Exercise – 1

Directions for questions 1 to 4: These questions are based on the following information.

A test has two parts, Part A and Part B. Part A consists of seven questions, in each of which a student can score 2 or 0 marks. Part B consists of 5 questions., in each of which a student can score 8 or 3 or 0 marks.

1. Which of the following marks cannot be scored?
(A) 47 (B) 49 (C) 51 (D) 52

2. If Sangha scored 43 marks, then which of the following is false?
(A) He scored 0 in one of questions from part B.
(B) He scored 0 in one of questions from part A.
(C) He scored 0 in 3 questions from part A.
(D) He scored a total of 8 marks from part A.

3. Ravi, Teja, Pavan and Raj attempted eight questions each but did not score zero in any question. No two of them received same marks. What is the maximum possible difference in the sum of the marks scored by Ravi and Teja to that of sum of marks scored by Pavan and Raj?
(A) 46 (B) 47 (C) 52 (D) 51

4. If both Datta and Sumanth attempted nine questions each and they did not score zero in any of the questions, then what is the maximum possible difference in their marks?
(A) 25 (B) 27 (C) 26 (D) 28

Directions for questions 5 to 8: These questions are based on the following information.

In a mini library there are four shelves. Each shelf contains books of a different subject among physics, chemistry, maths and biology. Each shelf contains a different even number of books. None of the shelves is empty. A confused librarian misplaced these books. The following is known about the books in different shelves.

1. All the shelves together have 24 books, out of which half are misplaced.
2. The number of books in Chemistry shelf is twice that of the number of books in Physics shelf.
3. The books of any specific subject are placed in a maximum of two shelves.
4. Each shelf has the same number of books as it initially had.
5. Two third of books in maths shelf should have been in biology shelf.
6. All but two books which are now in maths shelf do not belong to that shelf.
7. A maximum of half the physics books are misplaced by the librarian.

5. How many chemistry books are kept in biology shelf?
(A) 4 (B) 2 (C) 3 (D) 1

6. How many physics books are correctly kept in its original shelf?
(A) 1 (B) 2 (C) 0 (D) 4

7. How many biology books are in maths shelf?
(A) 2 (B) 4 (C) 6 (D) 5

8. The books in which shelf are not misplaced at all?
(A) Physics (B) Maths
(C) Chemistry (D) Biology

Directions for questions 9 to 12: These questions are based on the following information.

Five airline companies P, Q,R,S and T applied to government for permission to run their flights in a certain city A. The government gave them permission to have certain number of trips every year but with uniform frequency based on the fee they paid. A regular traveller observed the trips of different flights on different days. P on 2nd July, Q on 3rd July, R on 4th July and so on. After some days he also observed the below trips: T on July 30th, S on July 31st and R on August 1st and so on. No flight has a trip every day. Every flight has a trip at least once in every week.

9. Frequency of which of the following flights can be uniquely found out?
(A) P (B) Q (C) R (D) S

10. Assume that each flight has a distinct frequency. Which of the following frequencies can be definitely inferred?
(A) P, R, S (B) S, P, Q (C) S, R, Q (D) S, R, T

11. From the above question, which flight has the trips with least frequency?
(A) P (B) Q (C) R (D) S

12. Assume that each flight has a distinct frequency. Which of the following statements allow us to uniquely determine the frequency of all the flights?
(A) Q has a trip every 3 days
(B) Q has a trip every 5 days
(C) T has a trip every 3 days
(D) T has a trip every 6 days

Directions for questions 13 to 16: These questions are based on the following information.

There are some people in a colony, each purchases one or more fruits among - Apples, Oranges and Bananas.

The number of people who purchase Apples, Oranges and Bananas are 183, 200 and 174, not necessarily in the same order.
It is also known that

i. The number of people who purchase all the three fruits is half the number of people who purchase exactly two fruits.
ii. The number of people who purchase only Apple is half the number of people who purchase Bananas.
iii. The number of people who purchase orange is thrice the number of people who purchase exactly two fruits.
iv. The number of people who purchase only orange is four more than the number of people who purchase only Banana.

Directions for questions 13 to 16: Write your answer in the input box provided below the question.

13. How many people are there in the colony?

14. What is the number of people who purchase Apple and Banana but not Orange?

15. What is the difference between the number of people who purchase only Banana and the number of people who purchase only Apple?

