2 are:



Each of the above is not feasible as the remaining two (B and E) are known to border on each other.

So D occupies R_2 . Now the possible cases could be:



Now, only in the second case can a remaining tent share border with two remaining rooms. Thus E is in R_5 . So B is in R_1 and A is in R_4 .

So the thief is A who is in R_4 . (R_4 and R_5 border on the same number of tents.)

11. c 12. a

For questions 13 and 14:

Initially there are 3 possibilities:

1. Both Gyanodaya and La Gyaan are supplied with Maya and Saiji
2. Only Gyanodaya is supplied with Maya and Saiji
3. Only La Gyaan is supplied with Maya and Saiji

In case 1: The only possible combination would be Gyanodaya:M-R-S; La Gyaan:M-R-S

In case 2: There are 3 possible combinations:

Gyanodaya:M-R-S; La Gyaan:M-O-R,

Gyanodaya:M-R-S; La Gyaan:M-R-S (This is a repeat of the only condition of case 1)

Gyanodaya:M-R-S; La Gyaan:O-R-S

In case 3: There are 2 possible combinations:

Gyanodaya:M-O-R; La Gyaan:M-R-S

Gyanodaya:M-R-S; La Gyaan:M-R-S (This is a repeat of the only condition of case 1)

So we have only 4 unique combinations.

We can find the correct combination possible for the first question from the above possible combinations. For the second question it is important to note that the question is asking **COULD**. So there are cases where the option is not satisfied but we have to find just one possibility.

13. d

14. a

For questions 15 to 17:

Let us assume that G, H, J, K, L, M, P and T represent Ganga, Hindon, Jamuna, Kaveri, Lakha, Mandakini, Pushpa and Tigris.

15. c From (ii), H and L are visited before J, so J couldn't be the first.

From (i), P and J are visited before K, so K couldn't be the second.

From (i) and (iii), as K is visited before M and G is visited before K, so G couldn't be the seventh.

16. b

1st	2nd	3rd	4th	5th	6th	7th	8th
P/G/T	P/G/T	P/G/T	L	K	H	M	J

Or

1st	2nd	3rd	4th	5th	6th	7th	8th
P/G/T	P/G/T	P/G/T	L	H	K	M	J

Or

1st	2nd	3rd	4th	5th	6th	7th	8th
P/G/T	P/G/T	P/G/T	H	L	K	M	J

P, G and T are the first three rivers visited. Now, K could be visited 5th or 6th. As H and L both are visited before J, J must be the last river visited.

17. d As K, M and J are visited after L, the possible cases are:

1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th
P/G/T/H	P/G/T/H	P/G/T/H	P/G/T/H	P/G/T/H	L	K/M/J	K/M/J

Also, K in any case must be visited before M. The only case possible is that M is visited before J.

For questions 18 to 20:

The table that can be made with the given information is:

	Samir	Uthappa	Walthaty	Xavier	Yuvি	Zaheer
Ritz	Y	Y	N	Y	N	Y
Swift	N				Y	Y
Vitara	N				Y	Y

All the questions can now be answered using the table.

18. b

19. c

20. c

Practice Exercise - B7

1. b Let they have A, B, C and L sheep with them.

$$\text{Now, } \frac{2A}{3} = B + \frac{A}{3} \text{ Or } B = \frac{A}{3}$$

$$\text{Similarly, } C = \frac{A}{2} \text{ and } L = \frac{3A}{5}$$

Hence, A must be divisible by 3, 2 and 5. So the minimum value of A is 30. The minimum values of B, C and L are 10, 15 and 18. The sum of 30, 10, 15 and 18 is 73.

2. d Assume that Arjun and Pandit have $3x$ and x diamonds respectively. Let the age of Arjun be y years.

$$\text{Now, } 3x - 24 = 2(x + 24) \text{ So } x = 72.$$

$$\text{Also, } 216 + y = 11(72 - y) \text{ So } y = 48.$$

3. c If Akshay wins, the predictions of both Aman and Puneet would be correct.

If Parmeet wins, the predictions of both Sunil and Puneet would be correct.

If Calvin wins, only Sunil's prediction would be correct.

If Binay wins, the predictions of both Aman and Sunil would be correct.

4. b Assume that the man has a total of X pets. So the number of goats, dogs and cats are $X-9$, $X-13$ and $X-14$ respectively.

Also, $X-9 + X-13 + X-14 = X$. Solving, we get, $X = 18$.

5. b Mr. White is definitely not wearing the green suit as the person wearing the green suit was the one who responded to Mr. White's statement. So Mr. White must be wearing the

red suit, Mr. Green must be wearing the white suit and Mr. Red must be wearing the green suit.

6. a Lalita didn't visit between Sushma and Uma therefore all three cannot visit in the first half or second half. Also 7:00 AM and 11:00 PM are not possible as in that case Lalita will definitely visit between the two. At least one female visited between Mamta and Sushma so they both cannot go in the first half and second half. Further analysis will lead us to the final timings of all four ladies as:

Sushma visited at 7AM.

Uma visited at 11AM.

Mamta visited at 6PM.

Lalita visited at 9PM.

For questions 7 and 8:

Let the first and fourth digit of the number be 'a' and 'b' respectively.

Then the five digits are 'a', 'b+2', '2a', 'b', 'a+3'.

Pairs of digits that add up to 12 are (9,3), (8,4), (7,5), (6,6).

No two pairs among these pairs have a digit common; hence at least two digits in the five-digit number should be equal, to have three pairs. 'a' cannot be equal to 2a or a+3. Similarly, b cannot be equal to b+2. Looking at other possibilities:

I. a = 1. The digits are 1, b+2, 2, b, 4. No value of b will give us three pairs that sum up to 12.

II. a = 2, The digits are 2, b+2, 4, b, 5. No value of b will give us three pairs that sum up to 12.

III. a = 3. The digits are 3, b+2, 6, b, 6. No value of b will give us three pairs that sum up to 12.

IV. a = 4. The digits are 4, b + 2, 8, b, 7. Taking b = 5, we get the number as 47857. Here three pairs i.e. (4+8), (7+5), (5+7) add up to 12.

7. c 8. b

For questions 9 and 10: The following cases are possible:

		Positions						
		1	2	3	4	5	6	7
Cases	I	Amar	Dinu/Farhaan	Golu/Ehsaan	Bholu	Farhaan/dinu	Chaman	Ehsaan/Golu
	II	Golu/Ehsaan	Amar	Dinu/Farhaan	Bholu	Ehsaan/Golu	Farhaan/Dinu	Chaman
	III	Chaman	Dinu/Farhaan	Golu/Ehsaan	Bholu	Farhaan/Dinu	Amar	Ehsaan/Golu
	IV	Golu/Ehsaan	Chaman	Dinu/Farhaan	Bholu	Ehsaan/Golu	Farhaan/Dinu	Amar

Now, using statement (iv), Dinu must be at 5 in case I and III and at position 3 in case II and IV. Hence, Farhaan will take the other position in all these cases. Using statement (v) case I and IV will be rejected. Hence we are left with two cases:

I. Golu/Ehsaan, Amar, Dinu, Bholu, Ehsaan/Golu, Farhaan, Chaman

II. Chaman, Farhaan, Golu/Ehsaan, Bholu, Dinu, Amar, Ehsaan/Golu

9. a 10. d

For questions 11 and 12:

There are a total of 17 animals and one cage cannot accommodate more than 6 animals. Hence, the three cages will carry 6, 6 and 5 animals.

Using statement (iii), we can say that Cage I and III will carry 2 lions each. Also, since a lion cannot go with a monkey, all the monkeys should be present in Cage II.

Therefore in Cage I and III, apart from lions, there will be tigers or elephants only. As no tiger can go with an elephant, one of the cages will contain 3 tigers and the other will contain 4 elephants. The table looks like:-

	Cage I	Cage II	Cage III
Animals	2 Lions & 4 Elephants OR 2 Lions & 3 Tigers	1 Elephant & 5 Monkeys	2 Lions & 3 Tigers OR 2 Lions & 4 Elephants

11. b 12. d

For questions 13 and 14:

If Yellow and Magenta cars are in slots II and III of B, then Black and Orange cars must be in slot I and IV of B. Since neither Green nor Purple car is above Black or Orange car, these two cars must be in slots II and III of A. The remaining two cars - Red and White - must be in slots I and IV of A. The table looks like:-

	Slot I	Slot II	Slot III	Slot IV
A	Red OR White	Green OR Purple	Purple OR Green	White OR Red
B	Black OR Orange	Yellow	Magenta	Orange OR Black

13. a If the Green car is in slot III, the Purple car must be in slot II. Since the Red car is directly above the Black car, both of them must be either in slots I or in slots IV.

14. a

For questions 15 to 17:

Using statement (i) and (v) we can say that B, C, D, E and F work on Monday and Tuesday whereas A, B, D, E and F work on Saturday and Friday. Using statement (ii) B and D will work on Tuesday and Friday. D, E and C cannot work together on Monday, Tuesday, Friday or Saturday; so they will work together on Wednesday or Thursday only. But using (iii) they cannot work on Wednesday; so they will work together on Thursday. Now, A will

Therefore in Cage I and III, apart from lions, there will be tigers or elephants only. As no tiger can go with an elephant, one of the cages will contain 3 tigers and the other will contain 4 elephants. The table looks like:-

	Cage I	Cage II	Cage III
Animals	2 Lions & 4 Elephants OR 2 Lions & 3 Tigers	1 Elephant & 5 Monkeys	2 Lions & 3 Tigers OR 2 Lions & 4 Elephants

11. b 12. d

For questions 13 and 14:

If Yellow and Magenta cars are in slots II and III of B, then Black and Orange cars must be in slot I and IV of B. Since neither Green nor Purple car is above Black or Orange car, these two cars must be in slots II and III of A. The remaining two cars - Red and White - must be in slots I and IV of A. The table looks like:-

	Slot I	Slot II	Slot III	Slot IV
A	Red OR White	Green OR Purple	Purple OR Green	White OR Red
B	Black OR Orange	Yellow	Magenta	Orange OR Black

13. a If the Green car is in slot III, the Purple car must be in slot II. Since the Red car is directly above the Black car, both of them must be either in slots I or in slots IV.

14. a

For questions 15 to 17:

Using statement (i) and (v) we can say that B, C, D, E and F work on Monday and Tuesday whereas A, B, D, E and F work on Saturday and Friday. Using statement (ii) B and D will work on Tuesday and Friday. D, E and C cannot work together on Monday, Tuesday, Friday or Saturday; so they will work together on Wednesday or Thursday only. But using (iii) they cannot work on Wednesday; so they will work together on Thursday. Now, A will

have to work on Wednesday, Friday and Saturday. Hence, E and F will work on Saturday. B will work on Wednesday and F will work on Monday and Tuesday. Further analysis leads us to the table given below:

Monday	C, F, E
Tuesday	C, B, D
Wednesday	A, B, F
Thursday	C, D, E
Friday	A, B, D
Saturday	A, E, F

15. b 16. b 17. c

For questions 18 to 20:

Let's assume that statement (i) is true. So Ankur will be the Doctor and his car's slot will be slot 1. Hence, the slots of all other people will be to his right but it contradicts statement (iv) as in that case Basti should be the Doctor.

Let's assume that statement (ii) is true. So Esha must be the Doctor and her car's slot will be slot 4. Hence, all other slots will be to her left but it contradicts statement (iv) again as in that case Basti should be the Doctor.

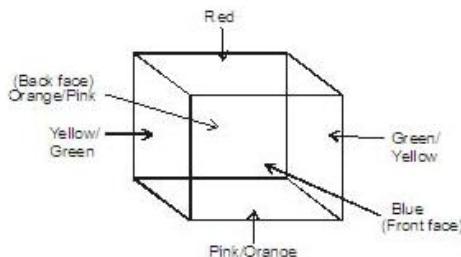
Let's assume that statement (iii) is true. This statement leads us to a case where all the statements are satisfied i.e. Esha is in slot 1, Ankur in slot 2, Chandan in slot 3 and Basti in slot 4. Hence, Chandan is the doctor.

