Caselet

PRACTICE EXERCISE

Level - 1

Direction for questions 1 and 2: The questions are based on the following information.

TV Links Inc. manufactures televisions. The cost of raw material accounts for 50 per cent of the selling price, while labour cost is 15per cent of the selling price and selling expenses account for 10per cent of the selling price. The other overheads like rent, electricity, interest, etc., work out to 40 per cent of the raw material cost. Due to changes in duty and tax structure proposed in the budget, the raw material cost increased by 10 per cent after the budget. Other increases after the budget were labour cost by 20per cent and selling expenses by 50 per cent. Because of severe competition, the company could increase the price of TVs by only 10per cent. The managing director of TV Links Inc. noted that the decrease in profit per television after the budget was Rs. 600.

1. What is the pre-budget price of TVs sold by TV Links Inc. ?

(a) Rs. 22,000 (b) Rs. 10,000
(c) Rs. 11,500 (d) Rs. 20,000
(e) Rs. 18,000

2. If 75 per cent of the selling expenses were dealer margins, what was the amount spent per TV on dealer margin after budget ?

(a) Rs. 2,250 (b) Rs. 3,000
(c) Rs. 2,750 (d) Rs. 1,875
(e) Rs. 3,250

Level - 2

Directions for questions 3 to 5: Seth Dhanpat Ram has distributed 100 notes among 7 persons namely Lalu, Malu, Salu, Dalu, Kalu, Falu and Galu, such that except Galu, all the them received same number of notes and Galu got 5 notes less than the others.

Then the six persons exchanged notes as follows :

i. Lalu took 5 notes from Kalu.
ii. Dalu received notes from two of her friends.
iii. Malu gave 3 notes to Dalu and received one note from Galu.
iv. Only two of them did not give any note and the other three did not receive any note.
v. Falu was involved in one transaction only and received two notes.
vi. Lalu had 20 notes and Dalu and Falu had equal number of notes at the end of all the transactions.
vii. There were five transactions in all.

3. At the end of the fifth transaction, who had the least number of notes?

(a) Salu (b) Galu
(c) Kalu (d) Salu and Kalu
(e) Galu and Kalu

4. What is the difference in the number of notes between the person who had the maximum notes and the person with the least number of notes?

(a) 11 (b) 12
(c) 9 (d) 8
(e) 10.

5. Who had lesser number of notes than Malu?

(a) Salu and Dalu
(b) Dalu and Falu
(c) Dalu, Falu and Galu
(d) Kalu and Galu
(e) None of these

Directions for questions 6 to 9: Refer to the data below and answer the questions that follow.

Pradeep decides to invest a certain amount in the stock markets. He buys the same number of shares of Reliance and Suzlon. Each share of Reliance is 75% more expensive than a share of Suzlon. Within one year the value of Reliance shares has appreciated by 60%, while that of Suzlon has depreciated by 20%. The next year, Reliance shares lose 40% of their market value, while Suzlon shares lose only 5%. The following year, the value of Suzlon shares triples while the value of Reliance shares is stagnant. In the same year he pays Rs. 24,200 as consultancy charges. Pradeep then sells off all the Reliance and Suzlon shares but realises that he is left with exactly the same amount of money that he invested at the beginning.

6. How much money did Pradeep have at the beginning?
   (a) Rs.87,575 (b) Rs.20,000
   (c) Rs.55,000 (d) Rs.10,200
   (e) Rs. 68,000
7. The approximate percentage profit / loss earned by Pradeep in the first two years is :
   (a) 20% (b) –11%
   (c) –23% (d) 5%
   (e) –15%
8. When was the total value of shares owned by Pradeep maximum?
   (a) At the beginning (b) After 1st year
   (c) After 2nd year. (d) After 3rd year.
   (e) None of these
9. How many shares of Reliance did Pradeep buy?
   (a) 175 shares (b) 275 shares
   (c) 480 shares (d) 360 shares
   (e) Cannot be determined

Directions for questions 10 to 13: Answer the questions based on the given information.

Ms. RB Electricals Ltd. is a leading FM Radio production company in Haryana. The past record of the company shows that there is an increase of 10% in the sales of the company over the sales of its previous year sales. But the expenses of the company are increase by 2% every year over the previous year. The assets of the company shows a regular increase of 3% over the previous year. The company also export FM Radio sets to Argentina. The exports of the company also increases by 10% over its value in the previous year. Every year company increases the man power strength by 1% over the previous year. The exports of the company (Rs. crore) in year 2000 were Rs. 30 crores which was 5% of the assets for the same year and the sales of the company were Rs. 1,000 crore more than the assets in that year. The expenses of the company was 50% of it sales and company has 400 workers (Man power strength) in the same year.

10. What is the profit percentage of the company in year 2004 if profit equals to sales – expenditure?
   (a) 190.55% (b) 180.55%
   (c) 170.55% (d) 160.55%
   (e) Cannot be determined
11. What are the total expenses of the company from year 2000-04 (approximately)?
   (a) Rs 4,263 crores (b) Rs. 4,363 crores
   (c) Rs. 4,500 crores (d) Rs. 4,163 crores
   (e) Rs. 4,427 crores.
12. What is the percentage of exports as a percentage to the sales in year 2000?
   (a) 1.875% (b) 2.875%
   (c) 3.875% (d) 1.625%
   (e) 2.625%
13. What percentage does the expenses of the company in year 2003 exceed its assets in the year 2004?
   (a) 26.8% (b) 25.6%
   (c) 28.4% (d) 24.6%
   (e) 22.4%

Level - 3

Directions for questions 14 to 17: Answer the questions on the basis of the information given below:

For the upcoming Olympic tour, a country has prepared a team of 150 athletes all of whom will be participating in it. The ratio of males and females in the team is 3:2. The country has prepared to participate in six major events. The events are Boxing, Shooting, Gymnastics, Weightlifting, Badminton and Table Tennis. A maximum of 42 athletes will participate in Gymnastics. The ratio between the number of male gymnasts and male badminton players is 2:1. Number of female shooters and female table-tennis players is equal. A total of 30 athletes are participating in Weightlifting. The number of male shooters is equal to the number of female gymnasts. Seven male athletes are participating in table tennis. The ratio between the number of male boxers to the number of female boxers is same as the ratio between the number of male weightlifters to the number of female boxers. The number of female badminton players is one more than the number of male table tennis players. The total number of male gymnasts and male badminton players is 27. Assume that at least one male athlete and one female athlete is participating in each of the events.

14. What is the minimum number of female athletes will be participating in Boxing and Shooting?
   (a) 8 (b) 10
   (c) 9 (d) 11
   (e) 12
15. What is the number of male weightlifters?
   (a) 12 (b) 24
   (c) 16 (d) 18
   (e) 15
16. What is the number of female table tennis players?
   (a) 11 (b) 10
   (c) 9 (d) 12
   (e) Cannot be determined

17. What is the total number of male athletes participating in Boxing and Badminton?

(a) 16 (b) 22

(c) 19 (d) 25

(e) 21

Directions for questions 18 to 22: Answer the questions on the basis of the information given below.

Mr. Gold Smith designed two kinds of wedding rings, pearl and diamond. Some of these rings, pearl as well as diamond, were exclusively designed for ladies and the rest were exclusively designed for gentlemen. All the pearl rings designed for ladies were identical to each other. Similarly, all the pearl rings for gentlemen, all the diamond rings for ladies and all the diamond rings for gentlemen were identical to each other. He decided to sell the rings in packs of two and accordingly, packed one ladies' ring with one gentlemen's ring, in each such pack. The packs which had two diamond rings in them and the packs which had two pearl rings in them were labelled as "Diamond Pack" and "Pearl Pack" respectively. All other packs were labelled as "Mixed Pack". The price tags on each "Diamond Pack" and on each "Pearl Pack" were Rs 80,000 and Rs 50,000 respectively. After having made 25 such packs, Mr. Smith counted all the rings, once again, and observed that,

Additional Information given:

I. A total of 25 rings remained single, of which exactly 5 were diamond rings for gentlemen.

II. Using all the diamond rings, exactly 15 packs could have been labeled as "Diamond Pack".

III. The price tags on all the packs labeled as "Diamond Pack", summed to Rs.640000.

IV. The price tags on of all the packs labeled as "Pearl Pack", summed to Rs.450000.

18. By that time, how many ladies' diamond rings remained single?

(a) 2 (b) 3

(c) 1 (d) 5

(e) None

19. Of the 25 packs that Mr. Smith had made by that time, how many were labelled as "Mixed Pack"?

(a) 8 (b) 10

(c) 11 (d) 12

(e) 13

20. How many gentlemen's pearl rings were packed with ladies' diamond rings, in the 25 packs that Mr. Gold Smith had made by that time?

(a) 5 (b) 7

(c) 8 (d) 9

(e) 6

21. Which of the following could have been the maximum possible number of gentlemen's pearl rings?

(a) 32 (b) 34

(c) 25 (d) 19

(e) 35

22. Of the total number of rings that Mr. Gold Smith designed, what percentage were diamond rings?

(a) 25%

(b) 15%

(c) 30%

(d) 40%

(e) Cannot be determined

ANSWERS

1. (d)	**2.** (a)	**3.** (b)	**4.** (a)	**5.** (d)	**6.** (c)	**7.** (b)	**8.** (d)	**9.** (e)	**10.** (c)
11. (d)	**12.** (a)	**13.** (b)	**14.** (a)	**15.** (c)	**16.** (e)	**17.** (d)	**18.** (c)	**19.** (a)	**20.** (e)
21. (b)	**22.** (d)								

SOLUTIONS

Level - 1

1. d Let pre-budget price of TV be Rs. 100.

	Pre-budget expenses	Post-budget expenses
Cost of raw material	50	55
Cost of labour	15	18
Selling expenses	10	15
Overhead cost	20	20
Total	95	108
Selling price	100	110

Decrease in profit = (100 – 95) – (110 – 108) = 3

When decrease in profit = 3, pre-budget price = 100

So, when decrease in profit = 3, pre-budget price 600 =100/3 × 600 = Rs. 20,000.

2. a Post-budget price = Rs. 22,000

$$\text{Post-budget selling price} = \frac{22000}{110} \times 15 = 3000$$

$$\therefore \text{ Dealer's margin} = \frac{3000 \times 75}{100} = \text{Rs. } 2,250.$$

Level - 2

For questions 3 to 5 :

Galu had 10 notes initially and the others had 15 notes each.

Five transaction are :

Kalu → Lalu

Malju → Dalu

Galu → Malu

→ Dalu

→ Falu

Dalu had 18 notes after receiving 3 from Malu and Falu had 17 notes after receiving 2 notes from someone. But they had an equal number at the end. Thus, Dalu must have given 2 notes to Falu.

Then, Dalu would have 16 notes and he must have received a note from somebody.

From (iv), two of them who did not give notes are Lalu and Falu. Thus, Salu must have given a note to Dalu. Also, then Salu, Kalu and Galu are three friends who did not receive and note.

	Initial number of notes	Notes received	Notes given	Final Number of notes
Lalu	15	+5	x	20
Malu	15	+1	-3	13
Salu	15	x	-1	14
Dalu	15	+3 + 1	-2	17
Kalu	15	x	-5	10
Falu	15	+2	x	17
Galu	10	x	-1	9

3. b **4.** a **5.** d

For questions 6 to 9 :

Let the initial price of all Suzlon shares be Rs. 'x'.

Then the cost of all the Reliance shares is Rs. 1.75x.

Therefore, the initial investment is Rs. 2.75x.

At the end of	**Value of Reliance shares**	**Value of Suzlon shares**	**Total value**
Year 1	2.8x	0.80x	3.60x
Year 2	1.68x	0.76x	2.44x
year 3	1.68x	2.28x	3.96x

3.96x – 24200 = 2.75x

$\therefore$ 3.96x – 2.75x = 24200

$\therefore$ 1.21x = 24200

$\therefore$ x = 20,000

6. c Initial amount invested = 2.75 × 20,000 = 55,000.