16. Among the people who purchase Apple, what is the number of people who purchase at least two fruits?

Directions for questions 17 to 20: These questions are based on the following information.

Four friends Surya, Akhil, Guru and Sai are playing a game where in each round the loser has to double the money of the other three from his share of money. They played a total of four rounds. Surya, Akhil, Guru and Sai lost in the rounds - 4, 3, 2 and 1 respectively. After the end of 4 rounds everyone is left with ₹24000.

17. What was the amount (in ₹) with Surya at the end of third round?
(A) 50000 (B) 60000 (C) 70000 (D) 45000

18. What was the initial amount (in ₹) with Sai?
(A) 48000 (B) 49000
(C) 49500 (D) 50000

19. What was the amount (in ₹) with Guru at the end of 1st round?
(A) 50000 (B) 55000 (C) 60000 (D) 51000

20. What was the lowest amount (in ₹) which any of the four had at any point of time in the game?
(A) 3000 (B) 2000
(C) 4000 (D) 2500

***Directions for questions 21 to 25*:** These questions are based on the following information.

In a colony there are 25 houses A through Y and are constructed in the following pattern i.e., in the form of a 5×5 grid.

A	B	C	D	E
F	G	H	I	J
K	L	M	N	O
P	Q	R	S	T
U	V	W	X	Y

The houses in each row are of different heights among a, b, c, d and e and the houses in each column are of different heights among a, b, c, d and e, are in the decreasing order. From the top of any house, only the houses in that column and in that row are visible. A house is visible from the top of another house, only if it is taller than the other and there is no obstacle (obstacle is a house taller than both the houses) in between them. It is also known that,
(i) Eight houses are visible from the top of the house F.
(ii) Only 6 and 3 houses are visible from C and N respectively.
(iii) No house is visible from V.

21. Which of the following houses is of the height e?
(A) W (B) Y
(C) Q (D) Cannot be determined

22. What is the height of the house T?
(A) a (B) b (C) d (D) c

23. How many houses can be seen from house Q?
(A) 8 (B) 6 (C) 5 (D) 7

24. Which of the following is the correct combination of the house and the number of houses that can be visible from that house?
(A) M-3 (B) S-2 (C) L-3 (D) H-3

25. What is the height of house E?
(A) a (B) b (C) c (D) d

Exercise – 2

Directions for questions 1 to 4: These questions are based on the following information.

In a collegenine seminars are to be conducted. students are allowed to attend whichever seminar they want to. But timings of some seminars overlap with each other. It is known that
1. The timing of seminar P overlaps with that of V, X and U.
2. The timing seminar of Q overlaps with that of R, W, V and T
3. The timing seminar R overlaps with that of Q, W, V and T
4. The timing of seminar S overlaps with that of W and T
5. The timing of seminar V overlaps with that of W.

1. What is the minimum possible number of rooms required to conduct all the nine seminars?
(A) 2 (B) 3 (C) 4 (D) 5

2. If only two rooms are available, then cancelling which seminar will help to conduct the remaining seminars?
(A) P
(B) Q
(C) R
(D) The above situation is not possible.

3. If the timing of seminar Q is shifted in such a way that it doesn't overlap with that of W, then what is the minimum possible number of rooms required?
(A) 2
(B) 3
(C) 4
(D) 5

4. Which of the following is false?
(A) Seminars P and Q can be held in the same room.
(B) Seminars V and R can be held in the same room.
(C) Seminars R and S can be held in the same room.
(D) None of these

Directions for questions 5 to 8: Read the information given below and answer the questions that follow.

(a) 2500			(b)	
(c) 50		(d)		(e) 89
(f)	(g) 26		(h) 24	(i)
(j)	(k)	(i) 11	(m)	(n)

In the table the number in a cell is a is either a product or a sum of the numbers in the two cells touching its border at the bottom. For example, the number in (a) is either a product or sum of the numbers in (c) and (d), and the number in (c) is either a product or a sum of the numbers in (f) and (g). The number in any cell is an integer.

Directions for questions 5 to 8: Write your answer in the input box provided below the question.

5. What is the value of (n) if the highest value of any cell in the bottom row is less than the lowest value of any cell in row 3?