If we assume that statement (iv) is true, it again leads to contradiction.

18. b 19. d 20. b

Practice Exercise - B8

1.b Let us fix the positions of the red and blue coloured faces. As the green and yellow coloured faces are opposite each other, the pink coloured face will necessarily be adjacent to the orange coloured face. Among the given options, orange coloured face will always be adjacent to the green colored face.



2. b I. If Q is selected with S, then X and W both cannot be selected. Thus, R cannot be selected. Also, only one of P or Y can be selected. Thus, the combination is not possible.

II. If Q is selected with Z only, then exactly one of P or Y can be selected. Also, X cannot be selected; therefore, R and W must be selected. Therefore, the combination is possible.

III. If S, Z and Q are selected then W and X cannot be selected. Consequently R can also not be selected. We are now left with P and Y, but can select only one of them. Thus, this combination is also not possible.

3. d Himanshu is not the youngest but is also not wearing the blue shirt. Hence, Himanshu is not the oldest as well. Saral, being older than Puneet, must be the oldest among the three and will be wearing the blue shirt. Puneet, who is the youngest, is wearing the green shirt.

4. b From statement (i), it can be concluded that Bakoo received at least 2 candies.

From statement (ii), possible cases of distribution are:

		Akoo	Bakoo	Chakoo	Dakoo
No. of Candies	Case 1	1	3	4	6
	Case 2	1	2	7	4

Case 2 is rejected, as it does not support statement (iii). The number of candies received by Chakoo must be 4.

5. c From statement (ii) and (iii), it can be concluded that Nikhil is the writer.

Gautam is not the magician (statement (i))

Keshav is not the dentist.

From Statement (ii), it can be concluded that Sudeepto is the dentist.

Hence, Gautam is the dancer and Keshav is the Magician.

6. c

Case	Ankita	Kriti	Monika	Shreya
1	India	India	Japan	Japan
2	India	Japan	India	Japan
3	India	Japan	Japan	India
4	Japan	India	India	Japan
5	Japan	India	Japan	India
6	Japan	Japan	India	India

Case 2 and 5 are rejected on the basis of statement (i).

Case 4 is rejected on the basis of statement (ii).

Case 1 and 6 are rejected on the basis of statement (iii).

Only Case 3 follows:

It is evident that both Ankita and Shreya were born in India.

For questions 7 and 8:

Raja is the oldest. Mohan is not the youngest. Roy is older than Ram. Hence, Ram is the youngest and is at one of the ends. Also, Raja is to the immediate right of Mohan. Possible positions for the two are:

	(----- left to right ----->)			
	1	2	3	4
Case 1			Mohan	Raja
Case 2		Mohan	Raja	
Case 3	Mohan	Raja		

Case 1: Roy and Ram should be at the ends but here one of the ends is occupied by Raja. So this case is not feasible.

Case 2: Only possible case is given below:

	(----- left to right ----->)			
	1	2	3	4
	Ram	Mohan	Raja	Roy
youngest			oldest	

We still can't determine the older between Mohan and Roy.

Case 3: Ram will have to sit next to Raja, as it is already given that Roy is at one of the ends. Hence, this case is not feasible.

7. d 8. d

For questions 9 and 10:

Using statement (iii) we can say that rooms A and E are 405 and 406 respectively and are connected to each other. There are exactly two rooms between D and B; hence, the rooms

must be 401 and 404 respectively as B cannot be 401. C and F are 402 and 403 respectively and are connected to each other.

9. d 10. a

11. d I. If Suraj studies A and B, then he cannot study Q. As he does not study D, he cannot study P. Only the following combination is possible:

A, B, T, R and S

II. If Suraj studies A and C, then he cannot study Q. Also, he can study exactly one of R or S. As he does not study D, he cannot study P. Hence, no combination is possible.

III. Similarly, no combination is possible if Suraj studies only B and C.

IV. If Suraj studies B and D, he cannot study Q. Thus, the following combinations are possible:

(i) B, D, R, S and T

(ii) B, D, P, R and S

12. c (a) If Suraj studies exactly one Language subject, then the following combinations are possible:

(i) D, Q, R, S and T

(ii) D, Q, R, S and P

(b) If Suraj studies exactly two Science subjects, then he must study three Language subjects.

In every possible combination of Language subjects there will be at least one out of A or B. Hence, he cannot study Q.

(c) If Suraj studies exactly three Science subjects, then he must study two Language subjects. Now, when he studies both C and D, then he can study exactly one of R or S. Thus, it is not necessary for him to study S.

13. a If Chatur is allotted a flat, then only the following combinations are possible:

I. Ashish, Bimal, Chatur and Fardeen

II. Ashish, Bimal, Chatur and Grijesh

III. Ashish, Bimal, Chatur and Harish

Thus, if Chatur is allotted a flat, then Dheeraj cannot be allotted a flat.

14. d If Ashish is not allotted a flat, then Bimal cannot be allotted a flat. Thus, Harish also cannot be allotted a flat. Out of the remaining persons:

I. If Dheeraj is allotted a flat then only one of Fardeen and Grijesh can be allotted a flat and only one of Chatur or Ekant can be allotted a flat. Thus, the case is not possible.

II. If Dheeraj is not allotted a flat then only one of Chatur and Ekant can be allotted a flat. Thus, this case is also not possible.

Hence, in any possible combination, Ashish must be allotted a flat.

For questions 15 to 17: If B₁ has more items than B₃ then the following three cases are possible:

	Boxes (number of items)		
	B ₁	B ₂	B ₃
Case 1	3	2	1
Case 2	3	1	2
Case 3	2	3	1

Case 1:

T and U cannot be in B₁, as then at least one out of Q and S must be in B₂, which is not

possible. Only possible ways of distribution are:

	Boxes (items)		
	B ₁	B ₂	B ₃
Way 1	P, Q, R	T, U	S
Way 2	P, Q, S	T, U	R

Case 2:

T and U together can either be in B₁ or B₃. It can also be noticed that Q and S will be in the same box while the only item in B₂ is R. Only possible ways of distribution are:

	Boxes (items)		
	B ₁	B ₂	B ₃
Way 3	P, T, U	R	Q, S
Way 4	P, Q, S	R	T, U

Case 3:

Both T and U must be in B₂. No item among P, S and Q is in B₂. Hence, R must be in B₂. Only possible ways of distribution are:

	Boxes (items)		
	B ₁	B ₂	B ₃
Way 5	P, Q	T, U, R	S
Way 6	P, S	T, U, R	Q

15. c If B₂ has fewer items than B₁ (Case 1), then Q is definitely in B₁.

16. c If B₁ does not get the maximum number of items among the three boxes (Case 3) then R is in B₂.

17. d If R is in B₂ then either Case 2 or Case 3 will apply.

For questions 18 to 20:

possible. Only possible ways of distribution are:

	Boxes (items)		
	B1	B2	B3
Way 1	P, Q, R	T, U	S
Way 2	P, Q, S	T, U	R

Case 2:

T and U together can either be in B1 or B3. It can also be noticed that Q and S will be in the same box while the only item in B2 is R. Only possible ways of distribution are:

	Boxes (items)		
	B1	B2	B3
Way 3	P, T, U	R	Q, S
Way 4	P, Q, S	R	T, U

Case 3:

Both T and U must be in B2. No item among P, S and Q is in B2. Hence, R must be in B2. Only possible ways of distribution are:

	Boxes (items)		
	B1	B2	B3
Way 5	P, Q	T, U, R	S
Way 6	P, S	T, U, R	Q

15. c If B2 has fewer items than B1 (Case 1), then Q is definitely in B1.

16. c If B1 does not get the maximum number of items among the three boxes (Case 3) then R is in B2.

17. d If R is in B2 then either Case 2 or Case 3 will apply.

For questions 18 to 20:

Let the number of matches played by Ankit, Feroz, Gagan, Jatin and Manoj be 'a', 'f', 'g', 'j' and 'm' respectively. Also, it is given that each match involved exactly two players. Hence, if a total of 'N' matches are played, then $a + f + g + j + m = 2N$, which is even. Also, total number of matches played by each of Gagan, Jatin and Manoj could be 1 or 3 only. It cannot be 2 because Ankit played exactly 2 matches and it cannot be 4 because Feroz played the maximum number of matches.

Case I:

Number of matches played by each of Gagan, Jatin and Manoj is 3.

Thus, the number of matches played by Feroz will be 4. The sum of the individual matches played by each of the five players is $2 + 3 + 3 + 3 + 4 = 15$, which is not possible, as the sum cannot be odd.

Case II:

The number of matches played by each of Manoj, Jatin and Gagan is 1. Jatin and Gagan cannot play with each other, as then Feroz's total matches won't be 3. Further analysis leads to the following table:

	Ankit	Feroz	Gagan	Jatin	Manoj
Ankit		Yes	X	Yes	X
Feroz	Yes		Yes	X	Yes
Gagan	X	Yes		X	X
Jatin	Yes	X	X		X
Manoj	X	Yes	X	X	

18. b 19. a 20. d

Practice Exercise - B9

1. b According to the given statements A, B, C, D and E can be arranged in decreasing order of strength as follows:

D(strongest) > A > E > B > C(weakest)

Hence, C is the weakest.

2. d The square can be filled in the following two ways:

R	B	P	O
P	O	R	B
O	P	B	R
B	R	O	P

R	P	O	B
B	O	P	R
P	R	B	O
O	B	R	P

Hence, either O or B can replace the question mark.

3. a After analyzing the first two wrong codes entered, it can be concluded that neither A nor D is at any of the first two positions. Similarly, neither C nor B is at any of the last two positions.

Possible codes that satisfy the above are:

Cases	Positions			
	1	2	3	4
(i)	B	C	A	D
(ii)	B	C	D	A
(iii)	C	B	A	D
(iv)	C	B	D	A

Case (ii) and case (iii) are rejected on comparing them with the third wrong code entered.

It is also given that C appears after B. Hence, case (i) is the only possibility and the second last letter in the code is A.

4. c The given table represents the Player-Game-Shift combination.

PLAYER	GAME	SHIFT
A	Tennis/Squash/ Basketball	Morning
B	Tennis	Morning / Evening
C	Basketball	Evening
D	Tennis	Evening/ Morning

C definitely goes to the club in the Evening shift.

5. a Let N_2 be the number of days when a packet of 2 bottles was purchased. Similarly, let N_4 , N_5 and N_8 be the number of days when a packet of 4, 5 and 8 bottles are purchased respectively.

It is given that

$$N_2 + N_8 < N_4$$

$$\text{And } N_4 + N_8 < N_5$$

To maximize the number of bottles purchased,

$$N_8 + N_5 + N_4 = 7 \text{ and } N_2 = 0$$

$$\text{Also, } N_5 > N_4 > N_8$$

Solving these we get,

$$N_5 = 4$$

$N_4 = 2$ and $N_8 = 1$

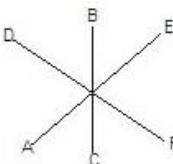
Number of bottles purchased = $5 \times 4 + 4 \times 2 + 1 \times 8 = 36$

6. a According to the question, if C runs faster than A, then D runs slower than B and faster than F; but this is not possible as in that case F will be the slowest which is in contradiction to the given data. Therefore, A runs faster than C and is the fastest.

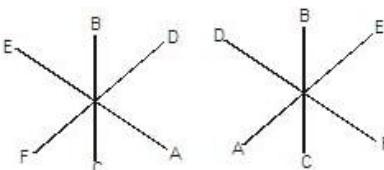
7. c If D is switched ON before E, then the only arrangement possible is DACEBF. Therefore the 5th switch to be switched ON is switch B.

8. b If B, D and C are the 1st, 3rd and 5th switches to be switched ON then the only arrangement possible is BEDACF. Therefore A is switched ON at 4th position.

9. d According to the given conditions the circular arrangement is:



10. c According to the given conditions the circular arrangements possible are:



Therefore, E can never sit to the immediate right of D.