7. b Value at end of year 2 = 1.68x + 0.76x = 2.44x.

$\therefore$ Percentage loss

$$= \frac{2.75 - 2.44}{2.75} = \frac{0.31}{2.75} \times 100 = 11.2\%$$

Percentage profit = –11.2%.

8. d 3.96x : 3rd year.

9. e The problem only gives us the amounts invested in Reliance and Suzlon shares, and not the number of shares.

For questions 10 to 13:

The exports of the company in year 2000 = Rs. 30 crores.

So, total assets in year 2000 = $\frac{30}{0.05}$ = Rs. 600 crores.

Total sales value = Rs. 600 + Rs. 1,000

= Rs. 1600 crores.

As we know expenditure is 50% of total sales.

So, total expenditure for 2000 is Rs. 800 crores

The sales, total expenditure, assets, exports and number of employees are increasing by 10%, 2%, 3%, 10% and 1% respectively.

From this we can make the following table showing the sales expenditure, assets, exports and number of employees from year 2000 to 2004.

	2000	2001	2002	2003	2004
Sales (in Rs. crores)	1,600	1,760	1936	2,130	2,343
Expenses (in Rs. crores)	800	816	832	849	866
Assets (in Rs. crores)	600	618	636	656	676
Exports (in Rs. crores)	30	33	36	40	44
Employees	400	404	408	412	416

10. c Profit percentage = $\frac{2343-866}{866} \times 100 = 170.55\%$

11. d Total expenses = 800 + 816 + 832 + 849 + 866
= Rs. 4,163 crores.

12. a Exports as a percentage to sales in year 2000

$$= \frac{30}{1,600} \times 100 = 1.875\%$$

13. b Expenditure in year 2003 = Rs. 849 crores
Assets in year 2004 = Rs. 676 crores

Percentage increase = $\frac{849-676}{676} \times 100 = 25.6\%$

Level - 3

For questions 14 to 17:

The given information can be tabulated as:

Event	Males	Females
Boxing	a	b
Shooting	z	y
Gymnastics	2x	z
Weightlifting	a	(30 – a)
Badminton	x	8
Table Tennis	7	y

Number of male athletes = $\frac{3}{5} \times 150 = 90$

Number of female athletes = 150 – 90 = 60

From the given table we can conclude that –

$2x + z = 42$ and $2x + x = 27$

Number of male gymnasts = $\frac{2x}{3x} \times 27 = 18\ (2x)$

Number of male badminton players = 27 – 18 = 9

$2 \times 9 + z = 42$

$z = 42 - 18 = 24$

$a + 24 + 18 + a + 9 + 7 = 90$

$2a = 32$ or $a = 16$

Similarly, $b + y + 24 + 14 + 8 + y = 60$

$$2y + b = 14 \Rightarrow y = \frac{14-b}{2}$$

The values of y and b satisfying the above equation are:

$b = 2, 4, 6, 8, 10, 12$ and $y = 6, 5, 4, 3, 2, 1$

14. a **15.** c **16.** e **17.** d

For questions 18 to 22:

Given that the price tags on all the packs labeled as "Diamond Pack" and "Pearl Pack", summed to Rs.640000 and Rs.450000 respectively.

Therefore, out of the 25 packs, the number of packs labeled as "Diamond Pack" is $\frac{640000}{80000} = 8$

Similarly, out of the 25 packs, the number of packs labeled as "Pearl Pack" is $\frac{450000}{50000} = 9$

Therefore, out of the 25 packs, the number of packs labeled as "Mixed Pack" is 25 – 9 – 8 = 8.

Total number of rings with Mr. Gold Smith 2 × 25(In Packs) + 25(Single) = 75

From additional information II:

Total number of diamond rings with Mr. Gold Smith

= 15 × 2 = 30

Total number of pearl rings with Mr. Gold Smith

= 75 – 30 = 45.

Also, the number of diamond rings for gentlemen and ladies' is 15 each.

From additional information I:

Given that out of the 25 rings that remained single, the number of gentlemen's diamond rings is 5.

Therefore, in the 25 packs made by Mr. Gold Smith there are 10 gentlemen's diamond rings.

18. c Total number of diamond rings in the 25 packs made by Mr. Gold Smith 8 × 2(Diamond Packs) + 8 × 1(Mixed Packs) = 24.

Number of ladies' diamond rings that remained single

= 30 – 5 – 24 = 1.

19. a Out of the 25 packs made by Mr. Gold Smith, the number of packs labeled as "Mixed Pack" = 8.

20. e We have already calculated that in the 25 packs made by Mr. Gold Smith there are 10 gentlemen's diamond rings Therefore, in the 25 packs made by Mr. Gold Smith the number of gentlemen's pearl rings is 25 – 10 = 15.

Out of the 25 packs, we know that 9 are labeled as "Pearl Pack" and 8 are labeled as "Mixed Pack".

Therefore, we can say that out of the 15 gentlemen's pearl rings in the 25 packs made by Mr. Gold Smith, 9 are in packs labeled as "Pearl Pack" and 6 are in packs labeled as "Mixed Pack".

Therefore, 6 gentlemen's pearl rings were packed with ladies' pearl rings.

21. b Total number of pearl rings in the 25 rings that remained single

= 25 – 5 (gentlemen's diamond rings) – 1 (ladies' diamond rings) = 19.

Assuming these 19 rings are all gentlemen's pearl rings.

Number of gentlemen's pearl rings in the 25 packs made by Mr. Gold Smith = 15

Therefore, maximum possible number of gentlemen's pearl rings = 19 + 15 = 34.

22. d Required percentage $= \left(\frac{30}{45+30}\right) \times 100 = 40\%$

PREVIOUS YEARS QUESTIONS

LEVEL - 1

1990

Directions for Questions 1 to 3 : *Answer the questions on the basis of the information given below.*

Ghosh Babu has a certain amount of property consisting of cash, gold coins and silver bars. The cost of a gold coin is Rs. 4000 and the cost of a silver bar is Rs. 1000. Ghosh Babu distributed his property among his daughters equally. He gave to his eldest daughter gold coins worth 20% of the total property and Rs. 25000 in cash. The second daughter was given silver bars worth 20% of the remaining property and Rs. 50000 cash. He then gave each of the third and fourth daughters equal number of gold coins and silver bars both together accounting each for 20% of the property remaining after the previous distribution and Rs. 25000 more than what the second daughter had received in cash.

1. The amount of property in gold and silver possessed by Ghosh Babu is

(a) 2,25,000 (b) 2,75,000

(c) Rs. 4,25,000 (d) None of these

2. Total property of Ghosh Babu (in Rs.lakh) is

(a) 5.0 (b) 7.5

(c) 10.0 (d) 12.5.

3. If Ghosh Babu had equal number of gold and silver bars, the number of silver bars he has is

(a) 90 (b) 60

(c) 75 (d) 55

1995

Directions for Questions 4 to 7: *Answer the questions based on the following information.*

Four sisters — Suvarna, Tara, Uma and Vibha are playing a game such that the loser doubles the money of each of the other players from her share. They played four games and each sister lost one game in alphabetical order. At the end of fourth game, each sister had Rs.32.

4. How many rupees did Suvarna start with?

(a) Rs.60 (b) Rs.34

(c) Rs.66 (d) Rs.28

5. Who started with the lowest amount?

(a) Suvarna (b) Tara

(c) Uma (d) Vibha

6. Who started with the highest amount?

(a) Suvarna

(b) Tara

(c) Uma

(d) Vibha

7. What was the amount with Uma at the end of the second round?

(a) 36

(b) 72

(c) 16

(d) None of these

1998

Directions for Questions 8 to 10: *Answer the questions on the basis of the information given below.*

A, B, C and D collected one-rupee coins following the given pattern.

Together they collected 100 coins.

Each one of them collected even number of coins.

Each one of them collected at least 10 coins.

No two of them collected the same number of coins.

8. The maximum number of coins collected by any one of them cannot exceed

(a) 64 (b) 36

(c) 54 (d) None of these

9. If A collected 54 coins, then the difference in the number of coins between the one who collected maximum number of coins and the one who collected the second highest number of coins must be at least

(a) 12 (b) 24

(c) 30 (d) None of these

10. If A collected 54 coins and B collected two more coins than twice the number of coins collected by C, then the number of coins collected by B could be

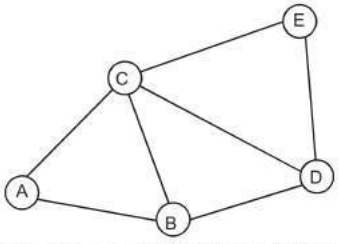
(a) 28 (b) 20

(c) 26 (d) 22

2003 (R)

Directions for Questions 11 and 12: *Answer the questions on the basis of the following information.*

Shown below is the layout of major streets in a city.



Two days (Thursday and Friday) are left for campaigning before a major election, and the city administration has received requests from five political parties for taking out their processions along the following routes.

Congress	: A-C-D-E	BJP	: A-B-D-E
SP	: A-B-C-E	BSP	: B-C-E
CPM	: A-C-D		

Street B-D cannot be used for a political procession on Thursday due to a religious procession. The district administration has a policy of not allowing more than one procession to pass along the same street on the same day. However, the administration must allow all parties to take out their procession during these two days.

11. Congress procession can be allowed

(a) only on Thursday

(b) only on Friday

(c) on either day

(d) only if the religious procession is cancelled

12. Which of the following is NOT true?

(a) Congress and SP can take out their processions on the same day.

(b) The CPM procession cannot be allowed on Thursday.

(c) The BJP procession can only take place on Friday.

(d) Congress and BSP can take out their processions on the same day.

MEMORY BASED QUESTIONS

2012

Directions for Questions 13 to 15: Answer the questions on the basis of the information given below.

Five friends, viz. Ashok, Amit, Ajay, Akansh and Abhishek are living in five different cities named Kunnamangalam, Joka, Vastrapur, Banerghatta and Prabandhnagar, not necessarily in that order. Their salaries are 700000, 800000, 900000, 1100000, 1300000 (INR per annum), in no particular order. Further, the following information is given about them:

I. Akansh, who does not live in Banerghatta, earns a salary that is a prime number multiple of 100000.

II. Amit made a call to one of his four mentioned friends who lives in Prabandhnagar and earning a perfect square multiple of 100000 INR in salary.

III. Ajay's salary is 100000 INR more than the average salary of Akansh and Ashok

IV. Amit lives in the city, which has the shortest name amongst the above cities.

13. If Akansh lives in Vastrapur, then what is the average salary of the persons living in Banerghatta and Kunnamangalam?

(a) Rs.9 lakh (b) Rs.10 lakh

(c) Rs.12 lakh (d) Data Insufficient

14. Who stays in Prabandhnagar?

(a) Ashok (b) Amit

(c) Abhishek (d) Akansh

15. If Amit and Ajay live in cities with names starting with consecutive alphabets, then who lives in Vastrapur?

(a) Ashok (b) Amit

(c) Abhishek (d) Akansh

2013

Directions for question: Answer the questions on the basis of the information given below.

A Cricket team of 11 players is to be formed from a group of 15 players—A, B, C, D, E, F, G, H, I, J, K, L, M, N and O. Among the players A, D, K, L, M, N and O are batsmen; B, C, E, F, G and H are bowlers; I and J are wicketkeepers. It is also known that:

I. The team must have at least 5 batsmen and exactly 1 wicketkeeper.

II. H can be selected only if B is selected.

III. F can be selected only if both G and N are selected.

IV. If I is selected, then F is also selected.

V. K and M cannot be selected together for the team. The same is true for B and G.

16. In how many ways can the team be formed?

(a) 3 (b) 4

(c) 5 (d) 6

LEVEL - 2

1991

Directions for Questions 17 to 21: *Answer the questions on the basis of the information given below.*

Ghosh Babu deposited a certain sum of money in a bank in 1986. The bank calculated interest on the principal at 10 percent simple interest, and credited it to the account once a year. After the 1st year, Ghosh Babu withdrew the entire interest and 20% of the initial amount. After the 2nd year, he withdrew the interest and 50% of the remaining amount. After the 3rd year, he withdrew the interest and 50% of the remaining amount. Finally after the 4th year, Ghosh Babu closed the account and collected the entire balance of Rs. 11,000.