6. What is the maximum possible value of (b)?

7. What is the value of d?

8. If the number in any cell of a row is obtained by the same operation (multiplication or addition), then what would be the value of (n)?

Directions for questions 9 to 12: These questions are based on the following information.

Five friends - Murali, Balu, Omar, Puneet, Williams – have different bags of different colours among: magenta, blue, orange, purple and white. It is also known that

1. Each person's name's first letter doesn't match with that of their bag's colour.
2. Puneet doesn't have magenta or blue coloured bag.
3. Balu and one of his friends have bag colours in such a manner that the first letter of the bag colour of one among these two matches with the first letter of the name of the other.

9. If Murali didn't have blue bag, then what bag could Williams have?
(A) white (B) magenta
(C) orange (D) purple

10. If Murali didn't have purple bag, then what bag could Omar have?
(A) blue (B) magenta
(C) orange (D) purple

11. If when Omar exchanges his bag with Puneet and then Puneet exchanges his bag with Williams. After these 2 exchanges, if each of the three have the first letter of their bag's colour matches with that of their names, then which of the following statements is true prior to the exchange?
(A) Murali had a magenta bag.
(B) Balu had a white bag.
(C) Murali had a blue bag.
(D) Omar had a purple bag.

12. Which of the following is false?
(A) Omar had a magenta bag
(B) Balu had a magenta bag
(C) Murali had an orange bag
(D) Omar had a white bag.

Directions for questions 13 to 16: These questions are based on the following information.

Six countries, A through F, are ranked from 1 to 6 on each of the two parameters – Cleanliness Index (CI) and Health Index (HI). No two countries have the same rank in any parameter and no country has the same rank across the two parameters. In any parameter, a numerically lower rank is considered better than a numerically higher rank.

Further, the sum of the two ranks of any country is not greater than 8.

It is also known that

i. A is ranked better than F in HI, while F's rank in CI is worse than its rank in HI.
ii. D, which is ranked fourth in HI, is not ranked second in CI.
iii. the country which is ranked sixth in CI is not ranked first in HI.
iv. the rank of C in CI is the same as the rank of E in HI, while the rank of E in CI is the same as the rank of C in HI.
v. F is ranked third in HI, and C is ranked fifth in CI.

13. What is the rank of B in CI?
(A) 5 (B) 2 (C) 3 (D) 4

14. Which country is ranked third in CI?
(A) A (B) B (C) C (D) D

15. For how many countries is the sum of their ranks in CI and HI exactly eight?
(A) 1 (B) 2 (C) 3 (D) 0

16. How many countries are ranked worse than D in CI but better than D in HI?
(A) 2 (B) 3 (C) 4 (D) 1

Directions for questions 17 to 20: Answer these questions based on the following information.

P, Q, R and S were four actors. A, B, C and D were the four directors who directed these actors for their movies released in a particular year. Each actor individually acted in two movies directed by two different directors and these movies were released in that particular year. The first released movies acted by the four actors were all directed by different directors. No actor's second movie was released before any other actors first movie. All the actors' second movies were released in the same sequence as their first movies.

The following additional facts are known.
(i) No director who directed a movie of Q, directed any movie of R.

(ii) No director who directed a movie of S, directed any movie of P.
(iii) The actor of the first released movie was Q; this movie was directed by C.
(iv) The actor of the last movie was S; this movie was directed by D.
(v) The movies directed by B were released consecutively. The number of movies released between the release of movies directed by any of other directors remains the same.

17. Who directed the third movie?
(A) A (B) B (C) C (D) D

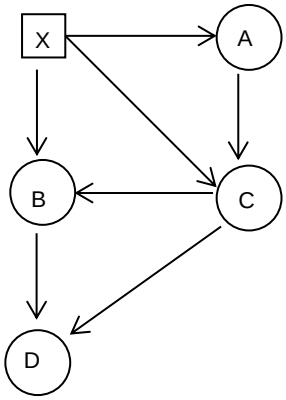
18. Which pair of movies are directed by C and D respectively?
(A) movies 6, 3 (B) movies 1, 7
(C) movies 1, 5 (D) movies 7, 8

19. which of the following is true?
(A) Movie 1 is directed by D.
(B) B directed movies 5 and 6.
(C) Movie 7 is directed by A.
(D) Movie 6 was not directed by C.