For questions 11 and 12:

According to the given conditions, the ranks of the students in the two lists are summarized below:

Student	Age	Height
Ajay	1	4 or 3
Bijay	3	1
Chandragupta	5	4 or 3
Dheeraj	4	5
Ehsaan	2	2

11. c The fourth tallest person is the one who was awarded rank 2 in the list according to the heights. The person is Ehsaan.

12. d Ehsaan got the same rank in both the lists.

For questions 13 and 14:

Since a different number of balls is to be put in each box and each box must contain at least one ball, the only possibility is that the three boxes must have 1, 2 and 3 balls. Also, according to statement (i), Red ball and Blue ball must always be placed together. According to statement (ii), Orange and Pink balls can never be together (because if they are together then White and Black balls must also be together which is not possible as in that case there will be three groups of two balls each). According to statement (iii) and statement (iv), Red ball and Blue ball will always be in the box containing two balls. According to the given conditions, the arrangements can be as follows:

BOX 1	BOX 2	BOX 3
Pink	Red	Orange
		White
	Blue	Black

Or

BOX 1	BOX 2	BOX 3
Orange	Red	Pink
		White
	Blue	Black

13. a Red ball can never be put in the box containing three balls.
 14. b Orange ball can be put in the box containing exactly 1 ball.

For questions 15 to 17:

PERFORMANCE	PERFORMER	POSITION
Trapeze	Ram	4
Acrobatics	Shyam	3
Juggling	Jai/ Kishan	1
Magic	Kishan/Jai	2

15. b The Acrobat was the third person to perform.
 16. d If Kishan is the Juggler, then the arrangement would be:

PERFORMANCE	PERFORMER	POSITION
Trapeze	Ram	4
Acrobatics	Shyam	3
Juggling	Kishan	1
Magic	Jai	2

17. d Statement (d) gives a unique performance-performer combination.

For questions 18 to 20: Let seniority be defined in terms of levels from 1 to 4, where Level 1 - Senior most employee and Level 4 - Junior most employee. Then the following table summarizes the correct arrangement.

Employee Name	Rank (Level)	Room
A	1 or 2	Penthouse or Deluxe Suite
B	2 or 3	Deluxe Suite or Suite
C	1 or 2 or 3	Penthouse or Deluxe Suite or Suite
D	4	Quarter
E	4	Quarter
F	1	Penthouse
G	2	Deluxe Suite
H	3	Suite

18. a G is junior only to F.
 19. b If B is junior to only two employees i.e. B is at level 2, then A must be at level 1 and C must be at level 3. Hence, C is junior to B.
 20. d Even if B is junior to only four employees i.e. B is at level 3, the exact seniority of A and C cannot be found out.

Practice Exercise - B10

1. c From (i), the person who travelled by car must have reached third because two persons reached together. From (iii), the person who travelled by plane couldn't have reached third, as the person who travelled by bus and Kavya reached together. Now, Kavya could have reached first, second or third and the person who reached with her would have travelled by bus. As Ehsan travelled third he could have travelled by car or bus.

2. b Let us assume P, Q and R were the three books kept in the same order.

After the first student came, the positions of the books could be:

(R, P, Q) or (Q, R, P).

After the second student came, the positions of the books could be:

(P, R, Q), (R, Q, P) or (Q, P, R).

Finally, one of the books was necessarily on its original position only.

3. a Let Anita, Babita, Charu, Divya and Ellie be represented by A, B, C, D and E. Let us assume that the five friends are standing from left to right. As the number of friends shorter than B is same as the number of friends lighter than C, the number of friends to the left or right of B is the same as the number of friends to the left or right of C. The possible arrangements are: (B/C, __, __, C/B) or (__, B/C, __, C/B, __).

As Anita is taller than Ellie and heavier than Divya, this means that from left to right the order in which they are standing would be: D = A = E. Therefore, the final possible arrangements are: (B/C, D, A, E, C/B) or (D, B/C, A, C/B, E).

4. d It is given that the number of bananas with each is different and hence, so is the number of guavas. So the only combinations possible are: (0, 4), (4, 0), (1, 3), (3, 1) and (2, 2).

From the first statement, the number of guavas with Ria and Sia could be (1, 4) or (2, 3).

From the second statement, the number of bananas with Dia is 0 and so the number of guavas with Dia is 4. So the number of guavas with Ria and Sia is 2 and 3 (not necessarily in the same order). Hence, the difference between the number of bananas with Gia and the number of guavas with Tia is

(4 - 1) or (3 - 0).

5. a The number of coins with Asha could be the same as are there with Kshama, Sohan or Fana.

The number of coins with Ravi could be the same as are there with Sohan or Fana.

The number of coins with Karan is the same as are there with Fana.

So the number of coins with Ravi is the same as are there with Sohan and the number of coins with Asha is the same as are there with Kshama.

6. d

1	4	10	20
1	3	6	10
1	2	3	4
0	1	1	1

The number mentioned at each intersection is the number of ways of reaching to that intersection. Thus, the total number of ways in which the letter can be passed is 20.

For questions 7 and 8:

Let us start by fixing awards won by Sharad, Notebook in Round I and Desktop in Round II.

From (v), Rinku must have won Desktop in Round I. Now, as Rajat won an award in each round, so Zamar and Waheed didn't win any award in Round I. From (vi), Desktop must have been won by Rajat in Round III. So he must have won two Laptops in rounds I and II. Further analysis leads to the following table.

	Round I	Round II	Round III
Rajat	Laptop	Laptop	Desktop
Sharad	Notebook	Desktop	-
Zamar	-	Notebook	Notebook
Rinku	Desktop	-	-
Waheed	-	-	Laptop

7. a 8. a

For questions 9 and 10:

It is given that the dice are identical. So in every set of three numbers, two numbers will be on the opposite faces. Let us start with the first set:

Case I: 1 and 4 are on the opposite faces. Thus, from the second set of numbers, 2 and 5 are opposite each other and so 3 and 6 are opposite each other.

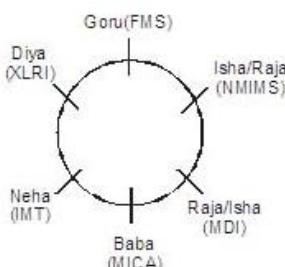
Case II: 1 and 3 are opposite each other. Thus, from the third set, 5 and 6 are opposite each other and so 2 and 4 are opposite each other.

Case III: 3 and 4 are opposite each other. Thus, from the second set, 2 and 5 are opposite each other. But this case is not possible as the third pair, 1 and 6, cannot be formed.

9. c 10. b

For questions 11 and 12:

By using (i) and we can fix the position of Baba opposite the student of FMS. From (v), we can infer that Baba is neither from NMIMS nor from IMT. Thus, both MDI and NMIMS students sit to the right of Baba and the IMT student sits to the immediate left of Baba. From (iv), Diya sits to the immediate right of the FMS student and thus, Baba is the MICA student. From (ii), Goru is the FMS student and sits to the immediate right of the NMIMS student and immediate left of the XLRI student. Further analysis leads to the following arrangement:



11. d 12. d

For questions 13 and 14:

Case I:

Let "Sonal studies Chemistry" be true, thus "Rekha studies Physics" would be false. It implies that "Kirti studies Biology" is true and "Sonal studies Maths" is false. It gives us two possible cases:

Name	Rekha	Sonal	Kirti	Hema	Bhavna
Subject	English	Chemistry	Biology	Maths	Physics
Subject	Maths	Chemistry	Biology	Physics	English

Case II:

Let "Sonal studies Maths" be true, thus "Rekha studies Physics" would be true. It implies that "Kirti studies Biology" is false and "Hema studies Maths" is also false. So "Bhavna studies English" is true. It gives us the following case:

Name	Rekha	Sonal	Kirti	Hema	Bhavna
Subject	Physics	Maths	Chemistry	Biology	English

Case III:

Let "Sonal studies maths" and "Sonal studies chemistry" both be false. So "Rekha studies physics" and "Kirti studies Biology" both will be true. It gives us the following case:

Name	Rekha	Sonal	Kirti	Hema	Bhavna
Subject	Physics	English	Biology	Maths	Chemistry

13. b 14. d

For question 15 to 17:

Let Anita, Babli, Chaman, Dheeraj, Ehsan, Feroz and Gauri be represented by A, B, C, D, E, F and G. Also, let the parties be Party I, Party II and Party III.

From (vi), assume that both C and D went to Party I and one of them went to Party II. The remaining one couldn't go to three parties; else C and D would have met twice. From (iv), B went to Party I. From (iii), exactly one of F or G went to each party. From (ii), E went to either Party II or Party III. Now, if E went to Party III, then, A must have gone to Party III only, keeping in mind conditions (i) and (v). Thus, F also went to Party III only. If, E went to Party II, then A must have gone to Party III only, keeping in mind conditions (i) and (v). Further analysis leads to the following tables:

Case I:

Party I	C, D, B, G	4 persons
Party II	C/D, F, E	3 persons
Party III	G, A	2 persons

Case II:

Party I	C, D, B, G	4 persons
Party II	G, C/D	2 persons
Party III	A, F, E	3 persons

15. b 16. d 17. c

For questions 18 to 20:

From (i) and (ii),

	N
T	Q

 From (iii),

O	L
---	---

From (iv),

R	
P	

 From (v),

M	S
---	---

Further analysis leads to the following table:

Either (O, L) or (M, S) fills the remaining spaces.

		N
R	T	Q
P		

18. d 19. c 20. a

Practice Exercise - B11

1. a The only possible move is to pick one stone from Box B, i.e. stone number 3. Now whatever Abhishek chooses to pick he cannot win if Saral plays rationally.
2. d There are two possible cases.

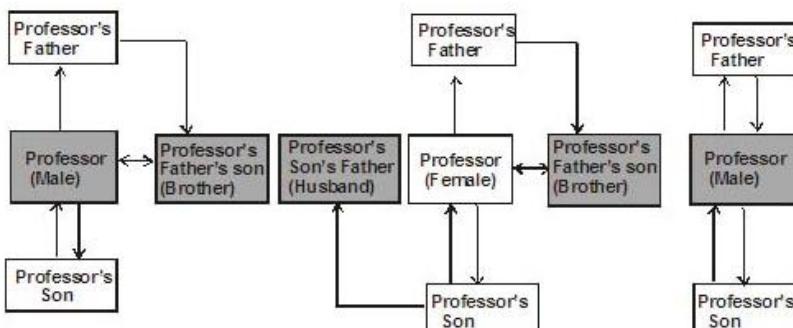
		Case-I	Case-II
5 Adults	Men+Women	1+4	2+3
7 Children	Boy + Girl	2+5	1+6
3 Males	Men + Boys	1+2	2+1
9 Females	Women + Girl	4+5	3+6

$$\begin{array}{lcl} \text{Men-Women pairs} & = & 1 \times 4 \quad 2 \times 3 \\ \text{Boy-Girl pairs} & = & 2 \times 5 \quad 1 \times 6 \end{array}$$

For Case-I, If X is a women, then $1 \times (4+1) = \text{half of } 2 \times 5$

For Case-II, If X is a boy, then $2 \times 3 = \text{half of } (1+1) \times 6$

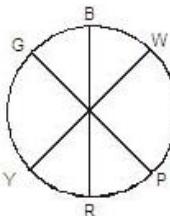
3. d



Above are the three cases that are possible. In the first case, where professor is a male, he is talking to his brother. In the second case, where professor is a female, the professor's

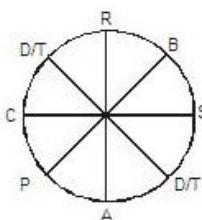
brother is talking to his brother-in-law. In the last case, the professor is talking to himself which is not possible. Hence, none of the statements can be definitely false.

4. b Let the colours be denoted by their initials.



The person wearing red shirt sits opposite the person wearing blue shirt. The person wearing white shirt is sitting opposite person wearing yellow shirt. The person wearing green shirt is sitting to the immediate right of the person wearing blue shirt. The person wearing white shirt isn't sitting adjacent to the person wearing green shirt.