17. The initial amount in rupees, deposited by Ghosh Babu was:

(a) 25,000 (b) 75,000

(c) 50,000 (d) None of these

18. The year, at the end of which, Ghosh Babu withdrew the smallest amount was:

(a) First (b) Second

(c) Third (d) Fourth

19. The year, at the end of which, Ghosh Babu collected the maximum interest was:

(a) First (b) Second

(c) Third (d) Fourth

20. The year, at the end of which, Ghosh Babu withdrew the maximum amount was:

(a) First (b) Second

(c) Third (d) Fourth

21. The total interest, in rupees, collected by Ghosh Babu was:

(a) 12,000

(b) 20,000

(c) 4,000

(d) 11,000

1991

Directions for Questions 22 to 26: *Answer the questions on the basis of the information given below.*

Prakash has to decide whether or not to test a batch of 1000 widgets before sending them to the buyer. In case he decides to test, he has two options: (a) Use test I ; (b) Use test II. Test I cost Rs. 2 per widget. However, the test is not perfect. It sends 20% of the bad ones to the buyer as good. Test II costs Rs. 3 per widget. It brings out all the bad ones. A defective widget identified before sending can be corrected at a cost of Rs. 25 per widget. All defective widgets are identified at the buyer's end and penalty of Rs. 50 per defective widget has to be paid by Prakash.

22. Prakash should not test if the number of bad widgets in the lot is:

(a) less than 100 (b) more than 200

(c) between 120 & 190 (d) Cannot be found out.

23. If there are 120 defective widgets in the lot, Prakash:

(a) should either use Test I or not test.

(b) should either use Test II or not test.

(c) should use Test I or Test II.

(d) should use Test I only.

24. If the number of defective widgets in the lot is between 200 and 400, Prakash:

(a) may use Test I or Test II

(b) should use Test I only.

(c) should use Test II only

(d) cannot decide.

25. If Prakash is told that the lot has 160 defective widgets, he should:

(a) use Test I only

(b) use Test II only.

(c) do no testing.

(d) either use Test I or do not test.

26. If there are 200 defective widgets in the lot, Prakash:

(a) may use either Test I or Test II

(b) should use Test I or not use any test

(c) should use Test II or not use any test.

(d) cannot decide.

1993

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

Ghosh Babu has recently acquired four companies namely Arc – Net Technologies (ANT), Babu Anta Transport (BAT), Charles Anter Tailor (CAT) and Daud Akbar Transistors (DAT). When the results of the companies for the year 1992 – 93 were placed before him. He found a few interesting things about them. While the profits of CAT and DAT were the same, the sales of CAT were the same as those of BAT . Profits of ANT were 10% of its sales, where as the profits of BAT were 20% of its sales. While the total expenses of CAT were 5 times its profits, sales of DAT were 3 times its profits. The total expenses of CAT were Rs.10,00,000, the total expenses of ANT were 10% less than those of CAT.

Profits are defined as the difference between sales and total expenses.

27. Which company had the lowest sales?

(a) ANT (b) BAT

(c) CAT (d) DAT

28. Which company had the highest total expenses?

(a) ANT (b) BAT

(c) CAT (d) DAT

29. Which company had the lowest profits?

(a) ANT (b) BAT

(c) CAT (d) DAT

30. Which company had the highest profits.

(a) ANT (b) BAT

(c) CAT (d) DAT

1994

Directions for Questions 31 to 33: *Answer the questions on the basis of the information given below.*

Alphonso, on his death bed, keeps half his property for his wife and divide the rest equally among his three sons Ben, Carl and Dave. Some years later Ben dies leaving half his property to his widow and half to his brothers Carl and Dave together, shared equally. When Carl makes his will he keeps half his property for his widow and the rest he bequeaths to his younger brother Dave. When Dave dies some years later, he keeps half his property for his widow and the remaining for his mother. The mother now has Rs. 1,575,000.

31. What was the worth of the total property?

(a) Rs. 30 lakh (b) Rs. 8 lakh

(c) Rs. 18 lakh (d) Rs.24 lakh

32. What was Carl's original share?

(a) Rs. 4 lakh (b) Rs. 12 lakh

(c) Rs. 6 lakh (d) Rs. 5 lakh

33. What was the ratio of the property owned by the widows of the three sons, in the end?

(a) 7 : 9 : 13 (b) 8 : 10 : 15

(c) 5 : 7 : 9 (d) 9 : 12 : 13

1998

Directions for Questions 34 to 38: Answer the questions on the basis of the information given below.

Krishna distributed 10-acre land to Gopal and Ram who paid him the total amount in the ratio 2 : 3. Gopal invested a further Rs. 2 lakh in the land and planted coconut and lemon trees in the ratio 5 : 1 on equal areas of land. There were a total of 100 lemon trees. The cost of one coconut was Rs. 5. The crop took 7 years to mature and when the crop was reaped in 1997, the total revenue generated was 25% of the total amount put in by Gopal and Ram together. The revenue generated from the coconut and lemon trees was in the ratio 3 : 2 and it was shared equally by Gopal and Ram as the initial amount spent by them were equal.

34. What was the total output of coconuts?

(a) 24,000 (b) 36,000

(c) 18,000 (d) 48,000

35. What was the value of output per acre of lemon trees planted?

(a) 0.24 lakh per acre (b) 2.4 lakh per acre

(c) 24 lakh per acre (d) Cannot be determined

36. What was the amount received by Gopal in 1997?

(a) Rs. 1.5 lakh (b) Rs. 3 lakh

(c) Rs. 6 lakh (d) None of these

37. What was the value of output per tree for coconuts?

(a) Rs. 36 (b) Rs. 360

(c) Rs. 3,600 (d) Rs. 240

38. What was the ratio of yields per acre of land for coconuts and lemons (in terms of number of lemons and coconuts)?

(a) 3 : 2 (b) 2 : 3

(c) 1 : 1 (d) Cannot be determined

1999

Directions for Questions 39 to 41: *Answer the questions on the basis of the information given below.*

A young girl Roopa leaves home with x flowers, goes to the bank of a nearby river. On the bank of the river, there are four places of worship, standing in a row. She dips all the x flowers into the river. The number of flowers doubles. Then she enters the first place of worship, offers y flowers to the deity. She dips the remaining flowers into the river, and again the number of flowers doubles. She goes to the second place of worship, offers y flowers to the deity. She dips the remaining flowers into the river, and again the number of flowers doubles. She goes to the third place

of worship, offers y flowers to the deity. She dips the remaining flowers into the river, and again the number of flowers doubles. She goes to the fourth place of worship, offers y flowers to the deity. Now she is left with no flowers in hand.

39. If Roopa leaves home with 30 flowers, the number of flowers she offers to each deity is

(a) 30 (b) 31

(c) 32 (d) 33

40. The minimum number of flowers that could be offered to each deity is

(a) 0 (b) 15

(c) 16 (d) Cannot be determined

41. The minimum number of flowers with which Roopa leaves home is

(a) 16 (b) 15

(c) 0 (d) Cannot be determined

Directions for Questions 42 to 44: *Answer the questions on the basis of the information given below.*

Recently, Ghosh Babu spent his winter vacation on Kyakya Island. During the vacation, he visited the local casino where he came across a new card game. Two players, using a normal deck of 52 playing cards, play this game. One player is called the 'dealer' and the other is called the 'player'. First, the player picks a card at random from the deck. This is called the base card. The amount in rupees equal to the face value of the base card is called the base amount. The face values of ace, king, queen and jack are ten. For other cards the face value is the number on the card. Once the 'player' picks a card from the deck, the 'dealer' pays him the base amount. Then the 'dealer' picks a card from the deck and this card is called the top card. If the top card is of the same suit as the base card, the 'player' pays twice the base amount to the 'dealer'. If the top card is of the same colour as the base card (but not the same suit), then the 'player' pays the base amount to the 'dealer'. If the top card happens to be of a different colour than the base card, the 'dealer' pays the base amount to the 'player'.

Ghosh Babu played the game four times. First time he picked eight of clubs and the 'dealer' picked queen of clubs. Second time, he picked ten of hearts and the 'dealer' picked two of spades. Next time, Ghosh Babu picked six of diamonds and the 'dealer' picked ace of hearts. Lastly, he picked eight of spades and the 'dealer' picked jack of spades. Answer the following questions based on these four games.

42. If Ghosh Babu stopped playing the game when his gain would be maximized, the gain in Rs. would have been

(a) 12 (b) 20

(c) 16 (d) 4

43. The initial money Ghosh Babu had (before the beginning of the game sessions) was Rs. X. At no point did he have to borrow any money. What is the minimum possible value of X?

(a) 16 (b) 8

(c) 100 (d) 24

44. If the final amount of money that Ghosh Babu had with him was Rs. 100, what was the initial amount he had with him?

(a) 120 (b) 8

(c) 4 (d) 96

2002

Directions for Questions 45 to 48: *Answer the questions based on the information given below.*

A country has the following types of traffic signals.

3 red lights = stop

2 red lights = turn left

1 red light = turn right

3 green lights = go at 100 km/hr speed

2 green lights = go at 40 km/hr speed

1 green light = go at 20 km/hr speed

A motorist starts at a point on a road and follows all traffic signals. His car is heading towards the north.

He encounters the following signals (the time mentioned in each case below is applicable after crossing the previous signal).

Starting point - 1 green light

After half an hour, 1st signal - 2 red and 2 green lights

After 15 min, 2nd signal - 1 red light

After half an hour, 3rd signal - 1 red and 3 green lights

After 24 min, 4th signal - 2 red and 2 green lights

After 15 min, 5th signal - 3 red lights

45. The total distance travelled by the motorist from the starting point till the last signal is

(a) 90 km

(b) 100 km

(c) 120 km

(d) None of these

46. What is the position (radial distance) of the motorist when he reaches the last signal?

(a) 45 km directly north of the starting point

(b) 30 km directly to the east of the starting point

(c) 50 km away to the north-east of the starting point

(d) 45 km away to the north-west of the starting point

47. After the starting point, if the 1st signal were 1 red and 2 green lights, what would be the final position of the motorist?

(a) 30 km to the west and 20 km to the south

(b) 30 km to the west and 40 km to the north

(c) 50 km to the east and 40 km to the north

(d) Directly 30 km to the east

48. If at the starting point, the car was heading towards south, what would be the final position of the motorist?

(a) 30 km to the east and 40 km to the south

(b) 50 km to the east and 40 km to the south

(c) 30 km to the west and 40 km to the south

(d) 50 km to the west and 20 km to the north

2003 (L)

Directions for Questions 49 and 50: *Answer the questions on the basis of the information given below.*

Some children were taking free throws at the basketball court in school during lunch break. Below are some facts about how many baskets these children shot.

i. Ganesh shot 8 baskets less than Ashish.

ii. Dhanraj and Ramesh together shot 37 baskets.

iii. Jugraj shot 8 baskets more than Dhanraj.

iv. Ashish shot 5 baskets more than Dhanraj.

v. Ashish and Ganesh together shot 40 baskets.

49. Which of the following statements is true?

(a) Ramesh shot 18 baskets and Dhanraj shot 19 baskets.

(b) Ganesh shot 24 baskets and Ashish shot 16 baskets.

(c) Jugraj shot 19 baskets and Dhanraj shot 27 baskets.

(d) Dhanraj shot 11 baskets and Ashish shot 16 baskets.

50. Which of the following statements is true?

(a) Dhanraj and Jugraj together shot 46 baskets.

(b) Ganesh shot 18 baskets and Ramesh shot 21 baskets.

(c) Dhanraj shot 3 more baskets than Ramesh.

(d) Ramesh and Jugraj together shot 29 baskets.