20. which of the following is false?
(A) Movies 1 and 6 were directed by C.
(B) B and D were the directors of movies in which S acted.
(C) D didn't direct movie 3.
(D) B directed movie 4.

Directions for questions 21 to 25: These questions are based on the following information.

In a college, there are five departments – M_1, M_2, M_3, M_4 and M_5. At the end of the academic year, 'no dues' forms of the students of each department must be signed by at least one of the four authorised persons among A, B, C and D. The students submit their forms to X, who forwards the forms to a different person, among A, B and C depending on the student's department. These persons after signing forward the forms to the next authorised person, if required, and so on. The group of authorised persons who sign the 'no dues' forms of the students of different departments is different. No person receives a no dues certificate that he/she need not sign. A form is passed only in one of the roots indicated below. The transfer of the forms is shown by the following diagram.



It is known that:
(i) All the forms must be signed by D.
(ii) The forms of the students of the department M_5 are not to be signed by C.
(iii) The forms of the students of the departments M_1 and M_2 must be signed by A and the number of students in these two departments is equal.
(iv) The forms of the students of the department M_4 must be signed only by C and D.
(v) The total number of forms signed by A, B and C are 40, 70 and 80 respectively. The number of students in each department is an integral multiple of 10.

21. In which department, the number of students is the highest?
(A) M_3 (B) M_5
(C) M_4 (D) Cannot be determined

22. What is the minimum possible number of students in M_5?
(A) 30 (B) 10 (C) 20 (D) 40

23. What is the maximum possible number of forms signed by D?
(A) 120 (B) 90
(C) 110 (D) 100

24. If the number of students in the M3 is 30, then in which department is the number of students least?
(A) M_1 (B) M_2 (C) M_4 (D) M_5

25. What is the median of all the possible values of M4?
(A) 20 (B) 10 (C) 15 (D) 30

Exercise – 3

Directions for questions 1 to 4: Answer these questions based on the following information:

Each of the letters P through Y represents a distinct digit from 0 to 9 not necessarily in the same order and the letter P does not represent 0. The addition of two six-digit numbers is given in the table below based on the above representation.

	Q	U	S	T	P	R
+	U	R	P	R	P	Q
S	S	T	T	Q	P	X

1. Which digit does the letter X represent?
(A) 3 (B) 4 (C) 5 (D) 6

2. Which digit does the letter U represent?
(A) 3 (B) 2 (C) 6 (D) 7

3. Which among the digits 3, 4, 6 and 8 cannot be represented by the letter W?
(A) 3 (B) 4 (C) 6 (D) 8

4. Which among the digits 3, 4, 6 and 7 cannot be represented by the letter Y?
(A) 3 (B) 4 (C) 6 (D) 7

Directions for questions 5 to 8: Answer these questions based on the following information:

A box contains chocolates of types A, B, C, …. The box contains 200 chocolates. A certain number of children take chocolates from the box. The first child takes a chocolate of type A. The second child takes at least twice as many chocolates of type B as that of type A taken by the first child. The third child takes at least twice as many chocolates of type C as that of type B taken by the second child, and so on. Each child takes chocolates of exactly one type. After all the children took the chocolates from the box, there were no chocolates remaining in the box.

5. What is the minimum possible number of different types of chocolates?
(A) 3 (B) 2 (C) 4 (D) 5

6. What is the maximum possible number of different types of chocolates?
(A) 6 (B) 7 (C) 8 (D) 9

7. Which of the following is is not possible?
(A) The second child took 57 chocolates of type B.
(B) The third child took 81 chocolates of type C.
(C) The second child took 56 chocolates of type B.
(D) The fourth child took 120 chocolates of type D.

8. If there are more than 136 chocolates of type G, then what is the total number of chocolates of type B and type F?
(A) 30 (B) 46 (C) 42 (D) 34

Directions for questions 9 to 12: Answer these questions based on the information given below.

Each of the four friends Ashna, Sinchan, Tamang and Adis travelled to a different seaport, namely Tuticorin, Mangalore, Mumbai, JNPT not necessarily in the same order. Each of them rafted on a different river out of which Narmada and Tapti are West flowing and Kaveri and Godavari are East flowing rivers. Each of them visited a different national park, out of which Silent Valley and Bandipur are in the South, whereas Shivpuri and Dudhwa are in the North.