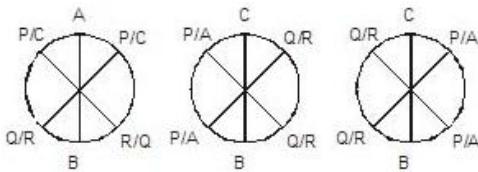
5. b Let the names be denoted by their initials. The possible arrangement is as shown below.



Aditya occupies a seat opposite Rani. Sonam sits second to the right of Aditya. It will also be second to the left of Rani. Now since no two girls sit opposite each other and Chetan sits to the immediate left of Preeti, the only possible place for him is opposite Sonam. On the remaining two places, Dilip and Trisha can sit interchangeably.

6. c With the given information we know that A > B, C and D > C > E > F. A is not tallest. So D will be the tallest person. Now D > A > C > E > F. B lies somewhere between A and F. Now using the last statement, we can say that the correct arrangement is D > A > B > C > E > F or D > A > C > B > E > F.

For questions 7 and 8: Let the names be denoted by their initials.



Bhim sits opposite a boy. Also Priya must sit next to Amit as he cannot sit adjacent to Queeni or Rumjhum. Hence, Priya will always sit opposite a girl whatever be the position of Amit.

7. b

8. d "Bhim sits to the right of Rumjhum" is not sufficient to answer. As this would give a valid arrangement in first case, will reject the second case but leaves the third case ambiguous. It could be one or two right in third case. Hence we cannot determine the exact position.

For questions 9 and 10:

It is given that both men who are not intelligent are standing next to A. The possible cases could be

Column	I	II	III	IV
?	A	?	?	
Intelligent	no	yes	no	
Hard working		yes		
Lazy		no		

Column	I	II	III	IV
?	A	?	?	
Intelligent	no		no	yes
Hard working				yes
Lazy				No

Now for C to stand next to 2 lazy persons has to be in Column III in both the cases. In both the cases he will have 1 not lazy person by his side (i.e. A or person in Column IV). So it is not possible.

Column	I	II	III	IV
C	A	?	?	
Intelligent	no	yes	no	
Hard working		yes		
Lazy		No		

Column	I	II	III	IV
?	A	?	C	
Intelligent	no		no	yes
Hard working				yes
Lazy	yes	yes	no	no

So C stands in Column IV and hence is intelligent, hardworking and not lazy.

9. d

10. c Now the man who is intelligent, hardworking and not lazy is A or person standing in Column IV. Also, from the previous question, C has to stand next to 0 lazy person and others stand next to 1 lazy person each.

So he can stand in Column I or IV not III because if C stands in Column III the person in Column IV and A will be not lazy. So the condition of other person standing next to 1 lazy person each cannot be met.

Now out of following two cases the first case can be ruled out as C ends up standing next to exactly 1 hardworking person which is not possible as B is the only person to do so.

For questions 11 and 12:

The bars can be visited in one of the three orders: F-H-M, F-M-H or M-F-H. Now without violating the other conditions we will have a number of possibilities, but we need not go into it. We can solve this question just by looking at the options.

11. a Option (d) is ruled out as F is visited by two friends. Option (c) is ruled out because R precedes Q, Option (b) is ruled out because S visits after V. So we are left with just Option (a).

12. c We have seen that bar H can be visited only at second or third visit. Option (c) can never fulfill the required condition wherein each bar is visited by at least one of the friends. If Q, S and V together went to the bar in second or third visit then R or T will have to precede them and hence it is impossible.

For questions 13 and 14:

13. a If Harish does Relation Management then Soft Skills must be done by Gouri. So Options (c) and (d) are eliminated. Also, since Tangential Thinking is done by Jyoti and Harish, Relation Management must be done by Mahua. Hence, option (b) is also eliminated and we are left with Option (a).

14. b If Harish and Mahua do both the assignments together then Gauri and Jyoti will do Soft Skills which is not possible. Hence, Options (c) and (d) are eliminated. If Harish and Jyoti do both the assignments then it clearly violates the condition that if Jyoti helps to finish Tangential Thinking, then Mahua helps in finishing Relation Management. Hence, option (a) is also ruled out and we are left with option (b).

For questions 15 to 17:

Let the names be denoted by their initials. The possible structure of the schedule would look like one of the following, where a blank can be replaced by none, one, two or three letters depending on other conditions:

Case I, __J__-L-G__

Case II, __L-G-J__

Case III, __J-G-L__

Case IV, __G-L__-J__

In case I first blank can be filled by F or none. The second blank can be filled by F or H. The last blank can be filled by one or more of F, H and K.

In case II first blank can be filled by F or none. The second blank can be filled by one or more of F, H and K.

In case III first blank can be filled by F or none. The second blank can be filled by one or more of F, H and K.

In case IV first blank can be filled by F or none. The second blank can be filled by F or K. The last blank can then be filled by one or more of F, H and K.

15. d

14. b If Harish and Mahua do both the assignments together then Gauri and Jyoti will do Soft Skills which is not possible. Hence, Options (c) and (d) are eliminated. If Harish and Jyoti do both the assignments then it clearly violates the condition that if Jyoti helps to finish Tangential Thinking, then Mahua helps in finishing Relation Management. Hence, option (a) is also ruled out and we are left with option (b).

For questions 15 to 17:

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Case II, __L-G-J__

Case III, __J-G-L__

Case IV, __G-L__J__

In case I first blank can be filled by F or none. The second blank can be filled by F or H. The last blank can be filled by one or more of F, H and K.

In case II first blank can be filled by F or none. The second blank can be filled by one or more of F, H and K.

In case III first blank can be filled by F or none. The second blank can be filled by one or more of F, H and K.

In case IV first blank can be filled by F or none. The second blank can be filled by F or K. The last blank can then be filled by one or more of F, H and K.

15. d

16. c If we know that Jaspal's interview is at 5 P.M. then it becomes case IV and we can fill the remaining blanks. The final list would be F-G-L-K-J-H.

17. d Lalu's interview cannot start at or after 5 P.M.

For questions 18 to 20:

Let the formulations be denoted by their initials. We can see that the combinations H-R, H-T, H-R-T, V-H-R-T, V-H, V-R, V-T and V-R-T are not possible. So we can say that the possible combinations could be:

H-M, V-M, R-T, R-M, T-M, R-T-M

18. d 19. d 20. a

Data Redundancy and Data Dependency

Practice exercise - C1

1. b From hint I, $3a^3 - a^2 + 9a - 1 \geq 2$

$$\Rightarrow 3a^3 - a^2 + 9a - 3 \geq 0$$

$$\Rightarrow (3a - 1)(a^2 + 3) \geq 0$$

Since $(a^2 + 3)$ is always greater than 0,

$$(3a - 1) \geq 0 \text{ or, } a \geq \frac{1}{3}$$

From hint II, $2a \geq 6a^2$

$$\Rightarrow 6a^2 - 2a \leq 0 \Rightarrow 2a(3a - 1) \leq 0 \text{ or, } 0 \leq a \leq \frac{1}{3}$$

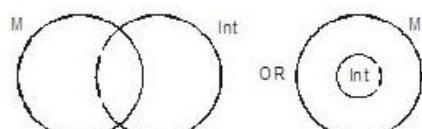
From hint III, $a \geq 0$

It is to be noticed that hint III can be deduced by either hint II or hint I. Combining hints I and II, we get the value of a as $\frac{1}{3}$.

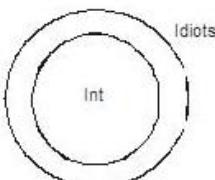
So hint III is redundant

2. c We interpret the hints one by one.

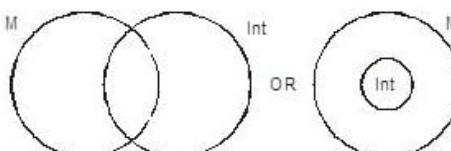
Hint I: Not all morons are intelligent



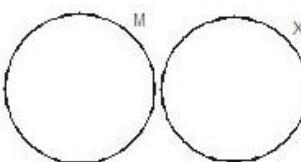
Hint II: There is no intelligent who is not an idiot. In other words, all intelligents are idiots



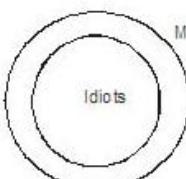
Hint III: Some morons are intelligent



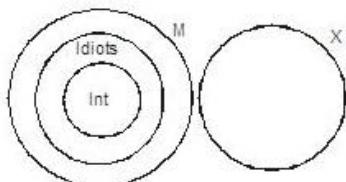
Hint IV: X is not a moron



Hint V: All idiots are morons



Now, we need to check whether X is intelligent or not. Here, all the intelligents are idiots (II) & all idiots are morons (V). Further, X is not a moron (IV). Hence, X cannot be intelligent



We do not require hints I & III

3. c We have more than 1 redundant hints in this question. Therefore, it would be better to go by the options.

Option (a): II & III are redundant. Hence, I & IV are required. 200 people out of which 26 unmarried females. Number of males is not known & hence, number of married females cannot be determined.

Option (b): I & IV are redundant. Hence II & III would be sufficient.

116 males

50% of 116 = 58 married males

\Rightarrow 58 married females as well

So the question can be answered

Option (c): III are redundant. So, I, II & IV must be used. 116 males & 26 unmarried females, therefore we can find the married females i.e. 58.

If I & IV are redundant. Hence, II & III are sufficient.

Option (d): IV & II are redundant. Hence, from I & III, 50% males are married. Each married person is accompanied by his/her spouse. therefore,

married females = married males = unmarried males

But we do not know about the unmarried females.

Hence, the question cannot be answered.

Please note that once we get option (c) as correct choice, we need not check the other options.

For questions 4 to 6:

Another new type of question set. Basically, instructions would have given you the idea that the question is not to be answered but the information required to find the answer to the question must be singled out from the sea of data.

We analyze the facts one by one in a tabular format.

Fact #	Height	Weight
(i)	C > D	C > D
(ii)	D > B	B > C
(iii)	A > B	B > A
(iv)	-	C > D A
(v)	A C > B D	-
SUMMING UP	C > A > B D	B > C > D A

4. a Here, we are interested in the weights of B and D relative to each other. We see that the first two facts tell us that B > C and C > D. Thus, both of them combined have told us

that $B > C > D$ and hence, $B > D$. Note that even (iii) and (iv) combined would have directed us to the result

$(B > A > D)$. But in the options, we had

- a. (i), (ii) $B > C > D$
- b. (ii), (iii) No information about D
- c. (i), (iv) All information (about weights) in fact
(i) is already contained in fact (iv).
- d. (ii), (v) Fact (v) does not tell anything about
weights and (ii) alone is insufficient.

So, only option (a) contains all the facts required to answer the question. The answer to the question asked is "YES", but we have nothing to do with that answer.

5. c Here, a sequential procedure was to be followed. First, we had to find who is the shortest individual. Then, we had to find who is the heaviest individual. Finding both of them can confirm if the same individual is referred or not. Hence, from facts (i), (ii) and (iii) we get to know that B is the shortest as well as heaviest. So, option (c) is correct.

6. c From option (a), it becomes clear that B or C cannot be the lightest (because they are heavier than somebody). But lightest could be either A or D.

From option (b), information revealed is that C or A is not the lightest. But still, we cannot be sure about D because information about B is still concealed.

From option (c), we come to know that neither B nor C nor A is the lightest. Hence, D has to be the lightest.

From option (d), it can be seen that fact (v) is worthless as far as the data about weights go. Also, facts (i) and (ii) do not confirm D as the lightest among all.

Therefore, option (c) consists of sufficient facts and hence, is our answer.

In questions 7 to 11, the task was not to identify the option containing sufficient facts, but to tell the minimum sufficient number of facts required. In this scenario, *redundancy* and *intersection* of the information in the facts must also be kept in mind while marking the answer. In these questions, the ultimate result acquired through the synthesis of all the information given by all the hints taken together would be employed.

7. a In the table, we can see that C is the tallest. Height order of C can be computed by fact (v) alone, which directly tells that C is the tallest. Minimum 1 fact required. Option (a).