Directions for Questions 51 to 55: *Answer the questions on the basis of the information given below.*

Five women decided to go shopping to M.G. Road, Bangalore. They arrived at the designated meeting place in the following order: 1. Archana, 2. Chellamma, 3. Dhenuka, 4. Helen, and 5. Shahnaz. Each woman spent at least Rs. 1000. Below are some additional facts about how much they spent during their shopping spree.

i. The woman who spent Rs.2234 arrived before the lady who spent Rs.1193.

ii. One woman spent Rs.1340 and she was not Dhenuka.

iii. One woman spent Rs.1378 more than Chellamma.

iv. One woman spent Rs.2517 and she was not Archana.

v. Helen spent more than Dhenuka.

vi. Shahnaz spent the largest amount and Chellamma the smallest.

51. What was the amount spent by Helen?

(a) Rs.1193 (b) Rs.1340

(c) Rs.2234 (d) Rs.2517

52. Which of the following amounts was spent by one of them?

(a) Rs. 1139 (b) Rs. 1378

(c) Rs. 2571 (d) Rs. 2718

53. The woman who spent Rs. 1193 is

(a) Archana (b) Chellamma

(c) Dhenuka (d) Helen

Directions for Questions 54 to 56: *Answer the questions on the basis of the information given below.*

Five friends meet every morning at Sree Sagar restaurant for an idli-vada breakfast. Each consumes a different number of idlis and vadas. The number of idlis consumed are 1, 4, 5, 6, and 8, while the number of vadas consumed are 0, 1, 2, 4, and 6. Below are some more facts about who eats what and how much.

i. The number of vadas eaten by Ignesh is three times the number of vadas consumed by the person who eats four idlis.

ii. Three persons, including the one who eats four vadas eat without chutney.

iii. Sandeep does not take any chutney.

iv. The one who eats one idli a day does not eat any vadas or chutney. Further, he is not Mukesh.

v. Daljit eats idli with chutney and also eats vada.

vi. Mukesh, who does not take chutney, eats half as many vadas as the person who eats twice as many idlis as he does.

vii. Bimal eats two more idlis than Ignesh, but Ignesh eats two more vadas than Bimal.

54. Which one of the following statements is true?

(a) Daljit eats 5 idlis (b) Ignesh eats 8 idlis

(c) Bimal eats 1 idli. (d) Bimal eats 6 idlis.

55. Which of the following statements is true?

(a) Sandeep eats 2 vadas.

(b) Mukesh eats 4 vadas.

(c) Ignesh eats 6 vadas.

(d) Bimal eats 2 vadas.

56. Which of the following statements is true?

(a) Mukesh eats 8 idlis and 4 vadas but no chutney.

(b) The person who eats 5 idlis and 1 vada does not take chutney.

(c) The person who eats equal number of vadas and idlis also takes chutney.

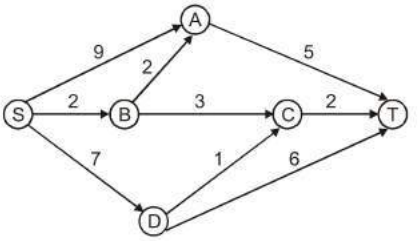
(d) The person who eats 4 idlis and 2 vadas also takes chutney.

2006

Directions for Questions 57 to 61: *Answer the questions on the basis of the information given below:*

A significant amount of traffic flows from point S to point T in the one-way street network shown below.

Points A, B, C, and D are junctions in the network, and the arrows mark the direction of traffic flow. The fuel cost in rupees for travelling along a street is indicated by the number adjacent to the arrow representing the street.



Motorists travelling from point S to point T would obviously take the route for which the total cost of travelling is the minimum. If two or more routes have the same least travel cost, then motorists are indifferent between them. Hence, the traffic gets evenly distributed among all the least cost routes.

The government can control the flow of traffic only by levying appropriate toll at each junction. For example, if a motorist takes the route S-A-T (using junction A alone), then the total cost of travel would be Rs 14 (i.e., Rs 9 + Rs 5) plus the toll charged at junction A.

57. If the government wants to ensure that no traffic flows on the street from D to T, while equal amount of traffic flows through junctions A and C, then a feasible set of toll charged (in rupees) at junctions A, B, C, and D respectively to achieve this goal is:

(a) 1,5,3,3 (b) 1,4,4,3
(c) 1,5,4,2 (d) 0,5,2,3
(e) 0,5,2,2

58. If the government wants to ensure that all motorists travelling from S to T pay the same amount (fuel costs and toll combined) regardless of the route they choose and the street from B to C is under repairs (and hence unusable), then a feasible set of toll charged (in rupees) at junctions A, B, C, and D respectively to achieve this goal is:

(a) 2,5,3,2 (b) 0,5,3, 1
(c) 1,5,3,2 (d) 2,3,5,1
(e) 1,3,5,1

59. If the government wants to ensure that the traffic at S gets evenly distributed along streets from S to A, from S to B, and from S to D, then a feasible set of toll charged (in rupees) at junctions A, B, C, and D respectively to achieve this goal is:

(a) 0,5,4,1 (b) 0,5,2,2
(c) 1,5,3,3 (d) 1,5,3,2
(e) 0,4,3,2

60. If the government wants to ensure that all routes from S to T get the same amount of traffic, then a feasible set of toll charged (in rupees) at junctions A, B, C, and D respectively to achieve this goal is:

(a) 0,5,2,2 (b) 0,5,4,1
(c) 1,5,3,3 (d) 1,5,3,2
(e) 1,5,4,2

61. The government wants to devise a toll policy such that the total cost to the commuters per trip is minimized. The policy should also ensure that not more than 70 per cent of the total traffic passes through junction B. The cost incurred by the commuter travelling from point S to point T under this policy will be:

(a) Rs. 7 (b) Rs. 9
(c) Rs. 10 (d) Rs. 13
(e) Rs. 14

Directions for Questions 62 to 66: *Answer the questions on the basis of the information given below:*

Two traders, Chetan and Michael, were involved in the buying and selling of MCS shares over five trading days. At the beginning of the first day, the MCS share was priced at Rs 100, while at the end of the fifth day it was priced at Rs 110. At the end of each day, the MCS share price either went up by Rs 10, or else, it came down by Rs 10. Both Chetan and Michael took buying and selling decisions at the end of each trading day. The beginning price of MCS share on a given day was the same as the ending price of the previous day. Chetan and Michael started with the same number of shares and amount of cash, and had enough of both. Below are some additional facts about how Chetan and Michael traded over the five trading days.

1. Each day if the price went up, Chetan sold 10 shares of MCS at the closing price. On the other hand, each day if the price went down, he bought 10 shares at the closing price.
2. If on any day, the closing price was above Rs 110, then Michael sold 10 shares of MCS, while if it was below Rs 90, he bought 10 shares, all at the closing price.

62. If Chetan sold 10 shares of MCS on three consecutive days, while Michael sold 10 shares only once during the five days, what was the price of MCS at the end of day 3?

(a) Rs 90 (b) Rs 100
(c) Rs 110 (d) Rs 120
(e) Rs 130

63. If Chetan ended up with Rs 1300 more cash than Michael at the end of day 5, what was the price of MCS share at the end of day 4?

(a) Rs 90 (b) Rs 100
(c) Rs 110 (d) Rs 120
(e) Not uniquely determinable

64. If Michael ended up with 20 more shares than Chetan at the end of day 5, what was the price of the share at the end of day 3?

(a) Rs 90 (b) Rs 100
(c) Rs 110 (d) Rs 120
(e) Rs 130

65. If Michael ended up with Rs 100 less cash than Chetan at the end of day 5, what was the difference in the number of shares possessed by Michael and Chetan (at the end of day 5)?

(a) Michael had 10 less shares than Chetan.
(b) Michael had 10 more shares than Chetan.
(c) Chetan had 10 more shares than Michael.
(d) Chetan had 20 more shares than Michael.
(e) Both had the same number of shares.

66. What could have been the maximum possible increase in combined cash balance of Chetan and Michael at the end of the fifth day?

(a) Rs 3700 (b) Rs 4000
(c) Rs 4700 (d) Rs 5000
(e) Rs 6000

2008

Directions for Questions 67 and 68:

Five horses, Red, White, Grey, Black and Spotted participated in a race. As per the rules of the race, the persons betting on the winning horse get four times the bet amount and those betting on the horse that came in second get thrice the bet amount. Moreover, the bet amount is returned to those betting on the horse that came in third, and the rest lose the bet amount. Raju bets Rs. 3000, Rs. 2000 and Rs. 1000 on Red, White and Black horses respectively and ends up with no profit and no loss.

67. Which of the following cannot be true?

(a) At least two horses finished before Spotted
(b) Red finished last
(c) There were three horses between Black and Spotted
(d) There were three horses between White and Red
(e) Grey came in second

68. Suppose, in addition, it is known that Grey came in fourth. Then which of the following cannot be true?

(a) Spotted came in first
(b) Red finished last
(c) White came in second
(d) Black came in second
(e) There was one horse between Black and White

Directions for Questions 69 to 73: *Answer the following questions based on the information given below:*

Abdul, Bikram and Chetan are three professional traders who trade in shares of a company XYZ Ltd. Abdul follows the strategy of buying at the opening of the day at 10 am and selling the whole lot at the close of the day at 3 pm. Bikram follows the strategy of buying at hourly intervals: 10 am, 11 am, 12 noon, 1 pm, and 2 pm, and selling the whole lot at the close of the day. Further, he buys an equal number of shares in each purchase. Chetan follows a similar pattern as Bikram but his strategy is somewhat different. Chetan's total investment amount is divided equally among his purchases. The profit or loss made by each investor is the difference between the sale value at the close of the day less the investment in purchase. The "return" for each investor is defined as the ratio of the profit or loss to the investment amount expressed as a percentage.

69. On a day of fluctuating market prices, the share price of XYZ Ltd. ends with a gain, i.e, it is higher at the close of the day compared to the opening value. Which trader got the maximum return on that day?

(a) Bikram (b) Chetan
(c) Abdul (d) Bikram or Chetan
(e) cannot be determined

70. Which one of the following statements is always true?

(a) Abdul will not be one with the minimum return
(b) Return for Chetan will be higher than that of Bikram
(c) Return for Bikram will be higher than that of Chetan
(d) Return for Chetan cannot be higher than that of Abdul
(e) none of the above

71. On a "boom" day the share price of XYZ Ltd. keeps rising throughout the day and peaks at the close of the day. Which trader got the minimum return on that day?

(a) Bikram (b) Chetan
(c) Abdul (d) Abdul or Chetan
(e) cannot be determined

One day, two other traders, Dane and Emily joined Abdul, Bikram and Chetan for trading in the shares of XYZ Ltd. Dane followed a strategy of buying equal numbers of shares at 10 am. 11 am and 12 noon, and selling the same numbers at 1 pm, 2 pm and 3 pm. Emily, on the other hand, followed the strategy of buying shares using all her money at 10 am and selling all of them at 12 noon and again buying the shares for all the money at 1 pm and again selling all of them at the close of the day at 3 pm. At the close of the day the following was observed.

i. Abdul lost money in the transactions.
ii. Both Dane and Emily made profits.
iii. There was an increase in share price during the closing hour compared to the price at 2 pm.
iv. Share price at 12 noon was lower than the opening price

72. Share price was at its highest at

(a) 10 am (b) 11 am

(c) 12 noon (d) 1 pm

(e) cannot be determined

73. Which of the following is necessarily false?

(a) Share price was at its lowest at 2 pm

(b) Share price was at its lowest at 11 am

(c) Share price at 1 pm was higher than the share price at 2 pm

(d) Share price at 1 pm was higher than the share price at 12 noon

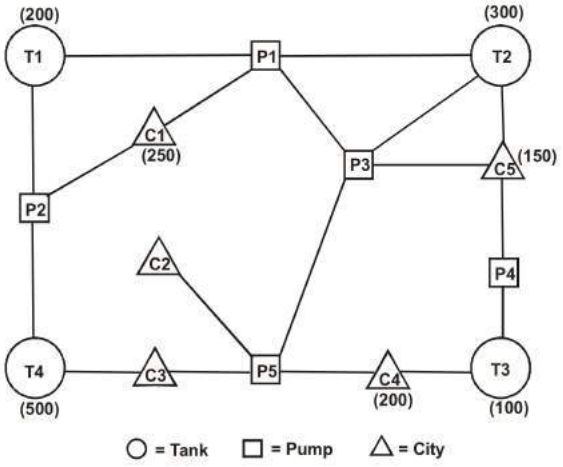
(e) none of the above

MEMORY BASED QUESTIONS

2009

Directions for questions 74 to 77 : Answer the following questions on the basis of the information given below.