- Those who rafted on West flowing rivers, did not visit the national parks in the South whereas those who rafted on East flowing rivers did not visit national parks in the North.
- Ashana visited Bandipur and Adis visited Dudhwa.
- Sinchan rafted on Tapti and Tamang visited Mangalore.
- The one who went to Tuticorin port rafted on river Kaveri.

9. Who visited the Tuticorin port?
(A) Ashana
(B) Sinchan
(C) Tamang
(D) Adis

10. The one who rafted on Tapti river, visited which port?
(A) JNPT
(B) Mumbai
(C) None of the above
(D) Cannot be determined

11. Who visited Silent Valley national park?
(A) The one who visited the Tuticorin port.
(B) The one who rafted on Kaveri river.
(C) Adis
(D) The one who rafted on Godavari river.

12. If the one who visited Shivpuri also visited the JNPT port, then which port did Adis visit?
(A) Mumbai
(B) Mangalore
(C) Tuticorin
(D) Cannot be determined

Directions for questions 13 to 16: Read the following information and answer the questions that follow.

Five friends M, N, O, P and Q went for shopping and each bought a different item. They all got discounts of 10%, 20% or 30%.

M got a unique rate of discount among the five. Two out of the remaining four friends got 10% discount and the other two got 30% discount. O got a discount of Rs 900.
The pre-discount price of the item that N bought was one-fourth of the amount of discount which P got. Both got the same discount rate though.

The post discount price of the item that P bought was double the pre-discount price of the item that Q bought.

The ratio of the amounts of discount of M and O is 4 : 3.
Q got a discount of Rs 700.
All the amounts are integers.

Directions for questions 13 to 16: Write your answer in the input box provided below the question.

13. What is the difference between the amount of discount received by O and N?

14. What is the sum of discounts received by all five friends?

15. What is the difference between the post discount prices of items purchased by N and Q?

16. How much more is the post discount price of item purchased by O than the amount of discount received by M?

Directions for questions 17 to 20: These questions are based on the following information.

Each of the faces of a cube is divided into two equal portions by drawing a line parallel to one of the edges. The lines are drawn in such a way that, no two lines touch the same edge. Now after all the lines are drawn, the cube is painted with red and green on each of the faces such that one of the divided portions is painted in red, the other in green. Further, the red portion on any face is opposite the

red portion on the opposite face and the green portion is opposite the green portion on the opposite face. Now, this cube is cut into 216 smaller but identical cubes.

Directions for questions 17 to 20: Write your answer in the input box provided below the question.

17. How many smaller cubes have only red colour on them?

18. How many smaller cubes have green colour on at least two faces?

19. How many smaller cubes are painted with exactly two different colors?

20. How many smaller cubes will have the number of three faces painted with different colors?

Directions for questions 21 to 25: These questions are based on the following information:

Ajay and Sujay are the winners of an e-commerce web contest, and each of them will receive a gift voucher through e-mail at 10 a.m. on twelve different dates in the year 2017.

Each winner can choose one scheme between the two schemes as below.

Scheme 1: Start receiving gifts from 1st January and the wait (in number of days, not necessarily equal) for every next voucher is not less than the wait for the voucher last received.

Scheme 2: The last voucher will be received on 31st December, but after you start receiving the vouchers the wait (in number of days) for every next voucher will not be more than the wait for the voucher last received.

The wait period for the voucher is the gap between the two consecutive receipts of vouchers (in days).

The following is known:

(i) Sujay will receive two vouchers on December 30th and 31st respectively.

(ii) Each one will receive at least half of his vouchers in only one month and the rest of the vouches in four different months.

(iii) The wait period for the eighth voucher of Ajay and Sujay are 13 and 5 days respectively.

(iv) For Sujay, starting from the last voucher the wait period for each of the vouchers expect the 1st, 2nd and 3rd vouchers are same as the difference between the wait period of the previous two vouchers.

(v) Ajay's wait for his second voucher is the same as Sujay's wait for his last voucher.

(vi) The wait period, from the 2nd voucher to the last voucher of Ajay is same as the Sujay's last voucher to the 2nd voucher respectively.

21. Under the contest, what is the maximum number of vouchers Ajay or Sujay received in any month of 2017?

(A) 6 (B) 7
(C) 8 (D) Cannot be determined

22. What is the number of days between the day Ajay receives his last voucher and the day Sujay receives his first voucher (both days excluded)?