8. c From the table, B is the heaviest. To know that B is the heaviest, we must make sure that there is at least one person heavier than each of A, C and D. For that purpose, we require facts

[(ii) AND (iii) AND { (i) or (iv) }]. Minimum 3 facts required. Option (c).

9. a We can see in the table that D is not the shortest. To confirm this, we need just one information that could tell us that there is at least one person shorter than D. Fact (ii) tells us just that. Only one fact required. Option (a).

10. b From the table, D is the lightest. To know that D is the lightest, we must make sure that there is at least one person lighter than each of A, B and C. For that purpose, we require facts

[(iv) AND { (ii) or (iii) }]. Minimum 2 facts required. Option (b).

11. c B is the shortest. To know that B is the shortest, we must make sure that there is at least one person shorter than each of A, C and D. Only facts [(ii) AND (iii) AND { (i) or (v) }] can confirm the premise that B is the first in ascending order of heights. Minimum 3 facts required. Option (c).

For questions 12 to 20:

This is a typical kind of set similar to that featured in CAT 2005. The questions asked you to decipher the data and then ascertain the dependency of the two statements specific to each question. Hence, it must be understood that these kinds of questions ask for a bit more than forming cases or inferring a pictorial / tabular simplification of the information. The data can be synthesized as:

Five ladies	Colour of sarees
Mrs. Laali	Red
Mrs. Neelima	Blue
Mrs. Hariyaali	Green
Mrs. Kesari	Orange
Mrs. Shyama	Black

However, the colour of the saree worn by an individual lady in particular is not known.

Only possible source of information to come to any kind of conclusion regarding the colour of saree each lady wears is the following table along with three additional information given in the question.

Colony	Number of extra-marital affairs				
	Colour of the saree				
	Red	Blue	Green	Orange	Black
Affection	2	4	2	3	1
Adorable	4	2	4	2	3
Fondness	1	3	4	1	3
Total	7	9	10	6	7

Since time is what we fall short of while attempting such crucial questions in any exam, we must turn as economical for that resource as possible. Therefore, Mrs. Laali will be addressed as L, Mrs. Neelima as N, Mrs. Hariyaali as H, Mrs. Kesari as K and Mrs. Shyama as S from now on.

Information 1: K is having 1 affair more than N

Interpretation: Number of affairs of K **has to** be exactly one more than that of N.

The possibilities from the table above are

N = 6 and K = 7 or

N = 9 and K = 10

There is no other possibility. So it is clear that: -

(i) N wears the orange saree or blue saree

(ii) K wears the red or green or black saree

Also,

N (blue) \Rightarrow K (green) and N (orange) \Rightarrow K (black / red)

Information 2: S has lesser affairs than L

Interpretation: S < L. First things first. S cannot be maximum(Green) and L cannot be minimum(Orange). That is because number of affairs of S is less than someone else's. Hence, it cannot be maximum (10 for green).

Similarly, number of affairs of L is greater than that of someone else. So, it can never be minimum (6 for orange).

Information 3: In Adorable colony, H has the maximum number of affairs.

Interpretation: From the table, we can see that the maximum number of affairs in Adorable colony is 4, which are those of the lady in Red and the lady in Green. Hence, H is wearing either Red or Green.

Now, we must move on to the questions.

12. c Straight from the information 3, we deduced that H is in red or green. So, none of the two statements is definitely true. However, exactly one of them is true. Hence, option (c)

13. a Option (a): Statement I tells that green is the colour of the saree worn by K. And since, from information I, if total affairs of K = 10, total affairs of N will be 9, that means N is wearing blue coloured saree. So statement I confirms statement II. Note that we assumed statement I to be true and concluded the truth of statement II. Hence, this option is correct.

Option (b): If statement II is assumed to be true, then according to information 1, i.e. $K = 1+N$, K has 10 affairs. Hence, K wears green saree which makes statement I true. So option (b) is not correct, because it concludes statement I to be false.

Option (c): If statement I is assumed to be false, then K doesn't wear green saree. Hence, she wears either red or black saree. That means, number of her affairs = 7. Thus, number of affairs of N = 6 (orange saree). So statement II is also false. Hence, option (c) is not correct, because it concludes statement II to be true.

Option (d): None of the two statements is definitely true because there are other cases possible.

14. a 2 affairs in Affection colony means either red or green. And Mrs. Hariyali is in one of red or green sarees (from information 3). Hence, statement I is true. 2 affairs in Adorable colony means either blue or orange. And from information 1, we have seen that K cannot wear blue or orange. Hence, statement II is also true.

15. d S cannot be green and L cannot be orange from information 2. Hence, only statement II is true.

16. c We know that K wears the red or green or black coloured saree only. Hence, blue is not possible. Green coloured saree for K is possible. So from the options, we see that option (c), which says that statement II is true and statement I could be false, is the correct option.

Now information 1, 2 and 3 must be combined for necessary deductions. If N is not wearing orange, she must be wearing blue. And $N(\text{blue}) \Rightarrow K(\text{green})$. This way, H (green or red) has to wear red. And since $S < L$, S (orange) and L(black) is the only combination possible for N wearing blue.

Now, we assume that N is wearing orange. Hence, K will be wearing black or red. When K wears red, H (green or red) wears green and hence S wears black and L wears blue (because $S < L$). When K wears black, H wears green or red and accordingly, S wears red or blue obeying $S < L$.

The exhaustive list of possibilities

Red (7)	Blue (9)	Green (10)	Orange (6)	Black (7)
H	N	K	S	L
K	L	H	N	S
S	L	H	N	K
H	S	L	N	K

17. a Minimum number of affairs = 6 (orange). Neelima not wearing orange means she wears blue. In that case, Shyama will wear orange (see table) and she would be having only 1 and not 3 affairs in Fondness colony. Neelima wearing orange means Shyama could be wearing red or blue or black. 3 affairs in Fondness colony is true for lady wearing blue saree and lady wearing black saree. Shyama could have 1 affair in Fondness colony if she happens to wear the red saree. Hence, statement II could be true if statement I is false.

18. c We know that S cannot wear green. And K cannot be orange because K can be red or green or black only. Hence irrespective of the conditions, both statement I and statement II are definitely false.

19. d Option (a): If we take statement II to be true, L has maximum (4) affairs in Affection colony. So she wears blue saree. In that case, H has the maximum number of affairs (green saree). Hence if statement II is true, statement I is also true. This option claims that statement I is false. Hence, not the right option.

Option (b): If statement I is taken to be false, H doesn't have maximum affairs and therefore, she doesn't wear green. So she wears red. It implies that L could wear black or green. Therefore, L can never have maximum affairs in Affection colony (which is true for lady wearing blue only). So statement II is certainly false. Hence, this option is not correct.

Option (c): Both the statements are not independently true, as can be seen from the table. We do have cases when H does not have maximum number of affairs. Hence, this option is not valid.

Option (d): H having maximum affairs means H is wearing green (10 affairs). In that case, L definitely wears blue (as can be seen from the table) and hence she has the maximum affairs in Affection colony (4 affairs).

So, statement II is necessarily true if, statement I is true.

So, this is the right option choice.

20. b Option (a): If statement I is true, H doesn't wear green. That means, H wears red. Correspondingly, S could wear orange or blue, and not necessarily orange.

Option (b): H not wearing green means H wears red. In that case, S can wear blue or orange. But when it is given that S wears orange, we can see from the table that H wears red for sure (and hence not green). So given that statement II is true, we can infer that statement I must be true. So, this is the right option choice.

Option (c): If statement I is false, it means that H wears green. Then S wears black or red but never orange. Hence if statement I is false, statement II would necessarily be false and not true.

Option (d): If statement II is false, S wears black or red or blue saree. Hence, H may or may not wear the green saree.

Practice exercise - C2

1. b Statement I can be factorized as $[x - 3][x - 1] = 0$ giving two possibilities, statement II is also a quadratic

equation but when factorised it yields $(x - 1)^2 = 0$

2. b Statement I does not give any information, since if 'x' is -ve and 'y' is +ve, then also x^2y is +ve and if x is +ve and y is +ve, then also x^2y is +ve.

Statement II tells us either both x and y are +ve or both -ve. In either case $\frac{x}{y}$ is +ve.

3. d From statement I, we have $x^2 - 7x \geq 8$, means $x^2 - 7x - 8 \geq 0$. So $(x - 8)(x + 1) \geq 0$. So $x \leq -1$.

And $x \geq 8$. And combining with statement II, we get $x = 8$.

4. e Both the conditions are not sufficient to say if $xy > 1$.

Since if $x = 0.25$ and $y = 10$

$\therefore xy = 2.5 > 1$ and if $x = 0.025$

$y = 1.2$

$xy < 1$

\therefore Answer is (e).

5. b From statement I, we have $\frac{1}{x} < 1$

Consider $x = 4$

$$\therefore \frac{1}{4} = 0.25 < 1; \text{ for } x > 1$$

Now consider $x = -4$

$$\therefore \frac{1}{-4} = -0.25 < 1; \text{ for } x < 1$$

So even if 'x' is > 1 or $x < 1$, statement I is satisfied. Thus, we cannot say from that if $x > 1$ or $x < 1$

From statement II, we get $x^2 < 1$

$$x^2 - 1 < 0$$

$$(x + 1)(x - 1) < 0$$



Thus, we can say that x lies between +1 and -1. Thus, x is not greater than 1. Thus, (b).

6. e $2x > 6$ implies $x > 3$, while $3x < 10.9$ implies $x < 3.6333$.

Hence, the answer cannot be conclusively determined.

7. d From statement II, we get x as positive.

Hence, using this in the first statement we can infer that $x > y$.

8. d Since the value of $x^2 - 7x + 12$ either increases or decreases depending upon the domain of x, both statements I and II are required to answer the question.

9. b Statement I implies that x can be between 1 and 2 or -1 and -2.

Statement II implies that x is between 1 and 2.

10. a Statement I is true only if $a = b = c = 0$

11. d From statement I, we can say

$$\frac{1}{0.25} = 4 > 1$$

$$\frac{1}{2} = 0.5 < 1$$

Thus, statement II is needed where $x < 1$

∴ Answer is (d).

12. e From statement I, $\frac{m}{n} = n + p$ cannot be said if $n > p$. From statement II, $n > m$, i.e. $n = km$, where $k > 1$

Again it cannot be said if $n > p$. Combining, $\frac{m}{n} = \frac{n}{p}$

$$\therefore \frac{1}{x} = n + p, \text{ i.e. } n + p < 1$$

It cannot be determined if $n > p$.

13. a From statement I,

$$a = 40^\circ$$

$$\therefore a + b + c = 180^\circ$$

$$\therefore b + c = 140^\circ$$

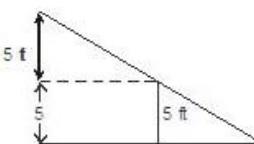
$$\text{And } x + b + c + y = 360^\circ$$

$$\therefore x + y = 360^\circ - (b + c) = 360^\circ - 140^\circ = 220^\circ$$

∴ The answer is (a).

14. b From statement I alone we do not get the answer.

From statement II alone we get the height as 10 ft. From the figure below.



Thus, statement I is of no importance.

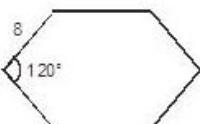
Thus, (b).

15. c From statement I, we get as below



Thus, we can find each side and hence the area.

From statement II, we get



Thus, area can be found out independently.

Thus, (c).

16. d Statement I is not enough to answer the question as the line could be the Y-axis or parallel to the Y-axis. Statement II is not enough as there could be infinite lines passing through (6, 0).

However, statements I and II together indicate that line I does not pass through the origin. So the question is answered using both the statements.

17. e Considering both statements carefully, it is not possible to prove the congruency of the two triangles, as even though both are right-angled and have the same perimeter. Their corresponding sides might measure differently and they might still add up to the same perimeter.

18. b In DPQR,

let angles be $\angle P = p$, $\angle Q = q$ and $\angle R = r$.