The figure given below shows a water distribution system consisting of tanks, pumps and the connecting pipelines. It supplies water to five cities C1, C2, C3, C4 and C5. The water can flow only in one direction in a pipeline. The water stored (in million gallons) initially in the tanks T1, T2, T3 and T4 was 200, 300, 100 and 500 respectively. The system starts when the water starts flowing out of each tank and is distributed equally among all the pipelines connected to a tank. The pumps do not consume any water and the volume of the water coming in and going out of a pump is the same. The consumption of water (in million gallons) in C1, C4 and C5 is 250, 200 and 150 respectively. The consumption of water in C2 and C3 is in the ratio 3 : 2. The water which is left after consumption in a city flows out of it through a pipeline.



74. What is the ratio of the volume of the water coming in to the water going out of C1?

(a) 5 : 2 (b) 3 : 1

(c) 2 : 1 (d) 7 : 2

75. What is the consumption (in million gallons) of water in C2?

(a) 200 (b) 250

(c) 300 (d) 350

76. What is the volume of the water that flows through the pipeline joining C5 and P3?

(a) 50 (b) 100

(c) 150 (d) None of these

77. What is the ratio of the volume of the water that flows through P1 to the water that flows through P5?

(a) 1 : 3 (b) 2 : 3

(c) 3 : 4 (d) 5 : 9

2010

Directions for questions 78 to 80 : Answer the questions on the basis of the information given below.

Ten people – Chuck, Berry, David, Gilmour, Eric, Clapton, Jimmy, Page, Kirk and Hammett – live in a building that has six floors numbered 1 to 6 (lowest to highest). Each floor is occupied by at least one of the ten people. If N(x) represents the number of people living on floor x, then $N(1) = N(6) \neq N(3)$ and $N(2) = N(5)$. Also, $N(x) \neq N(x+1)$ for x = 1 to 5. It is also known that:

(i) Both Chuck and Berry live on the floor that is immediately above the floor on which Kirk lives.

(ii) David lives on a higher floor as compared to Clapton, Jimmy and Hammett but on a lower floor as compared to Chuck.

(iii) Gilmour and Page live on the same floor.

(iv) The number of people who live on the floor on which Jimmy lives is equal to that on which Eric lives.

78. What is the difference between the number of people who live on floor 3 and floor 5?

(a) 0 (b) 1

(c) 3 (d) 2

79. Who among the following lives on floor 6?

(a) Eric (b) David

(c) Chuck (d) Gilmour

80. How many people live on a floor higher than the one on which Jimmy lives?

(a) 7 (b) 5

(c) 9 (d) 6

2011

Directions for questions 81 to 83: *Answer the questions on the basis of the information given below.*

Four people – Alfred, Buckley, Cherry and Dirk – went to a museum on a Sunday. No two of them reached the museum at the same time. They were wearing shirts of different colours among Purple, Red, White and Yellow, in no particular order. It is also known that:

(i) Cherry was not the first one to reach the museum and he was wearing the Red shirt.

(ii) The person wearing the Yellow shirt reached the museum earlier than Buckley.

(iii) The person wearing the White shirt was not the last one to reach the museum.

(iv) Alfred was not wearing the Yellow shirt.

(v) The person wearing the Purple shirt reached the museum earlier than the person wearing the White shirt.

(vi) Alfred reached the museum before Dirk.

81. Who among the four was wearing the White shirt?

(a) Alfred (b) Buckley

(c) Cherry (d) Dirk

82. Who among the four was the last to reach the museum?

(a) Alfred (b) Buckley

(c) Cherry (d) Dirk

83. Which of the following statement(s) is/are correct?

I. Dirk was wearing the Yellow shirt and he reached the museum before Cherry.

II. Alfred was wearing the White shirt and he reached the museum before Cherry.

(a) Only I (b) Only II

(c) Neither I nor II (d) Both I and II

2015

Directions for questions 84 to 87 : Answer the questions on the basis of the information given below.

A group has to be selected from seven persons containing two women (Rehana and Kavya) and five men (Rohit, Rahul, Kamal, Nusarat and John). Rohit would not like to be in the group if Rahul is selected. Rahul and John want to be selected together in the group. Kavya would like to be in the group only if Kamal is also there. Kamal, if selected, would not like Nusarat in the group. Rohit would like to be in the group only if Nusarat is also there. Kamal insists that Rehana must be selected in case he is there in the group.

84. Which of the following is an acceptable combination of a group of three?

(a) Rohit, John, Kavya

(b) Rahul, Kamal, Nusarat

(c) Rohit, Nusarat, Rahul

(d) Rohit, Nusarat, Rehana

85. Which of the following is an acceptable combination of a group of four?

(a) Rohit, Nusarat, Rehana, John

(b) Rahul, John, Kavya, Kamal

(c) Rahul, John, Rehana, Kamal

(d) Rehana, Kamal, Rohit, Nusarat

86. Which of the following statements is true?

(a) Kavya and Rohit both can be selected in a group of four.

(b) A group of four can have both the women.

(c) A group of four can have four men.

(d) None of the above

87. If a group of five members has to be selected, then in how many ways is it possible such that Kamal is definitely a member of the group?

(a) 1 (b) 0

(c) 2 (d) 3

LEVEL - 3

2005

Directions for Questions 88 to 91: *Answer the questions on the basis of the information given below:*

Venkat, a stockbroker, invested a part of his money in the stock of four companies — A, B, C and D. Each of these companies belonged to different industries, viz., Cement, Information Technology (IT), Auto, and Steel, in no particular order. At the time of investment, the price of each stock was Rs. 100. Venkat purchased only one stock of each of these companies. He was expecting returns of 20%, 10%, 30% and 40% from the stock of companies A, B, C and D, respectively. Returns are defined as the change in the value of the stock after one year, expressed as a percentage of the initial value. During the year, two of these companies announced extraordinarily good results. One of these two companies belonged to the Cement or the IT industry, while the other one belonged to either the Steel or the Auto industry. As a result, the returns on the stocks of these two companies were higher than the initially expected returns. For the company belonging to the Cement or the IT industry with extraordinarily good results, the returns were twice that of the initially expected returns. For the company belonging to the Steel or the Auto industry, the returns on announcement of extraordinarily good results were only one and a half times that of the initially expected returns. For the remaining two companies which did not announce extraordinarily good results, the returns realized during the year were the same as initially expected.

88. What is the minimum average return Venkat would have earned during the year?

(a) 30% (b) $31\frac{1}{4}\%$

(c) $32\frac{1}{2}\%$ (d) Cannot be determined

89. If Venkat earned a 35% return on average during the year, then which of these statements would necessarily be true?

I. Company A belonged either to Auto or to Steel Industry.

II. Company B did not announce extraordinarily good results.

III. Company A announced extraordinarily good results.

IV. Company D did not announce extraordinarily good results.

(a) I and II only (b) II and III only

(c) III and IV only (d) II and IV only

90. If Venkat earned a 38.75% return on average during the year, then which of these statement(s) would necessarily be true?

I. Company C belonged either to Auto or to Steel Industry.

II. Company D belonged either to Auto or to Steel Industry.

III. Company A announced extraordinarily good results.

IV. Company B did not announce extraordinarily good results.

(a) I and II only (b) II and III only

(c) I and IV only (d) II and IV only

91. If Company C belonged to the Cement or the IT industry and did announce extraordinarily good results, then which of these statement(s) would necessarily be true?

I. Venkat earned not more than 36.25% return on average.

II. Venkat earned not less than 33.75% return on average.

III. If Venkat earned 33.75% return on average, Company A announced extraordinarily good results.

IV. If Venkat earned 33.75% return on average, Company B belonged either to Auto or to Steel Industry.

(a) I and II only

(b) II and IV only

(c) II and III only

(d) III and IV only

MEMORY BASED QUESTIONS

2015

Directions for questions 92 to 95 : Answer the questions on the basis of the information given below.

Sixteen teams – A through P – participated in the Hockey World Cup,2013. The tournament was conducted in two stages. In the first stage, the teams were divided into two groups – teams A to H in group 1 and teams I to P in group 2. In the first stage, each team in a group played exactly one match against every other team in that group. At the end of the first stage, the top four teams from each group advanced to the second stage while the rest got eliminated. The second stage comprised three rounds – Quarterfinals, Semi-finals and Finals. A round involves one match for each team. The winner of a match in a round advanced to the next round, while the loser got eliminated. The team that remains undefeated in the second stage was declared the winner of the tournament.

At the end of the first stage, top four teams in each group were determined on the basis of total number of matches won by individual teams; in case, two or more teams in a group were ended up with the same number of wins, ties were resolved by a series of complex tie-breaking rules to determine the top four positions. The teams qualifying for the second stage from group 1 were A, B, C and D and those from group 2 were I, J, K and L. No match in the tournament ended in a draw/tie.

92. In the tournament, if E and L won the same number of matches and L was the winner of the tournament, then what was the sum of the number of matches won by E and that by L?

93. The number of matches won in the first stage by a team that advanced to the second stage could not be less than

94. How many of the following statements is/are true?

(i) Maximum number of teams which could have one win in the first stage was 6.

(ii) Maximum number of teams which could have three wins in the first stage was 12.

(iii) Number of teams which had exactly 2 wins in the second stage was 2.

95. The value of the total of number of matches won, in the first stage, by teams A, B, C and D together could not be more than

ANSWERS

1. (b)	**2.** (a)	**3.** (d)	**4.** (c)	**5.** (d)	**6.** (a)	**7.** (b)	**8.** (a)	**9.** (c)	**10.** (d)
11. (a)	**12.** (d)	**13.** (d)	**14.** (c)	**15.** (d)	**16.** (d)	**17.** (c)	**18.** (d)	**19.** (a)	**20.** (b)
21. (a)	**22.** (a)	**23.** (d)	**24.** (c)	**25.** (a)	**26.** (a)	**27.** (d)	**28.** (c)	**29.** (a)	**30.** (b)
31. (d)	**32.** (a)	**33.** (b)	**34.** (b)	**35.** (a)	**36.** (a)	**37.** (b)	**38.** (d)	**39.** (c)	**40.** (c)
41. (b)	**42.** (a)	**43.** (b)	**44.** (d)	**45.** (a)	**46.** (c)	**47.** (c)	**48.** (c)	**49.** (a)	**50.** (a)
51. (b)	**52.** (a)	**53.** (c)	**54.** (a)	**55.** (c)	**56.** (c)	**57.** (e)	**58.** (b,c)	**59.** (a)	**60.** (d)
61. (c)	**62.** (c)	**63.** (b)	**64.** (a)	**65.** (e)	**66.** (d)	**67.** (d)	**68.** (c)	**69.** (e)	**70.** (e)
71. (a)	**72.** (a)	**73.** (a, d)	**74.** (d)	**75.** (c)	**76.** (d)	**77.** (b)	**78.** (b)	**79.** (a)	**80.** (c)
81. (b)	**82.** (c)	**83.** (a)	**84.** (d)	**85.** (c)	**86.** (d)	**87.** (a)	**88.** (a)	**89.** (b)	**90.** (c)
91. (b)	**92.** (10)	**93.** (2)	**94.** (2)	**95.** (22)					

SOLUTIONS

LEVEL - 1

For question 1 to 3:

Since Ghosh babu distributed his property equally among his 4 daughters, each one of them should get 25% of the property. The eldest daughter got 20% of the total property and Rs.25000 in cash. So, Rs.25000 should constitute 5% of the total property. Hence the total property is worth Rs.5 lakhs.