(A) More than 80 days but less than 100 days
(B) More than 60 days but less than 80 days
(C) None of the above
(D) Cannot be determined

23. Based on the given information on the vouchers received by both Ajay and Sujay, pick the odd one out:

(A) May
(B) August
(C) October
(D) November

24. In how many months were vouchers given to neither Ajay nor Sujay.

(A) Four
(B) Six
(C) Two
(D) Cannot be determined

25. What is the number of days between the day Sujay receives the fifth voucher and Ajay receives his sixth voucher?

(A) More than 280 but less than 300
(B) More than 260 but less than 280
(C) More than 300 but less than 320
(D) More than 320 but less than 340

Exercise – 4

Directions for questions 1 to 4: Answer the questions based on the data given below.

Five persons standing adjacent to each other. Each of them belongs to a different state, each owns a different car and each prefers a different fruit. The following clues are given about them.

- The one who is from Assam stands next to the person who prefers Banana.
- The owner of Tata car is from Assam.
- The one who prefers dates, is standing at an end.
- The person who stands in the middle is from Telangana state.
- The one who prefers kiwi owns a Maruti car.
- The owner of Ford car is adjacent to the one who prefers dates.
- The one who prefers banana is adjacent to the one who is from Telangana.
- The one who owns a Maruti car, stands next to the one who owns a Ford car.

- The one from Gujarat state does not prefer apple. The one from Karnataka does not own a Honda car.
- The one from UP state prefers banana. The one who prefers dragon fruit is adjacent to the one who is from UP and does not own a Mahindra car.

1. Who is adjacent to the owner of Tata?
(A) The one from Telangana.
(B) The one who prefers apple.
(C) The one who is from UP.
(D) The one who owns a Ford.

2. Who is from Karnataka?
(A) The one who prefers Dates.
(B) The one who owns a Maruti.
(C) The one who prefers kiwi.
(D) The one who owns a Ford.

3. What best can be said about the one who is from Gujarat?
(A) He owns a Mahindra
(B) He prefers dates.
(C) He owns a Honda.
(D) He is adjacent to the one from Telangana.

4. Which of the following is false?
(A) The owner of Maruti is adjacent to the one prefers apple.
(B) The one from UP owns a Honda.
(C) The one who owns a Honda is from Gujarat.
(D) The one who prefers Dragon fruit is adjacent to the one who owns a Maruti.

Directions for questions 5 to 8: These questions are based on the information given below.

Six contestants – A through F participated in the buzzer round of a quiz competition. In that round each of them had to press the buzzer after a question was asked, the person who press the buzzer first will get the first chance to answer the question. In total 20 questions were asked in that round. On giving a correct answer, a contestant gets 3 points whereas 1 point was deducted from the total points, if the contestant who got the first chance to answer the question gave a wrong answer and that particular question will not be transferred to the next contestant. In case if someone pressed the buzzer first but did not give any answer, no point was awarded or deducted from that contestant but the question will get transferred to the contestant who had pressed the buzzer immediately after that contestant and if the contestant gave the correct answer of the transferred question, then the contestant will get points. Any question was transferred at most once. All the transferred questions were answered correctly by the contestants.

"Attempting" a question implies that the contestant either got the first chance to answer the question or answered a transferred question.

The following information is known regarding them in that quiz.
(1) Each one among them had answered at most one transferred question.
(2) At least two questions and at most five questions have been attempted by any person.
(3) F attempted the minimum number of questions and D attempted five questions including one transferred question.
(4) Two contestants gave exactly two wrong answers each.
(5) None of them attempted exactly three questions.
(6) F neither attempted any transferred question nor he was awards 'zero' points for any question.
(7) Total points scored by A, B, C, D, E and F are 5, 6, 3, 7, 8 and 2 respectively.

5. To how many questions did E give wrong answer?
(A) Zero (B) One (C) Two (D) Three

6. Who among the following did not transfer any question?
(A) A (B) D
(C) E (D) None of these

7. How many questions were attempted by A and C together?
(A) Eight (B) Seven (C) Ten (D) Nine

8. Who among the following answered exactly two questions correctly in the first chance?
(A) B
(B) D
(C) A
(D) More than one of the above

Directions for questions 9 to 12: These questions are based on the following information.