From statement I, $q = r$

$$\angle PRS = 180 - r$$

$$\therefore \angle TRS = \frac{1}{2}[180 - r]$$

This is not sufficient to deduce that $TR \parallel PQ$.

$$\text{From statement II, } p = q = \frac{180 - r}{2} = 90 - \frac{r}{2}$$

$$\text{And } \angle TRS = \frac{1}{2}[180 - r] = 90 - \frac{r}{2}$$

$\therefore TR \parallel PQ$ using corresponding angles are equal.

19. c Sum of the radii of the two smaller circles is equal to the radius of the larger circle also the two smaller circles have equal radius. (Both the circles touch the centre and circumference of the larger circle at one point each.) Thus answer is (c) as we can find out 'R' independently from 2 sentences.

20. c From statement I the angles are 30, 90 and 60 which means the triangle is a right-angled triangle.

Hence, area can be found.

Statement II is also sufficient since the sides of the triangle are in the ratio $1:\frac{1}{2}:\frac{\sqrt{3}}{2}$, i.e. the triangle is a right-angled.

LRDI Practice Test - 1

1. b Total amount spent on ad = Ad spent on (Print + TV + Others)

In 1998 = 6824, in 2000 = 8988

$$\text{Average annual growth rate of ad spent} = \left[\left(\frac{8988}{6824} \right) - 1 \right] \times \frac{100}{2} = 15.8\%$$

2. b Growth rate of ad spent is the highest for TV as shown:

$$\text{Print} = \left(\frac{4745}{3820} \right) - 1 = 24.2\%$$

$$\text{TV} = \left(\frac{3542}{2460} \right) - 1 = 44\%$$

$$\text{Others} = \left(\frac{701}{544} \right) - 1 = 28.8\%$$

$$3. \text{ e Amount spent on TV as a percentage of total ad spent for 1999} = \left(\frac{2952}{7687} \right) = 38.4\%$$

4. b Decreases continuously.

$$5. \text{ c } \left(\frac{512.02}{2365.23} \right) \times 100 = 21.6\%$$

6. b Exports of pearls in September 1998 have fallen by US \$0.26 million ($0.54 - 0.28$) from the value in September 1997.

$$\text{Percentage decrease} = \frac{0.26}{0.54} = 48.1\%$$

$$7. \text{ e } \left(\frac{0.28}{16.63} \right) \times 100 = 1.68\%$$

$$8. \text{ e } \left(\frac{2365}{2860} \right) \times 100 = 82.7\%$$

$$9. \text{ e } (210 - 220) + (225 - 230) + (232 - 215) + (215 - 205) + (215 - 248) + (226 - 247) + (245 - 239) + (250 - 223) + (217 - 248) = - 40$$

10. c Export earnings of jewellery + leather = 32% of 230 food grain imports = 46% of 225.

$$\text{Percentage of food grain imports that could not be paid for} = \left[1 - \frac{(0.32 \times 230)}{(0.46 \times 225)} \right] \times 100 = 28.88\%$$

11. b In June, cotton exports = 27% of (100 - 7.25)% of 215 = $0.27 \times 0.9275 \times 215 = ₹53.8$ million

12. e Chemical import = $0.23 \times 225 = ₹51.75$ million

Export of jewellery = $0.18 \times 230 = ₹41.4$ million

Difference to be covered by spices = ₹10.35 million

Spice exports = $0.07 \times 230 = ₹16.1$ million

$$\text{Thus, percentage of export of spices spent in chemical imports} = \left(\frac{10.35}{16.1} \right) \times 100 = 64.28\%$$

$$13. \text{ c Export earning from cotton in April in US dollar} = \frac{(0.27 \times 220)}{42} = \$1.41 \text{ million}$$

Import of chemicals would cost $0.23 \times 210 = ₹48.3$ million

For this to match \$1.41 million, the exchange rate has to be $\left(\frac{48.3}{1.41} \right) = 34.25$

For questions 14 to 16:

Total matches played = 50

Total number of Losses = $44 + Y$

$$\text{Total number of Ties} = \frac{11+Z}{2}$$

Total matches played = number of loss + number of ties

Total number of wins = Total number of losses

$$\text{So, } 50 = 44 + Y + \frac{11+Z}{2}$$

$$\Rightarrow 2Y + Z = 1$$

Since Y and Z are non-negative integers.

$$Z = 1, Y = 0$$

$$\text{So, } X = 19.$$

$$14. \text{ c } 15. \text{ a } 16. \text{ e}$$

For questions 17 to 19:

$$17. \text{ b Total oranges produced in May} = 31 \times 5 = 155$$

Checking the options,

$$(1) 26th June$$

$$\text{Total oranges needed by Kitto} = 1 + 2 + 3 + \dots + 26 = 351$$

$$\text{Total oranges produced till (and on) 26th June} = 155 + 26 \times 8 = 155 + 208 = 363$$

So, 12 oranges will be left.

(2) 27th June, Kitto will be in need of 27 oranges.

Taking a clue from option (1), maximum available orange = $12 + 8 = 20$.

So, it will run short of oranges on 27th June.

$$18. \text{ b Total oranges produced in May} = 31 \times 8 = 248$$

Checking the options,

$$(1) 1st July$$

$$\text{Total oranges needed till (and on) 1st July} = 1 + 2 + \dots + 31 = 496$$

$$\text{Total oranges produced till (and on) 1st July} = 62 \times 8 = 496$$

On 2nd July, kitto will obviously run start of oranges.

$$19. \text{ e Total oranges needed till 1st July} = 1 + 2 + \dots + 15 + 15 \times 15 = 345$$

$$\text{Total oranges produced till 1st July} = 31 \times 5 + 30 \times 8 = 395. \text{ So oranges left on 1st July} = 50.$$

20. d Combining I and II: There are 25 students, one girl and 24 boys in the class. Santosh's rank is 24th in the class and since the girl is not 25th, she has to be above Santosh. Therefore, Santosh's rank among the 24 boys is 23rd. So the answer is (d).

21. d Combining I and II, the code for 'love you' is 'mike sika' (from I). If we combine I with II, 'you' has to be 'mika'. So 'love' has to be 'sika'. The answer is (d).

22. e All that we can get after combining the information given in the two statements is that 'God is' coded as 'mau pau', but we cannot find out exact code of God.

23. c Statement I:

Z has to be second.

Taking a clue from option (1), maximum available orange = $12 + 8 = 20$.

So, it will run short of oranges on 27th June.

18. b Total oranges produced in May = $31 \times 8 = 248$

Checking the options,

(1) 1st July

Total oranges needed till (and on) 1st July = $1 + 2 + \dots + 31 = 496$

Total oranges produced till (and on) 1st July = $62 \times 8 = 496$

On 2nd July, kitto will obviously run start of oranges.

19. e Total oranges needed till 1st July = $1 + 2 + \dots + 15 + 15 \times 15 = 345$

Total oranges produced till 1st July = $31 \times 5 + 30 \times 8 = 395$. So oranges left on 1st July = 50.

20. d Combining I and II: There are 25 students, one girl and 24 boys in the class. Santosh's rank is 24th in the class and since the girl is not 25th, she has to be above Santosh. Therefore, Santosh's rank among the 24 boys is 23rd. So the answer is (d).

21. d Combining I and II, the code for 'love you' is 'mike sika' (from I). If we combine I with II, 'you' has to be 'mika'. So 'love' has to be 'sika'. The answer is (d).

22. e All that we can get after combining the information given in the two statements is that 'God is' coded as 'mau pau', but we cannot find out exact code of God.

23. c Statement I:

Z has to be second.

X has to be third.

Y has to be first.

Statement II:

Y finished second.

Z has to be third.

X has to be first.

Thus, both the statements individually give the answer.

24. e Combining I and II: We known that A and C are males, and B and D are females. But we do not know the gender of E who could be a male or female.

25. e Combining I and II:

Even after combining both the statements, we cannot determine who is the tallest. It could be either Rohit or Manish. When we say that Rohit is not taller than Manish, it means Rohit could be of the same or lesser height than Manish.

LRDI Practice Test - 2

1. d All are true.

2. e New demand is 114% of 175000 = 199500 pairs.

So demand supply gap = 199500 - 175000 = 24500 pairs

3. a Actual demand in 1995-96 is 110% of 190 = 209000 pairs

Actual production in 1995-96 is 85% of 190 = 161.5 thousand pairs

So (Demand - Supply) = 209 - 161.5 = $47.5 \times 1000 = 47500$ pairs

4. b IT has the lowest acquisition value US \$21.6 m.

5. b For 2001 - 03, average acquisition

$$\text{cost} = \frac{\$1.6\text{b}}{120} = \$13.3\text{m}$$

So 3 companies were acquired at lower than average cost - Expert Information Services, Alpharma, Dashiqiao.

6. d The Australian companies were acquired at a higher value as compared to the others,

Total = US \$ 59.5 m

Next is USA = US \$ 39.8 m, then UK and then China.

7. e London Stock Exchange has more than 15 companies listed. But how many exactly is not known. Also, a company may be listed in more than one international stock exchange.

So we have no data to confirm that these more than 25 companies are all different.

8. c Top 3 acquisition value = US \$ 386.4 m

The total acquisition value for top 9 acquisitions in the period = US \$ 461.5 m.

Hence ratio = 5 : 6

For questions 9 to 11: The following table can be made:

	(all figures in rupee crores)					
	2004			2005		
	Revenue	Profit %	Profit	Revenue	Profit %	Profit
A	4600	15	600	6720	12	720
B	3900	30	900	5000	25	1000
C	2700	35	700	3840	28	840
D	6600	10	600	5000	25	1000
E	7700	10	700	8800	10	800

By the given information, A is Dixons and D is Eletropaulo.

9. a Here B is Coleco. The second highest profit in 2004 is ₹700 crore. So both Alta Vista and Bultaco is the answer.

10. b Here C is Alta Vista. The highest profit earned by any Company in 2005 is ₹1000 crore.

So, from the choices, Coleco and Electropaulo is the answer.

$$11. e \% \text{ increase in profit over 2004 of A: } = \frac{120}{600} \times 100 = 20\%$$

$$\% \text{ increase in profit over 2004 of B: } = \frac{100}{900} \times 100 = 11.11\%$$

$$\% \text{ increase in profit over 2004 of C: } = \frac{140}{700} \times 100 = 20\%$$

$$\% \text{ increase in profit over 2004 of D: } = \frac{400}{600} \times 100 = 66.67\%$$

% increase in profit over 2004 of E: $\frac{100}{700} \times 100 = 14.28\%$

Here E is Bultaco.

So C is either Coleco or Alta Vista.

Hence, the data is insufficient.

For questions 12 and 13:

A total of 5 different arrangements is possible

$X_1 - X_3$ $X_2 - X_5$ $X_4 - X_6$
 $X_1 - X_4$ $X_2 - X_5$ $X_3 - X_6$
 $X_1 - X_4$ $X_2 - X_6$ $X_3 - X_5$
 $X_1 - X_5$ $X_2 - X_4$ $X_3 - X_6$
 $X_1 - X_6$ $X_2 - X_4$ $X_3 - X_5$

12. b From the various possible arrangement shown above, there are two possible arrangements for (X_1, X_4) .

13. b If the pairs (X_1, X_3) , (X_1, X_5) , (X_1, X_6) , (X_2, X_6) or (X_4, X_6) are given, then all other pairs can be determined,

while if the pairs (X_1, X_4) , (X_2, X_4) , (X_2, X_5) , (X_3, X_5) or (X_3, X_6) are given, then all other pairs can't be determined.

Therefore required probability = $\frac{\text{Total number of favourable cases}}{\text{Total number of possible cases}} = \frac{5}{10}$

For questions 14 to 16:

Designation	Manager	Assistant Manager	Executive
Salary	15x	12x	8x
Name	Anny	Bobby	Citra

Name	Anny	Bobby	Citra
Expenditure	5y	4y	3y

14. d Anny does not draw the maximum and the Executive does not spend the minimum. Hence, Anny is not the Manager and Citra is not the Executive.

	Anny	Bobby	Citra
Manager	x		
Assistant Manager			
Executive			x

Now if we analyse the options,

Option (a) is wrong, since Citra cannot be the Executive. Hence, our conclusion can never be reached.