Now, the total cash given by him = Rs.25000 (eldest daughter) + Rs.50000 (second daughter) + Rs.150000 (i.e. Rs.75000 each to his third and fourth daughters) = Rs.225000.

So, out of his total property of Rs.500000, Rs.225000 is cash, so the gold and silver should be worth Rs.275000.

1. b

2. a

3. d If Ghosh Babu has equal number of gold and silver bars, the value of 1 gold bar and 1 silver bar is Rs.5000 (i.e. Rs.4000 + Rs.1000) and the total worth of gold and silver bars is Rs.275000.

Hence, number of gold and silver bars would be equal i.e. $\frac{275000}{5000} = 55$.

For questions 4 to 7:

Please note that the best way to solve this question is by working backwards.

E.g. after the 4th round, each one of them had Rs.32. Since it is Vibha who lost in this round, all the remaining three must have doubled their share.

In other words, they would have had Rs.16 each after the 3rd round.

Since the increase is of Rs.16 in each one's share, i.e., Rs.48 overall which comes from Vibha's share, her share before the 4th round was (32 + 48) = Rs.80, after the 3rd round.

Working backwards in this manner, we can get the following table.

	Share of each			
	Suvarna	**Tara**	**Uma**	**Vibha**
4. Vibha	32	32	32	32
3. Uma	16	16	16	(32 + 48) = 80
2. Tara	8	8	(16 + 40 + 8 + 8) = 72	40
1. Suvarna	4	(8 + 4 + 36 + 20) = 68	36	20
Initial	(4 + 34 + 18 + 10) = 66	34	18	10

4. c Suvarna started with Rs.66.

5. d It was Vibha who started with the lowest amount, viz. Rs.10.

6. a It was Suvarna who started with the highest amount, viz. Rs.66.

7. b At the end of the second round, Uma had Rs.72.

8. a For, if any one of them collects the maximum number of coins, the remaining three should collect the minimum number of coins. To have distinct, even, atleast 10 coins; they will have to collect 10, 12, 14 coins. So if the three of them collect (10 + 12 + 14) = 36 coins, the fourth one has to collect (100 – 36) = 64 coins which has to be the maximum by any one person.

9. c Since A has collected 54 coins out of 100, he should obviously be the person who collected the maximum number of coins. For the difference between him and the second highest person to be

minimum, the second highest person should collect the maximum number of coins possible under the given conditions. And for this to happen, the remaining two should collect the minimum number of coins. So if the two of them collect 10 and 12 coins, i.e. 22 coins between themselves, the third person would have to collect (100 – 54 – 22) = 24 coins. Hence, the difference between him and the highest person should at least be (54 – 24) = 30.

10. d If A has collected 54 coins, the remaining three of them should collect (100 – 54) = 46 coins between themselves.

Let us assume that C has collected 10 coins. So B will collect (2 × 10) + 2 = 22. So A will collect (46 – 10 – 22) = 14 coins, which is a possible combination.

Let us now assume that C picks up 12 coins. So B should pick up (2 × 12) + 2 = 26. So A will have to collect (46 – 12 – 26) = 8 coins.

This combination is not possible. It can be concluded that C cannot pick up more than 10 coins and hence B has to pick up 22 coins to satisfy the given condition.

For questions 11 and 12:

Congress – Thursday

BJP – Friday

SP – Thursday

BSP – Friday

CPM – Friday

11. a Congress procession can only be allowed on Thursday.

12. d According to the data above, statement (d) is not true.

For questions 13 to 15 :

From the given information, we can summarize the data in the following table:

	Akansh	Ajay	Ashok	Abhishek	Amit
Salaries (In Rs. Lakh)	7 or 13	11	13 or 7	9	8
Cities:	K/V	B/K/V	B/K/V	Prabandhnagar	Joka

Where 'K', 'V' and 'B' stands for 'Kunnamangalam', 'Vastrapur' and 'Banerghatta' respectively.

13. d If Akansh, lives in Vastrapur, then Ajay and Ashok must be staying at Kunnamangalam and Banerghatta, not necessarily in that order. Their average salary in any case will be Rs.12 lakhs or 9 lakhs. So, the data is insufficient.

14. c Amit called a friend, who gets Rs. 9 lakh as his salary is a perfect square multiple of 100000 and stays in Prabandhnagar.

Abhishek stays in Prabandhnagar.

15. d Amit lives in Joka, so Ajay must be living at Kunnamangalam. Since Akansh is not staying at Banerghatta, he must be staying at Vastrapur.

For question :

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

Case I: When B is selected.

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

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

The number of ways in which the team can be formed

$= 2 \times 1 \times 1 = 2$

Case II: When G is selected.

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

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

The number of ways in which the team can be formed

$= 2 \times 1 \times 2 = 4.$

Case III: When neither B nor G is selected.

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

16. d The total number of ways in which the team can be formed = 2 + 4 = 6.

LEVEL - 2

For questions 17 to 21:

Let us assume that Ghosh Babu had deposited Rs.100 initially.

Year	Opening Balance	Interest Earned	Withdrawn by Ghosh Babu	Closing Balance
1986	100	10	10 + 20 = 30	80
1987	80	8	8 + 40 = 48	40
1988	40	4	4 + 20 = 24	20
1989	20	2	22	0

17. c Had he deposited Rs.100 initially, he should have withdrawn Rs.22 at the end to close the account. Since he withdrew Rs.11000, at the end, he should have initially deposited Rs.50000.

18. d He withdrew the smallest amount after the 4th year.

19. a He collected the maximum interest after the 1st year.

20. b Ghosh Babu withdrew the maximum amount after the 2nd year.

21. a The total interest collected by Ghosh Babu is Rs.24 on Rs.100. Hence on Rs.50000, it would be Rs.12000.

For questions 22 to 26:

Let the number of defective tests be 'x'

Cost to Prakash if he does not use any test = 50x

Cost to Prakash if he uses test 1

$$= 2 \times 1000 + \frac{4x}{5} \times 25 + \frac{x}{5} \times 50 = 2000 + 30x$$

Cost to Prakash if he uses test 2 = 3000 + 25x

Prakash should not test when

$$50x \leq 2000 + 30x \quad 20x \leq 2000 \quad x \leq 100$$

Prakash should use test 1 when

$$50x > 3000 + 25x \geq 2000 + 30x$$

$$3000 + 25x \geq 2000 + 30x$$

$$5x \leq 1000 \quad x \leq 200$$

For $x \geq 200$ he can use test 2.

22. a Below 100, no test would be cheaper.

23. d If there are 120 widgets, he should go for test I as it is cheaper.

24. c It is clear from the table that if the number of defectives is between 200 & 400, he should go for Test II as it is cheaper.

25. a In case of 160 defectives he should use test I as it is cheaper.

26. a If there are 200 defective widgets in the lot, Prakash may use either Test I or Test II as the cost of both the Tests is same= Rs.8000.

For questions 27 to 30:

Let the profits of CAT and DAT be x, Sales of CAT and BAT be y and sales of ANT be z. So we have

COMPANY	SALES	EXPENDITURE	PROFIT
ANT	z	0.9z	0.1z
BAT	y	0.8y	0.2y
CAT	y	5x	x
DAT	3x	2x	x

Now, it is said that the total expenses of CAT were Rs.10 lakhs. Thus, 5x = Rs.10 lakhs or x = Rs.2 lakhs. Also, total expenses of ANT were 10% less than those of CAT = Rs.9 lakhs. Hence, 0.9z = 9 lakhs or z = 10 lakhs. Finally, in case of CAT, since Sales – Expenditure = Profit, Sales = Expenditure + Profit = 6x = 12 lakhs, y = 12 lakhs.

Our final table will become:

COMPANY	SALES	EXPENDITURE	PROFIT
ANT	10	9	1
BAT	12	9.6	2.4
CAT	12	10	2
DAT	6	4	2

(All values in lakh Rupees)

27. d Company with the lowest sales is DAT with a sales of Rs.6 lakhs.

28. c CAT had highest total expenses i.e. Rs.10 lakhs.

29. a ANT had lowest profits i.e. Rs.1 lakh.

30. b BAT had the highest profits i.e. Rs.2.4 lakhs.

For question 31 to 33 :

Let us assume that Alphonso's total property was of Rs.x.

Person on death bed		Property given to his relatives					
		Widow	Mother	Ben	Carl	Dave	Total Share
	Alphonso	x/2	-	x/6	x/6	x/6	x
	Ben	x/12	-	-	x/24	x/24	x/6
	Carl	5x/48	-	-	-	5x/48	5x/24
	Dave	15x/96	15x/96	-	-	-	15x/48

31. d Since Alphonso's wife is also the mother of Dave, the total share of this lady would be $\left(\frac{x}{2} + \frac{15x}{96}\right) = \frac{63x}{96}$. And since, $\frac{63x}{96} = 1{,}575000$ $\Rightarrow$ x = Rs.24 lakhs.

32. a Carl's original share was $\frac{x}{6} = \frac{24}{6}$ = Rs.4 lakhs.

33. b The ratio's of the property owned by the widows of the 3 sons $= \left(\frac{1}{12} : \frac{5}{48} : \frac{15}{96}\right) = 8 : 10 : 15.$

34. b It is said that Gopal and Ram invested equal amounts initially. Let the amount paid by both of them to Krishna be 2x and 3x respectively. Gopal further invested Rs. 2 lakh. Hence, we can say (2x + 2) = 3x or x = 2 lakh. Hence, the initial amounts paid by Gopal and Ram to Krishna is 4 lakh and 6 lakh. So Gopal and Ram together put in (6 + 6) = 12 lakh initially (note that this includes Rs. 2 lakh put in by Gopal later). The total revenue generated is 25% of 12 lakh = 3 lakh.

The revenue from coconut and lemon trees are in the ratio 3 : 2. Hence, 3 lakh when divided in the ratio 3 : 2 gives Rs. 1,80,000 from coconut and Rs. 1,20,000 from lemons. And since each coconut costs Rs. 5, the total output of coconut would be $\left(\frac{180000}{5}\right)$ = 36000

35. a Lemon and coconut trees were planted on equal areas of land, viz. 5 acres each. The value of lemon output per acre of land $= \left(\frac{120000}{5}\right) = 0.24$ lakh per acre.

36. a The total revenue of Rs. 3,00,000 was divided equally by Gopal and Ram.

Hence, the amount received by Gopal in 1997

$= \frac{1}{2} \times 300000 =$ Rs. 1.5 lakh

37. b The ratio of the number of trees of coconut and lemon was 5 : 1. Since the number of lemon trees is 100, the number of coconut trees is 500. So they totally obtained a revenue of Rs. 1,80,000 from 500 coconut trees.

Hence, the value per tree $= \left(\frac{180000}{500}\right) =$ Rs. 360.

38. d We have not been given the cost of one lemon. In the light of this fact, we cannot find the number of lemons produced and hence the required ratio cannot be determined.

For questions 39 to 41:

Place of worship	Number of flowers before offering	Number of flowers offered	Number of flowers left
1	(15/8)y	y	(7/8)y
2	(7/4) y	y	(3/4)y
3	(3/2) y	y	y/2
4	y	y	0

Starting from the fourth place of worship and moving backwards, we find that number of flowers before entering the first place of worship is $\frac{15}{8}y$.

39. c Hence, number of flowers before doubling $= \frac{15}{16}y$

(but this is equal to 30)

Hence, y = 32

40. c The minimum value of y so that $\frac{15}{16}y$ is a whole number is 16.

Therefore, 16 is the minimum number of flowers that can be offered.

41. b For y = 16, the value of $\frac{15}{16}y = 15$.