A survey was conducted among 250 children to learn that which game they like to play between cricket and football and which superhero they like most between Spiderman and batman. It was found that each of the children who like to play both cricket and football like at least one of the two superheroes. The number of students who like both the games and both the superheroes is same as that who like both the superheroes but neither of the two games. Of the students who like football but not cricket, none of the students like Spiderman. The number of students who like cricket but neither football nor any of the two superheroes is same as the number of students who like Spiderman but neither batman nor any of the two games. The number of students who like football, but neither cricket nor any of the two superheroes is 17. The number of students who like both the superheroes is 52. The number of students who like both the superheroes but none of the two games is 18. The number of students who like Spiderman but not batman is same as the number of students who like cricket but not football which in turn is 77. The number of students who do not like any of the two superheroes is 32. The number of students who like batman and both the games but not spiderman is 23 and the total number of students who like both the games is 77. The number of students who like none of the games is 60 and that who like who like batman but not superman is 89.

Directions for questions 9 to 11: Write your answer in the input box provided below the question.

9. How many students like batman and football but neither superman nor cricket?

10. How many students like batman and cricket but neither football nor superman?

11. How many students like football but not cricket?

12. Which of the following statements is/are true.
I. The number of students who like both the games and Spiderman is 36.
II. The number of students who like football but neither cricket nor any of the superheroes is 35.
III. The number of students who do not like batman is 109.
(A) Only I (B) Only II
(C) Only III (D) Only I and III

Directions for questions 13 to 16: These questions are based on the following information.

In the island of Hololoho, each person belongs to any one of the two communities – Day and Night. The people who belong to day community always speak truth and the people who belong to night community always lie. Four people – Bright, White, Light and Sprite, who belong to the island of Hololoho met in a conference, where each of them has to introduce himself regarding his community and profession, individually to each of the remaining three persons. After their introductions, they were asked to tell about others and they were restricted to make exactly two statements and their replies are as follows.

Bright: Light told me that he is not from day community.
White told me that he is a professor.

White: Bright told me that he is not an Architect.
Sprite told me that he is not an Engineer.

Light: White told me that he is from day community.
Sprite told me that he is a Manager.

Sprite: White told me that he is from night community.
Bright told me that he is not an Engineer.

It is also known that exactly two among them is from day community. The professions of four people are different and are among Architect, Manager, Professor and Engineer.

13. Who is the Engineer?
(A) Bright (B) Light (C) White (D) Sprite

14. Who is the Manager?
(A) Bright (B) Light (C) White (D) Sprite

15. What is the profession of Light?
(A) Professor (B) Engineer
(C) Manager (D) Architect

16. Who among them belongs to day community?
(A) Bright and White
(B) Light and Sprite
(C) White and Light
(D) Sprite and Bright

Directions for questions 17 to 20: These questions are based on the following information.

Eight boys – A through H and eight girls – M through T are to be divided into six teams – two teams each for Physics, Chemistry and History – such that each team consists of at least one girl and at least one boy. The two teams selected for a particular subject will compete with each other in a quiz competition of that subject. At most one of P and Q can be selected for the quiz in History. The following table gives the teams' size for each subject, and who are eligible candidates selected for each subject. Only eligible candidates can be selected into a team.

Subject	Team	Team size	Who are eligible
Physics	Team I	3	D, F, O, C, Q
	Team II	3	E, R, G, N, O
Chemistry	Team I	3	A, B, M, N, S
	Team II	3	C, D, P, T
History	Team I	2	F, H, R, P, M
	Team II	2	Q, S, B, E

17. If four girls are selected for physics then who must be in the same team as B?
(A) A
(B) S
(C) M
(D) More than one of the above

18. If Q is selected for history then which of the following groups of students can form a team?
(A) G, E, O (B) A, M, N (C) A, B, M (D) A, S, N

19. If P is selected for chemistry then which of the following teams cannot have two girls?
(A) Physics – team I (B) Physics – team II
(C) Chemistry – team I (D) Chemistry – team II

20. If C and D are selected into the same team then who must be in the same team as that of P?
(A) F (B) H (C) R (D) M

Directions for questions 21 to 25: These questions are based on the data given below.