Option (b) says that Bobby is the Manager. Since Citra cannot be the Executive, she has to be the Assistant Manager and therefore our conclusion is contradicted.

Option (c) says that Citra is not the Assistant Manager. That means Citra is the Manager. Now, either of Anny or Bobby can be the Assistant Manager. Hence, the information in this option is not sufficient for us.

Option (d) tells us that Bobby is the Executive. Since, Anny cannot be the manager, she must be the Assistant Manager. So this option is the correct choice.

15. c Manager spends the maximum. Hence, Anny is the Manager.

Since Bobby is the executive, hence Citra must be the Assistant Manager

Conclusion says that Citra saves the maximum.

Designation	Manager	Assistant Manager	Executive
Name	Anny	Citra	Bobby
Salary	15x	12x	8x
Expenditure	5y	3y	4y
Savings	$15x - 5y$	$12x - 3y$	$8x - 4y$

$$\text{Savings} = \text{Salary} - \text{Expenditure}$$

$$\text{Bobby's savings} = 8x - 4y$$

Bobby earns less than Citra and spends more than her.

So, her savings are certainly lesser than that of Citra. Since, according to the conclusion drawn, Citra saves the maximum, we have

$$(12x - 3y) > (15x - 5y) \Leftrightarrow 2y > 3x$$

Therefore, if with the help of certain additional information, we can establish $2y > 3x$, that will be the right answer choice.

We have logically deduced that Anny is the Manager and Citra is the Assistant Manager. So, options (b) and (d) can be out rightly rejected.

In option (a), Anny's savings is twice her expenditure. Therefore, Anny's salary must be three times her expenditure.

$$\Rightarrow 15x = 3 \times 5y$$

$\Rightarrow x = y$ and hence Citra is not saving the maximum.

In option (c), Citra's salary is twice her savings. Hence, her salary is also twice her expenditure.

$\Rightarrow 12x = 2 \times 3y \Rightarrow y = 2x \Rightarrow 2y > 3x$ and hence this information is correct as well as sufficient to lead us to the stated conclusion.

So, option (c) is the right choice.

$$16. \text{ a } \text{Citra's savings} = \text{Citra's expenditure} = \frac{1}{2} \times \text{Citra's salary}$$

Citra's savings is 25% less than that of Assistant Manager. Therefore, Citra is not the Assistant Manager.

Designation	Manager	Assistant Manager	Executive
Salary	15x	12x	8x

Case I:
Citra is the Manager **Case II:**
Citra is the Executive

$$\begin{aligned} \Rightarrow 3y &= \frac{1}{2} \times 15x & 3y &= \frac{1}{2} \times 8x \\ \Rightarrow 2y &= 5x & 3y &= 4x \end{aligned}$$

If Citra happens to be the Manager,

Then, Executive's savings is either equal to $(8x - 4y)$ or $(8x - 5y)$, which can never be negative.

But, if Citra is the Manager, then $2y = 5x$.

Therefore, both $(8x - 4y)$ and $(8x - 5y)$ become negative quantity, which is not possible.

Hence, Citra has to be the Executive.

$$\therefore \text{Citra's savings} = 8x - 3y = 6y - 3y = 3y$$

This saving is 25% less than the savings of the Assistant Manager.

Hence, Assistant Manager must be saving 4y.

$$\Rightarrow 12x - \text{Assistant Manager's expenditure} = 4y$$

$$\Rightarrow 9y - \text{Assistant Manager's expenditure} = 4y$$

$$\Rightarrow \text{Assistant Manager's expenditure} = 5y$$

Therefore, Anny is the Assistant Manager and thus, Bobby is the Manager.

Designation	Manager	Assistant Manager	Executive
Name	Bobby	Anny	Citra
Salary	15x	12x	8x
Expenditure	4y	5y	3y
Savings	$\frac{29}{3}x$ or $\frac{29}{4}y$	$\frac{16}{3}x$ or 4y	4x or 3y

Conclusion says that savings of Executive is ₹12,000 per month. Hence, $4x = 3y = 12000$.

Assuming the stated conclusion to be true, we can compile the following table.

Designation	Manager	Assistant Manager	Executive
Name	Bobby	Anny	Citra
Salary	45000	36000	24000
Expenditure	16000	20000	12000
Savings	29000	16000	12000

Option (a) says that Executive spends ₹12000 per month. This enables us to find the stated conclusion.

Option (b): Bobby is the Manager but monthly salary of Citra, if ₹36000 per month would mean that $8x = 36000$ and hence, $x = 4500$ (misleading)

Option (c): Anny is the Assistant Manager but if she saves ₹20000 per month, $4y = 20000$ and hence,

$y = 5000$ (misleading)

Option (d): Manager's salary = $15x$

Anny's expenditure = $5y$

It gives $x = 1600$ (misleading)

So, option (a) is the correct choice.

17. d From the first condition the number can be

97

79

88

From the second condition we get

11

22

33

:

99

∴ From I and II combined we get number as 88.

∴ Answer is (d).

18. a Statement I implies that y is odd since the only way for the average of x and y to be a whole number is that $x + y$ must be even. Statement II is not sufficient since either y or $y + 1$ must be even.

Hence, $x + y + y + 1$ must be even.

Option (d): Manager's salary = $15x$

Anny's expenditure = $5y$

It gives $x = 1600$ (misleading)

So, option (a) is the correct choice.

17. d From the first condition the number can be

97

79

88

From the second condition we get

11

22

33

:

99

∴ From I and II combined we get number as 88.

∴ Answer is (d).

18. a Statement I implies that y is odd since the only way for the average of x and y to be a whole number is that $x + y$ must be even. Statement II is not sufficient since either y or $y + 1$ must be even.

Hence, $x + y + y + 1$ must be even.

19. e Since the ball that has been picked up is not identified, the probability cannot be found.

20. e Statement I gives probability of A winning but here we do not know the number of contestants.

Statement II provides the information that there are only 2 contestants but we do not know the probability of a tie. Thus, answer is (e).

21. e In statement I, 2500 includes families who have neither of the devices and no data is given about such families. Hence, even statement II is not useful.

LRDI Practice Test - 3**For Questions 1 to 4:**

Let p, q, r, s, t, u, w, x and y be the aggregate marks obtained by P, Q, R, S, T, U, W, X and Y in 5 tests taken together.

Therefore marks obtained by P, Q, R, S, T, U, W, X and Y in Mock Test 1 is

$$\frac{3p}{17}, \frac{q}{8}, \frac{r}{5}, \frac{s}{11}, \frac{2t}{5}, \frac{2u}{15}, \frac{v}{7}, \frac{3w}{17}, \frac{4x}{15} \text{ and } \frac{y}{6}$$

$$\text{Given } \frac{s}{5} > \frac{2t}{11} > \frac{3w}{17} > \frac{y}{6} > \frac{3p}{17} > \frac{q}{8} > \frac{4x}{15} > \frac{2u}{15} > \frac{v}{7} > \frac{r}{5}.$$

1. b Marks obtained by P, Q, R, S, T, U, V, W, X and Y in Mock Test 5 is

$$\frac{5p}{17}, \frac{3q}{8}, \frac{7r}{30}, \frac{s}{3}, \frac{3t}{11}, \frac{u}{3}, \frac{5v}{14}, \frac{5w}{17}, \frac{x}{3} \text{ and } \frac{4y}{15} \text{ respectively.}$$

It is also known that

$$\frac{s}{5} > \frac{2t}{11} > \frac{3w}{17} > \frac{y}{6} > \frac{3p}{17} > \frac{q}{8} > \frac{4x}{15} > \frac{2u}{15} > \frac{v}{7} > \frac{r}{5}.$$

Therefore $s/3$ is definitely greater than

$$\frac{5p}{17}, \frac{7r}{30}, \frac{3t}{11}, \frac{5w}{17}, \frac{x}{3} \text{ and } \frac{4y}{15}.$$

Therefore S, Q and U can possibly be the persons who scored the highest marks in Mock Test 5.

2. d V.I. of V in Mock Test 5 = $\frac{13v}{35}$

V.I. of W in Mock Test 4 = $\frac{134w}{425}$

V.I. of P in Mock Test 2 = $\frac{11p}{85}$

V.I. of X in Mock Test 5 = $\frac{8}{25}x$

V.I. of Q in Mock Test 2 = $\frac{7q}{80}$

We also know that $\frac{3w}{17} > \frac{3p}{17} > \frac{q}{8} > \frac{4x}{15} > \frac{v}{7}$.

From the above conditions nothing can be said about V.I. of V in Mock Test 5. Rest of them are definitely less than the V.I. of W in Mock Test 4.

3. e Marks obtained by T in chemistry section of Mock Test 4 = 30 % of $\frac{5t}{22} = \frac{3t}{44}$

R in Mock Test 3 = $\frac{9r}{100}$. If $\frac{3t}{44} > \frac{9r}{100}$, then $t > \frac{99r}{75}$ which is not necessarily true as the only information known is $t > 1.1r$.

X in Mock Test 1 = $\frac{3x}{25}$. If $\frac{3t}{44} > \frac{3x}{25}$, then

$t > \frac{44x}{25}$ which is not necessarily true as the only information known is $t > \frac{22x}{15}$.

S in Mock Test 4 = $\frac{28s}{375}$. Not necessarily true.

Y in Mock Test 2 = $\frac{y}{15}$. As $t > \frac{11y}{12}$, therefore $\frac{3t}{44}$ is not necessarily more than $\frac{y}{15}$.

R in Mock Test 5 = $\frac{21r}{200}$ not necessarily true.

None of the cases mentioned in I - V are definitely less than T's marks in Chemistry in Mock Test 4.

4. b Let 't' and 'r' be the aggregate marks obtained by T and R in all the mock tests combined together

$$\text{V.I. of T in Mock Test 3} = (2(16 + 48) - 36) \left(\frac{5}{22}\right)$$

$$t = (92 \times 5) \frac{t}{22}$$

$$\text{V.I. of R in Mock Test 5} = (2(45 + 33) - 22) \left(\frac{7}{30}\right)r$$

$$= (134 \times 7) \frac{r}{30}$$

Required Ratio = 450 : 469.

5. c Number of bottles of Z left unsold at the end of month A = 60.

If maximum possible number of bottles were manufactured, then maximum possible number of bottles should be sold. That means that on each of the 30 days in the month A, 5 bottles were manufactured and 3 bottles were sold. That means 5 units of 'Y' can not be manufactured and 3 units of Y can not be sold on any day of month A.

In the month A, let, the number of days on which 4 bottles of Y were manufactured be x, therefore the number of days on which 2 bottles of Y were manufactured = 30 - x.

Let the number of days on which 1 bottle of Y was sold be 'y', therefore the number of days on which 2 bottles of Y were sold is (30 - y). Obviously 'x' and 'y' are integers less than or equal to 30.

$53 = 4x + 2(30 - x) - y - 2(30 - y) = 2x + y$. Maximum possible value of y = 29, because if y = 30 then the value of x is not an integer.

Minimum possible value of $x = \frac{53 - 29}{2} = 12$.

6. d Number of bottles of Z left unsold at the end of month A = 60.

Maximum possible number of days on which 5 bottles of Z were manufactured in month A is 30, when the numbers of days on which 3 bottles of Z were sold = 30.

That means, $(106 - 60) = 46$ bottles out of the total bottles of Z, which were manufactured in month B were left unsold.

Since we have to maximize the number of days on which 5 bottles of Z were manufactured, we will maximize the number of days on which 3 bottles of Z were sold.

So maximum possible number of days on which 3 bottles of Z were sold = 30.

Therefore, maximum possible number of bottles of Z that were manufactured in month

$$B = 46 + 3(30) = 136.$$

Let the number of days on which 5 and 4 bottles of Z were manufactured be 'a' and 'b' respectively.

Therefore the number of days on which 2 bottles of Z were manufactured = $(30 - a - b)$.

$$136 \geq 5a + 4b + 2(30 - a - b) \text{ or } 3a + 2b \leq 76.$$

Maximum possible value of a is 25 when b = 0.

Therefore maximum possible number of days on which 5 bottles of Z were manufactured = 25.