Hence, the minimum number of flowers with which Roopa leaves home is 15.

For questions 42 to 44:

Game	Opening balance	Player's pick		Dealer's pick		Closing balance
		Debit (–)	Credit (+)	Debit (–)	Credit (+)	
1	0	0	8	16	0	-8
2	-8	0	10	0	10	12
3	12	0	6	6	0	12
4	12	0	8	16	0	4

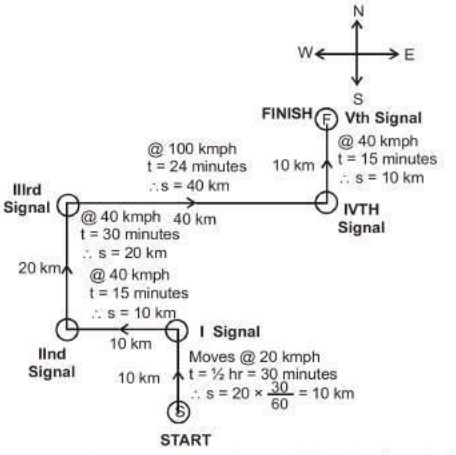
42. a Hence, we see that the maximum gain is Rs. 12.

43. b Since the maximum negative that Ghosh Babu goes into is –8, he should begin with at least Rs. 8, so that he does not have to borrow any money at any point.

44. d From the above table it is evident that in four games, Ghosh Babu makes a profit of Rs. 4.

Hence, if the final amount left with Ghosh Babu is Rs. 100, the initial amount that he had would be Rs. 96.

45. a

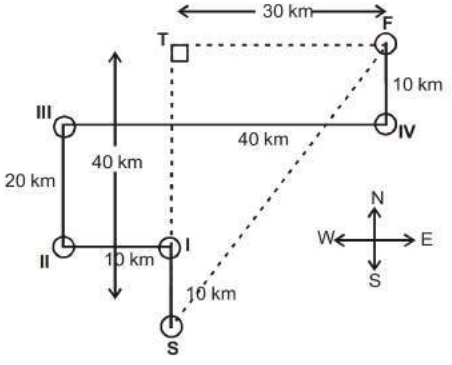


Note: s = Distance covered; v = Velocity (km/hr)

t = Time taken; s = v × t

The total distance travelled by the motorist from the starting point till last signal = 10 + 10 + 20 + 40 + 10 = 90 km.

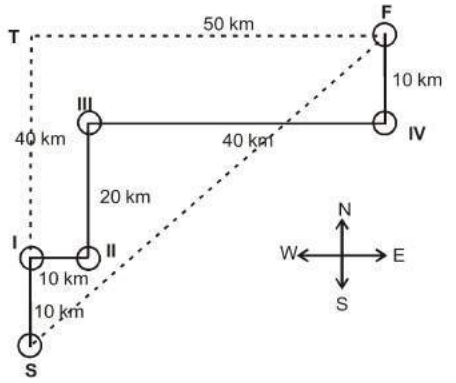
46. c



By Pythagoras' Theorem,

$SF = \sqrt{ST^2 + TF^2} = \sqrt{40^2 + 30^2} = \sqrt{2500} = 50$ km

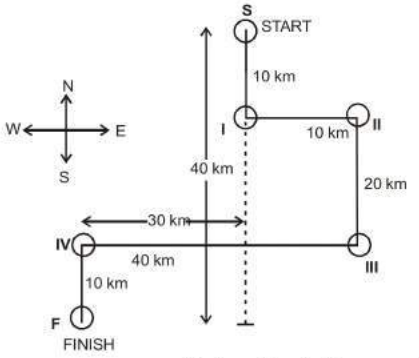
47. c In the case when 1st signal were 1 red and 2 green lights, the surface diagram will be as given below.



TF = 50 km; ST = 40 km

Considering the above figure, option (c) is correct, 50 km to the east and 40 km to the north.

48. c If the car was heading towards South from the start point, then the surface diagram will be as given below.



Hence, we can see that option (c) is correct.

For questions 49 and 50:

G + 8 = A

D + R = 37

J = D + 8

A = D + 5

A + G = 40

Solving the above equations, we get

2G = 32, G = 16, A = 24

D = 19, J = 27, R = 18

49. a

50. a D + J = 46

For questions 51 to 53:

Four of the amounts spent by the five women are Rs.2234, Rs.1193, Rs.1340 ad Rs.2517.

Two cases arise:

(i) The lowest amount spent is Rs.1193(by Chellamma):

Then, the fifth amount will be Rs(1193 + 1378) = Rs.2571, which will then be the highest amount and is spent by Shahnaz. As Archana arrived before Chellamma, so she must have spent Rs.2234. This implies Helen spent Rs.2517 and Dhenuka spent Rs.1340, which is a contradiction.

Hence, this case is not possible.

(ii) The highest amount spent is Rs.2517 (by Shahnaz):

Then the fifth amount will be Rs.(2517 – 1378) = Rs.1139. Since it is the lowest amount, it will be spent by Chellamma. Further analysis leads to the following table:

Order of arrival	1	2	3	4	5
Name	Archana	Chellamma	Dhenuka	Helen	Shahnaz
Amount spent	Rs.2234	Rs.1139	Rs.1193	Rs.1340	Rs.2517

51. b

52. a

53. c

For questions 54 to 56:

From statement (i), possible number of vadas consumed by Ignesh is 6, being the only multiple of 3.Therefore, another person had 4 idlis and 2 vadas.

From statement (vii), Bimal had (6 – 2) = 4 vadas.

Using these inferences and statements (ii), (iii) and (vi), we get that Bimal, Sandeep and Mukesh do not have chutney, while Ignesh and Daljit consume cuhutney.

From (iii) and (iv), Sandeep has only one idli and no vada.

From (vii), Bimal has two more idlis than Ignesh. This implies that Bimal can have either 6 or 8 idlis. If Bimal had 6 idlis, then Ignesh had 4 idlis. This contradicts statement (i). Therefore, Bimal had 8 idlis and Ignesh had 6 idlis.

Mukesh has half the number of idlis as one other person and the only number satisfying this is 4. Therefore, he must have 2 vadas.

These inferences can be summarised in the table below:

	Idli	Vada	Chutney
Ignesh	6	6	Yes
Bimal	8	4	No
Sandeep	1	0	No
Mukesh	4	2	No
Daljit	5	1	Yes

54. a

55. c

56. c

For questions 57 to 61:

In this set, the fuel cost for each of the path is given. In addition, there are four toll collection junctions.

57. e No traffic flows on the street from D to T.

Now, we have fuel cost on different paths as

SAT : 9 + 5 = Rs. 14 + toll at junction A

SBAT : 2 + 2 + 5 = Rs. 9 + toll at junction B and A

SBCT : 2 3 + 2 = Rs. 7 + toll at junction B and C

SDCT : 7 + 1 + 2 = Rs. 10 + toll at junction D and C

Now, checking the options we find that toll at junction A is 0 or 1.

When toll is 0, fuel cost on SAT = 14 + 0 = Rs. 14

When toll is 1, fuel cost on SAT = 14 + 1 = Rs. 15

The fuel cost on all the paths should be equal.

Options (a), (b), (c) can be ruled out as in all these options toll at C and D add up to more than Rs. 5. As fuel cost on SDCT is Rs. 10 without toll, so with toll it cannot exceed Rs. 15 (i.e. toll of path SAT).

Option (d) is ruled out as in this option SAT comes out to be Rs. 14 and SDCT sums up to Rs.15.

So correct answer is option (e).

58. b & c

Note: Both the options b and c are correct.

Available routes are:

SAT → Rs. 14

SBAT → Rs. 9

SDCT → Rs. 10

SDT → Rs. 13

Now, fuel cost of SAT - fuel of SDT = 14 – 13 = Rs. 1.

Hence toll at junction D should be 1 more than the toll at A. So option (a), (d) and (e) are ruled out.

Now, fuel cost of SAT - fuel cost of SBAT = 14 – 9 = Rs. 5. So toll at junction B should be Rs. 5. So answer could be either (b) or option (c).

59. a Available paths considering no toll are

SAT → Rs. 14

SBCT → Rs. 7

SBAT → Rs. 9

SDCT → Rs. 10

SDT → Rs. 13

It is very likely that option (d) is selected. But, if all the five routes have the same cost, then there will be an equal flow on all the five routes i.e., 20% on each route. But, then the percentage of traffic. on

S – A → 20%

S – B → 40% (As there are two routes involving S – B.)

S – D → 40% (As there are two routes involving S – D.)

But, it is given that traffic on S – A = traffic on S – B = traffic on S – D.

60. d Available routes are

SAT → Rs. 14

SBAT → Rs. 9

SBCT → Rs. 7

SDCT → Rs. 10

SDT → Rs. 13

Fuel cost on path SAT - fuel cost on path SDT

= 14 - 13 = Rs. 1.

So the toll at junction D should be 1 more than toll at junction A. So option a and c are ruled out.

Fuel cost on path SAT - fuel cost on path SBCT

= 14 - 7 = Rs. 7.

So sum of toll at junction B and C should be 7 more than the toll at A. Hence, only option (d) matches.

61. c We have to find a path on which minimum cost is incurred and such that total traffic through B does not exceed 70%.

So option (e) is ruled out because we can send all the traffic through SDCT or SDT and meet all conditions.

Option (a) is also ruled out as in that case all traffic will be passed through SBCT [not possible as traffic at B can't be more than 70%]

Option (b) is also ruled out as it is possible only when toll at junction C is 2. In that case also all traffic will pass through B.

Option (c) can be the answer, when toll at junction B is 4 and toll at junction C is 0. Then SDCT will have toll equal to Rs. 10.

As Rs. 10 is less than Rs. 13, so option (d) is also ruled out.

Hence, option (c) is the correct choice.

For questions 62 to 66:

The MCS share price at the beginning of first day is Rs.100 and at the close of day 5 is Rs.110.

The following cases of the closing prices can be derived.

At the end of	Day 1	Day 2	Day 3	Day 4	Day 5
1	90	80	90	100	110
2	90	100	90	100	110
3	90	100	110	120	110
4	90	100	110	100	110
5	110	100	90	100	110
6	110	100	110	100	110
7	110	120	110	100	110
8	110	120	110	120	110
9	110	120	130	120	110
10	110	120	110	100	110

62. c As Chetan sold 10 shares on three consecutive days, therefore, of the five days, there must be an increase for three of the five days and a decrease for the remaining two days. It is given that Michael sold 10 shares only once.

Hence, the price is more than 110 for only one day and on all the remaining days, it cannot exceed 110. The only satisfying case is **(3)**.

Hence, the price at the end of Day 3 is Rs.110.

63. b The satisfying cases are **(1), (2), (4), (5), (6).**

Hence, the price at the end of Day 4 is Rs.100.

64. a Let Chetan and Michael start with x number of shares initially.

From case **(1)**, we get that the number of shares with Michael = x + 10 and number of shares with Chetan = x + 10 + 10 – 10 – 10 – 10 = x – 10.

So Michael has 20 more shares than Chetan. This is the only satisfying case.

Hence, the share price at the end of Day 3 is Rs.90.

65. e Consider cases **(3) and (7).** Only these two satisfies the condition that Michael had Rs.100 less than Chetan at the end of day 5.

For case **(3),**

Number of shares with Chetan

= x + 10 – 10 – 10 – 10 + 10 = x – 10

And with Michael = x – 10

For case **(7),**

Number of shares with Chetan

= x – 10 – 10 + 10 + 10 – 10 = x – 10

And with Michael = x – 10

In either case, number of shares with Michael and Chetan are the same.

66. d To maximise the amount gathered by both of them, we need to look into those cases wherein we have maximum number of 110 excess figures.

It is only then that Michael and Chetan both will make money. So we check for case **(9)**.