In the month C, $(166 - 106) = 60$ bottles of Z out of the bottles of Z manufactured in the month C were left unsold.

So, maximum possible number of days on which 5 bottles of Z were manufactured in the month C = 30, when 3 bottles of Z were sold on each of the 30 days in month C.

Therefore, maximum possible number of days on which 5 bottles of Z were manufactured across all the three months = $30 + 25 + 30 = 85$.

7. a Total number of bottles of X manufactured in all the three months = $144 + \text{Total number of bottles of X sold in all the three months}$.

Let the number of days on which 5 and 4 bottles of X were manufactured in all the three months be p and q respectively.

Or, $5p + 4q + 2(90 - p - q) = 144 + 90$ (to maximise the number of bottles of X sold in all the three months)

$$3p + 2q = 54.$$

Minimum value of p will be 0, when the value of q is 27.

Therefore minimum possible number of days on which 5 bottles of X were sold in all the three months = 0.

8. c Ratio of number of days on which 2, 4 and 5 bottles of Y were manufactured in the month B is $1:2:3$, therefore the number of days on which 2, 4 and 5 bottles of Y were manufactured is 5, 10 and 15 respectively.

Number of bottles of Y manufactured in the month B = $2(5) + 4(10) + 5(15) = 10 + 40 + 75 = 125$.

Let the number of days on which 1, 2 and 3 bottles of Y were sold in the month B be d, e and f respectively.

$$\text{Therefore, } 125 - d - 2(30 - d - f) - 3f = 110 - 53$$

$$\text{Or, } f - d = 8$$

$$\text{Or, } f = 8 + d.$$

Therefore on at least 8 days 3 bottles of Y were sold. So, minimum value of 'f' is 8, and in that case $d = 0$.

Number of days on which 2 bottles of Y were sold in month B = $30 - 8 = 22$.

9. b To maximize the difference between the number of days on which 2 bottles of Y were manufactured in month A and C we need to maximize the number of days on which 2 bottles of Y were manufactured in month A and minimize the number of days on which 2 bottles of Y were manufactured in month C.

Month A: Let the number of days on which 2 and 4 bottles of Y were manufactured be 'g' and 'h' respectively. So, the number of days on which 5 bottles of Y were manufactured = $(30 - g - h)$.

$$2g + 4h + 5(30 - g - h) = 53 + \text{number of bottles of Y sold in month A.}$$

$$\text{Or, } 3g + h = 97 - \text{number of bottles of Y sold in month A.}$$

In order to maximize the value of 'g' we need to minimize the number of bottles of Y sold in month A. Minimum number of bottles of Y sold in month A will be when 1 bottle of Y is sold on all 30 days.

$$\text{Or, } 3g + h = 67.$$

Maximum possible value of g will be 22, when the value of h = 1.

Month C: Number of bottles unsold at the end of month B = 110.

Number of bottles unsold at the end of month C = 140.

Total number of bottles of Y manufactured in month C = $140 - 110 + \text{Number of bottles of Y sold in month C.}$

Minimum value of days on which 2 bottles of Y manufactured can be zero.

One such case is when 4 bottles of Y were manufactured on all days in month C and 3 bottles of Y were sold on all days in month C.

Therefore, maximum possible difference between the days on which 2 bottles of Y were sold in month A and C is $(22 - 0) = 22$.

For questions 10 to 14: There is a drop for Youth in Goa, Equality in Gujarat and Justice in Patna. Thus, we can conclude the following:

Youth → car burnt in Goa

Equality → car burnt in Gujarat

Justice → car burnt in Patna

Here, n is 3,4,5 for these three organisations. Now, old car exchanged with a new car must have dropped the average odometer reading. But we notice only 1 drop each in Youth, Equality and Justice. This means, the new car must have been added in the same city in which another car was burnt.

	Youth	Equality	Justice
Delhi Start	35400	23200	28300
Patna	36400	24200	19000
Goa	26000	26200	21000
Gujarat	26500	15400	21500
Delhi End	27500	16400	22500

For the time being, we will assume that old car was not exchanged with the new car.

In case the car wasn't burnt in Goa by a protestor from Youth, the average odometer reading would have been 38400 km. But it is 26000 km only. If there were n cars in Youth, and the car had travelled 'x' kms when it got burnt (x is a number between 50000 and 70000), then

$$\frac{38400 \times n - x}{n - 1} = 26000 \Rightarrow 12400n = x - 26000$$

⇒ n cannot be 4 or 5. Thus, n can be 3 only.

Similarly for Equality,

$$\frac{26700n - x}{n - 1} = 15400 \Rightarrow 11300n = x - 15400$$

⇒ n can be 4 only.

For Justice,

$$\frac{29300n - x}{n - 1} = 19000 \Rightarrow 10300n = x - 19000$$

⇒ n can be 4 only.

Possibilities in the value of n will get altered if we consider the exchanged car. Since Equality and Justice both cannot have 4 cars each, the exchange must have happened in one of these two organisations only.

Hence for Youth, the number of cars was 3. One car was burnt in Goa whose odometer reading (when burnt) was $(38400 \times 3) - (26000 \times 2) = 63200$ kms.

From above, the organisation in which car was exchanged must have started with 5 cars.

10. a Youth started with 3 cars.

11. c Number of cars for the organisation that exchanged its car = 5.

12. e Youth burnt the car in Goa. At the start, the odometer reading must have been $(63200 - 3000)$ km = 60200 kms

13. d The old car could have been exchanged in Patna(by Justice) or Gujarat (by Equality).

14. b In case the car was not exchanged in Gujarat, the burnt car's odometer reading would have been $(26700 \times 4 - 15400 \times 3) = 60600$ kms.

In case the car was exchanged in Gujarat, the burnt car's odometer reading + the odometer reading of the old car (exchanged with the new car) would have been $(26700 \times 5 - 15400 \times 4) = 71900$ kms out of which at least 3500 kms were necessarily travelled by the old car exchanged from Delhi to Gujarat. Thus, the maximum odometer reading of burnt car would be $71900 - 3500 = 68400$ kms.

Thus, maximum odometer reading of burnt car in Gujarat could be 68400 kms. But it is given that the burnt car had 69200 kms as its odometer reading. Thus, the car must have been exchanged in Patna.

The burnt car's odometer reading + the odometer reading of the old car (exchanged with the new car)

$$= (29300 \times 5 - 19000 \times 4) = 70500 \text{ kms}$$

$$= \text{old car's odometer reading} = 70500 - 69200 = 1300 \text{ kms only.}$$

For questions 15 to 19: Total amount of money in three pots is ₹75. Let the total number of 50p coin and ₹1 coin is M each.

$$\therefore 0.5M + 1.M = 75 \Rightarrow M = 50$$

Let 'x' and 'y' represent the number of ₹1 coins in Pot 1 (containing ₹20) and Pot 3 (containing ₹25) respectively.

Coins	Pot 1	Pot 3	Pot 2
₹ 1	x	y	$50 - (x + y)$
50p	a	b	$50 - (a + b)$

Also, let 'a' and 'b' represent the number of 50p coins in Pot 1 and Pot 3 respectively.

Each Pot contains integral number of rupees. So, minimum value of 'a' and 'b' can be 2 each as 'a' and 'b' represent the number of 50p coins. So the possible cases can be:

Pot 1	50p	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38				
(₹20)	₹1	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1				
Pot 3	50p	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46
(₹25)	₹1	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2
Pot 2	50p	46	44	42	40	38	36	34	32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2
(₹30)	₹1	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29

15.c In order to have minimum number of ₹1 coins in Pot 2 (designated for digicam), we should have maximum possible number of ₹1 coins in Pot 1 and Pot 3. For that, number of 50p coins in Pot 1 and Pot 3 must be two each. So, the following case arises:

Pot 1		Pot 3		Pot 2	
₹1	50p	₹1	50p	₹1	50p
19	2	24	2	7	46

So, minimum possible number of ₹1 coin in Pot 2 is 7.

16.d The possible cases are shown below.

Pot 1		Pot 3		Pot 2	
₹1	50p	₹1	50p	₹1	50p
10	20	15	20	25	10
15	10	20	10	15	30
15	10	15	20	20	20
10	20	20	10	20	20
5	30	20	10	25	10

So total number of coins in Pot 1 (designated for guitar) can be

i) $10 + 20 = 30$;

ii) $15 + 10 = 25$;

iii) $5 + 30 = 35$.

So it can never be 40. Hence answer is (d).

17.b Only A, B and E are possible, others are not possible.

Pot 2 (Rs. 30)		
₹1	50p	Ratio
9	42	3 : 14
21	18	7 : 6
25	10	5 : 2

18.d Let us assume that Moby steals in a way such that coins of any denomination does not get exhausted in Pot 2 and 3 (containing ₹25 and ₹30 respectively). At the beginning of each day Roxy puts 10 coins each of ₹1 and 50p in each pot. To find the minimum number of days, let us assume that Moby steals 18 coins from Pot 1 (containing ₹20) and remaining two coins from other pots. He cannot steal from the same pot in three consecutive days.

On the very first day Roxy would add 10 coins of 50p to each box and hence there will be 48 coins of 50p in Pot 1 at the end of first day.

The number of 50p coins on each day in Pot 1 is illustrated in the following table:

Days	Start of the day	End of the day
	50p	50p
1	48	48
2	58	40
3	50	32
4	42	42
5	52	34
6	44	26
7	36	36
8	46	28
9	38	20
10	30	30
11	40	22
12	32	14
13	24	24
14	34	16
15	26	8
16	18	18
17	28	10
18	20	2
19	12	12
20	22	4
21	14	0

After 21 days there will be no 50p coin in the pot containing ₹20.

19.a Initially Pot 1 meant for buying guitar has ₹20 in it. Now to find the minimum number of days when Pot 1 have enough money to buy a guitar, let us assume that Moby everyday takes out ₹1 coins only, from Pot 2 and Pot 3. And when he steals from Pot 1, he takes out a maximum of ₹1 (either ₹1 coin or two 50p coins). Apart from this let assume that Roxy puts maximum possible amount i.e. ₹15 (ten ₹1 coins and ten 50p coins) everyday in each Pot. So when Moby steals from Pot 2 and Pot 3, ₹(20 + 15) is added to Pot 1, when Moby steals from Pot 1 and Pot 2 or from Pot 1 and Pot 3, then ₹(19 + 15) is added to Pot 1. So, on 1st day ₹35 is added to Pot 1 and on next two days ₹34 is added to Pot 1.

Days	Start of the day	End of the day
	50p	50p
1	48	48
2	58	40
3	50	32
4	42	42
5	52	34
6	44	26
7	36	36
8	46	28
9	38	20
10	30	30
11	40	22
12	32	14
13	24	24
14	34	16
15	26	8
16	18	18
17	28	10
18	20	2
19	12	12
20	22	4
21	14	0

This process is repeated for every block of three days.

So after 3 days, amount in Pot 1 = $20 + (35 + 34 + 34) = ₹123$. So in 12 days, amount in Pot 1 = $20 + 412 = 432$

So after next two days after the 12th day, amount in Pot 1 = $432 + 35 + 34 = ₹501$. So on 14th day there will be enough money in Pot 1 to buy the guitar.

After 21 days there will be no 50p coin in the pot containing ₹20.

19.a Initially Pot 1 meant for buying guitar has ₹20 in it. Now to find the minimum number of days when Pot 1 have enough money to buy a guitar, let us assume that Moby everyday takes out ₹1 coins only, from Pot 2 and Pot 3. And when he steals from Pot 1, he takes out a maximum of ₹1 (either ₹1 coin or two 50p coins). Apart from this let assume that Roxy puts maximum possible amount i.e. ₹15 (ten ₹1 coins and ten 50p coins) everyday in each Pot. So when Moby steals from Pot 2 and Pot 3, ₹(20 + 15) is added to Pot 1, when Moby steals from Pot 1 and Pot 2 or from Pot 1 and Pot 3, then ₹(19 + 15) is added to Pot 1. So, on 1st day ₹35 is added to Pot 1 and on next two days ₹34 is added to Pot 1.