For case **(9),**

Extra cash with Chetan by the end of day 5

= 1100 + 1200 + 1300 – 1200 – 1100

= Rs.1300

And that with Michael

= 1200 + 1300 + 1200 = Rs.3700

Total extra cash with both of them

= 1300 + 3700 = Rs.5000

For questions 67 to 68:

Raju bets on the horses as follows:

Red – Rs.3000 , White – Rs.2000

and Black – Rs.1000 = Total of Rs.6000

He makes no profit no loss in the game. So the possible ways of recovering his money (Rs.6000) is as follows:

Case (i): 3000 + 3(1000)

Case (ii): 2000 + 4(1000)

Case (iii): 3(2000) + 0

Case (a): A breakup of 3000 + 3(1000) can be arrived at if the Black horse finished at 2nd and the Red horse at 3rd positions.

Then the White horse is either on the 4th or 5th position.

	1st	2nd	3rd	4th	5th
I	Grey/ Spotted	Black	Red	White	Spotted/ Grey
II	Grey/ Spotted	Black	Red	Spotted/ Grey	White

Case (b): A breakup of 2000 + 4(1000) can be arrived at if the Black horse finished at 1st and the White horse at 3rd positions.

Then the Red horse is either on the 4th or 5th position.

	1st	2nd	3rd	4th	5th
I	Black	Grey/ Spotted	White	Red	Spotted/ Grey
II	Black	Grey/ Spotted	White	Spotted/ Grey	Red

Case (c): A breakup of 3(2000) + 0 can be arrived at if the White horse finished at 2nd position.

Then the Red and Black horses must have finished at the 4th and 5th positions, not necessary in that order.

	1st	2nd	3rd	4th	5th
I	Spotted/ Grey	White	Grey/ Spotted	Red/ Black	Black/ Red

67. d None of the cases has three horses between White and Red horses.

68. c If Grey came fourth, we consider cases (a) and (b). All the options except (c) can hold true for these cases. White horse can either be 2nd or 5th in the race.

69. e Since we do not know what the share prices are during different times of the day, we cannot come to any conclusion.

70. e Abdul buys all his shares at 10 am while the other two purchases once every hour. Since the share prices throughout the day is not specified, we cannot compare the returns of Abdul with the other two. Let us observe the strategies adopted by Bikram and Chetan.

Bikram buys equal number of shares every one hour, irrespective of their prices.

Chetan invests equal amount every one hour, irrespective of the share prices. This means that higher the share price, lesser the number of shares purchased by him. This in turn reduces his return. So whenever the prices are changing, Chetan's returns will be higher than Bikram's. In case, the share prices remain the same, the returns of Bikram and Chetan will be equal.

Hence, the correct option is (e) – none of the above.

71. a As the share prices are increasing throughout the day, the earlier a person invests, the more profitable it would be. Therefore, Abdul who invested in the beginning only, had reaped in the maximum return.

Between Bikram and Chetan, Bikram bought a fixed number of shares every one hour, i.e. towards the end , he must have bought the same number of shares at an even higher rate. Meanwhile, Chetan invested same amount every one hour, i.e. he bought higher number of shares when the prices were low and vice versa. Hence, Chetan's return will be definitely higher than Bikram's.

Additional data for questions 72 to 73:

Let the share prices (in Rs.) at 10 am, 11 am, 12 noon, 1 pm, 2 pm and 3 pm be a, b, c, d, e and f respectively.

Abdul purchased all his shares at 10 am and sold off the same at 3 pm. It is given that he incurred a loss. If he bought n shares, then his investment = na must be more than his sale price = nf, i.e.

$$na > nf \Rightarrow a > f \quad \ldots (i)$$

Similarly, Emily bought/sold same number of shares at 10 am/12 noon and 1 am/3 pm and finally made profit.

i.e. $c + f > a + d \quad \ldots (ii)$

Similar observation for Dane can be made

i.e. $d + e + f > a + b + c \quad \ldots (iii)$

It is given that share price at 12 noon is less than the opening price, i.e.

$$a > c \quad \ldots (iv)$$

Also, share price at 2 pm is lower than the closing price

i.e. $f > e \quad \ldots (v)$

From (i) and (ii), we get

$$c > d \quad \ldots (vi)$$

From (i), (iii) and (vi), we get e > b

Hence, we have a > f > e > b and a > c > d.

72. a The share price was the highest at 10 am.

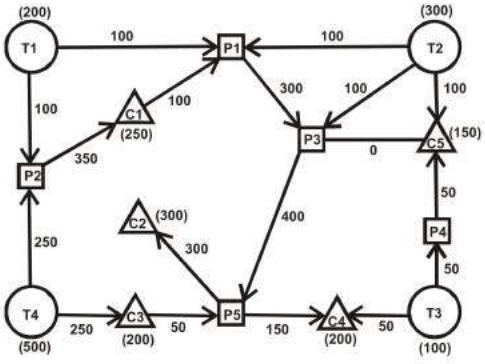
73. a, d

Share price was lowest either at 11 am or 1 pm. Therefore, option (a) is false.

Share price at 1 pm was higher than that at 12 noon (equation (vi)).

For questions 74 to 77 :

The figure can be completed on the basis of the given information. It would look like this:



74. d

75. c

76. d

77. b

For questions 78 to 80 :

Let N(1) = N(6) = a, N(2) = N(5) = b, N(3) = c and N(4) = d. Here a, b and c are distinct (as given). Also, b and d cannot be the same.

Hence, 2a + 2b + c + d = 10 (the total number of people).

$$\Rightarrow \quad 2(a + b) + c + d = 10$$

The least possible value of 'a + b' is 3 and it is evident from the above equation that none among a, b, c and d can be greater than or equal to 4. The only possible integer solution to the above equation is when a, b, c and d are equal 1, 2, 3 and 1 respectively.

The following table can thus be concluded:

	Number of occupants	Name of the occupants
Floor 6	1	?
Floor 5	2	?
Floor 4	1	?
Floor 3	3	?
Floor 2	2	?
Floor 1	1	?

From statement (ii) and the above table it is evident that Chuck's floor number is greater than 3 and hence from statement (i) and the above table it can be concluded that Chuck and Berry live on floor 5. Subsequently, Kirk and David live on floor 4 and floor 3 respectively. Clapton, Jimmy and Hammett must occupy floor 1 and floor 2 (in no particular order), as they live below David. From statement (iii) it can be concluded that Gilmour and Page live on floor 3 with David. Finally, it can be concluded from statement (iv) that Jimmy and Eric live on floor 1 and floor 6 respectively. The table can be completed as given below.

	Number of occupants	Name of the occupants
Floor 6	1	Eric
Floor 5	2	Chuck, Berry
Floor 4	1	Kirk
Floor 3	3	David, Gilmour, Page
Floor 2	2	Clapton, Hammett
Floor 1	1	Jimmy

78. b Difference = 3 – 2 = 1

79. a Eric lives on floor 6

80. c Jimmy lives alone on floor 1. The rest 9 people live on floors higher than his.

For questions 81 to 83:

From statements (i), (ii) and (vi), it can be concluded that Alfred was the first person to reach the museum. From statements (i), (ii) and (iv), it can be concluded that Dirk was wearing the Yellow shirt.

Hence, either Alfred or Buckley was wearing the Purple shirt and the other one was wearing the White shirt. From statement (v), it can be concluded that Alfred was wearing the Purple shirt while Buckley was wearing the White shirt. Further analysis leads to the following table:

	(Left to Right)			
	First-to-last to arrive at museum			
Person	Alfred	Dirk	Buckley	Cherry
Shirt Colour	Purple	Yellow	White	Red

81. b Buckley

82. c Cherry

83. a Only statement I is correct.

84. d Option (a) Violates the condition that Rahul and John want to be selected together.

Option (b) Violates the condition that Kamal cannot be in the group with Nusarat.

Option (c) Violates the condition that Rahul and John are to be selected together.

Option (d) Rohit, Nusarat, Rehana – is acceptable

85. c Option (a) Violates the condition that John and Rahul are selected together.

Option (b) Violates the condition that Kamal has to be with Rehana.

Option (c) Rahul, John, Rehana, Kamal – is acceptable

Option (d) Violates the condition that Nusarat cannot be with Kamal.

86. d Option (a) is not correct as if Kavya and Rohit both the selected then Rahul and John cannot be selected and Kamal and Rehana must be selected. If Kamal is selected then Nusarat cannot be selected but as Rohit is selected Nusarat must be selected which is contradictory.

Option (b) is also incorrect.

Both women $\Rightarrow$ Rehana and Kavya

Kavya $\Rightarrow$ Kamal

Now, one more male is required. He cannot be Rahul or John because they should necessarily be together. Rohit cannot exist in the group without Nusarat and Nusarat cannot exist because Kamal is already selected. Hence, a group of 4 having both women is also not possible.

Option (c) is not correct as Kamal should not be with Nusarat and Rohit cannot be with Rahul.

87. a The only possible group:

Kamal, Kavya, Rehana, Rahul and John.

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88. a The minimum return will be gained if the extraordinary performing stocks (double & 1.5 growth) are the ones whose expected returns are lowest (i.e. 10% & 20%). Taking the minimum value of the expected returns as 10. We have to see which of the two values of 10 and 20 multiplied by 2 and 1.5 and vice versa yields the minimum value.

Hence comparing the minimum value between $20 \times 2 + 10 \times 1.5$ and $20 \times 1.5 + 10 \times 2$, the 2nd one is minimum. Hence the minimum average return is

$$\frac{20 \times 1.5 + 10 \times 2 + 30 + 40}{4} = 30\%$$

89. b If the average return is 35%, then the total return is

$$35 \times 4 = \text{Rs.}140.$$

The only possible arrangement of 140 is

$$40 \times 1.5 + 30 + 20 \times 2 + 10.$$

$\therefore$ A = 20 × 2 (Cement or IT)

B = 10

C = 30

D = 40 (1.5) (Steel or Auto)

From the data given in the question, we see that A has to be Cement or IT.

D is Steel or Auto.

Hence, statements (II) and (III) are correct.

90. c Total return is 38.75 × 4 = Rs.155

The possible arrangement is

$$20 + 10 + 30 \times 1.5 + 40 \times 2$$

Therefore, A = 20, B = 10, C = 30 (Steel or Auto), D = 40 (Cement or IT)

Hence, statements (I) and (IV) are correct.

Hence, (c) is the correct option.

91. b Given Company C is either Cement or IT industry

C's Return is 30 × 2 = 60%

Among the other values we see that the possible arrangements can be

10 × 1.5 + 20 + 40, 10 + 20 × 1.5 + 40, 40 + 20 + 40 × 1.5

The average returns will be in each case

$$\frac{10 \times 1.5 + 20 + 40 + 60}{4} = 33.75\%,$$

$$\frac{10 + 20 \times 1.5 + 40 + 60}{4} = 35\%,$$

$$\frac{40 + 20 + 40 \times 1.5 + 60}{4} = 45\%.$$

Considering 33.75% as the valid value, then B belongs to the Auto industry.

Hence, (II) and (IV) are correct.

Hence, (b) is the correct option.

92. 10 Since, L is the winner of the tournament, it must have won at least five matches. E is not qualified for second stage, it means E definitely won less than six matches.

Only possible case is shown below:

Number of matches won by E = Number of matches won by L = 5

Hence, required number = 5 + 5 = 10.

93. 2 Any team who had won two matches, there is a possibilities that the team will qualify for second stage. A possible case for the number of wins

= 2 2 2 2 2 6 6 6.

94. 2 Statement (i) is obviously true.

Three teams in group 1 and three teams in group 2 can win one match each in stage 1.

Statement (ii) is incorrect because maximum number of teams which could have three wins in the first stage would be 14.

Possible case: 3 3 3 3 3 3 3 7 i.e. seven teams in each group would have three wins in the first stage.

Statement (iii) is clearly correct.

Hence, statement (i) and (iii) are correct

95. 22 Four teams cannot have six wins each hence maximum number of matches won in the first stage by teams A, B, C and D together would be 22

Possible case for number of wins: 2 1 1 2 4 6 6 6.

Required number = 4 + 6 + 6 + 6 = 22.