Archana has four wall clocks – C_1, C_2, C_3 and C_4 – one on each of the four walls of her study. Of the four clocks, C_2, C_3 and C_4 do not work properly and have certain problems which are described below.

C_2: The hour hand collapses down to 6 every time it reaches 12.
C_3: The minute hand collapses down to 6 every time it reaches 12, while the hour hand simultaneously moves through a proportionate distance in the forward direction.
C_4: Has both of the problems that C_2 and C_3 have, i.e., whenever the minute hand falls, the hour hand simultaneously moves through a proportionate distance in the forward direction. Also, when both the hands are at 12, the minute hand falls immediately after the hour hand has fallen.

At 5:59 a.m. on Sunday, Archana meticulously ensured that each of the four clocks is showing the correct time.

21. If on Wednesday morning, Archana observed that C_2 showed 8:20 AM., then what could be the correct time?
(A) 1:20 PM. (B) 10:40 PM.
(C) 12:20 PM. (D) 8:20 PM.

22. If on Thursday evening Archana notices C_3 showing 4:31 PM., then simultaneously C_1 will show _____.
(A) 6:01 PM. (B) 5:31 PM.
(C) 5:01 PM. (D) 4:31 PM.

23. If on Wednesday, Archana observed that C_3 was showing the correct time, then what could have been the correct time at that moment?
(A) 5:25 AM.
(B) 5:25 PM.
(C) 5:35 AM.
(D) Such a situation is not possible

24. If during that week, Archana happened to notice that C_1, C_2 and C_4 were showing the same time, then the correct time (along with the day of the week) could have been
(A) 6:35 PM. on Tuesday
(B) 8:35 AM. on Thursday
(C) 12:05 PM. on Thursday
(D) 11:35 AM. on Wednesday

25. If on a Monday afternoon C_2 showed time as 8:30, then what is the time shown by C_3 at the same time?
(A) 4:00 (B) 5:00 (C) 5:30 (D) 6:00

Exercise – 5

Directions for questions 1 to 4: Answer these questions based on the following information.

A student has to place 14 books (A to N) in shelves numbered 1 to 20. Six of these are maths books, three are chemistry books and the rest are physics books. All the books of the same subject are placed in consecutive shelves. There is a gap of at least one shelf and at most three shelves between books of different subjects.
The following additional facts are known.

1. N, G and F, in that order, are placed in consecutive shelves with N being in the greatest numbered shelf among the three.
2. I and E are placed in consecutive shelves with I being in a greater numbered shelf among the two. G is kept in a greater numbered shelf than I and E.
3. B, C and L, physics books, are kept in consecutive shelves, with B being in the greatest numbered shelf among the three, which is also greater than the shelf number of any math or chemistry book.
4. J and M are placed in the 20th and 16th numbered shelves respectively.
5. H and N are books of the same subject, while K is of a different subject.
6. Among a set of four consecutive shelves, A, a chemistry book, is kept in the highest numbered shelf, while the other three shelves are empty.
7. Among a set of three consecutive shelves, H is kept in the highest numbered shelf, while the other two shelves are empty.

1. Which of the following are empty shelves?
(A) 1, 2, 9, 10, 11, 15
(B) 1, 2, 3, 8, 9, 15
(C) 1, 2, 8, 9, 10, 14
(D) 1, 2, 15

2. Which of the following books is not a maths book?
(A) E (B) I (C) H (D) D

3. If maths books are placed in numerically greater numbered shelves than chemistry books, then in how many different ways can the books be arranged?
(A) 4 (B) 8 (C) 2 (D) 1

4. Which of the following statements is true?
(A) All chemistry books are kept on lower numbered shelves than maths books
(B) All chemistry books are kept in greater numbered shelves than maths books
(C) There are three empty shelves between maths and chemistry books
(D) There are at least five shelves between the shelves in which K and F are kept.

Directions for questions 5 to 8: These questions are based on the information given below.

Twelve persons who are members of a rock band stays in a building having twelve floors from the 1st floor to the 12th floor. All the persons stay in distinct floors. Among them, there are four singers, three guitarists, two drummers, two violinists and one keyboard player. There are seven male members – A, B, C, D, E, F and G and five female members – P, Q, R, S and T in the group. These members live in the building subject to the following conditions:

1. No two female members stay in adjacent floors and no singer stay in floors at the ends i.e., the top most floor or the bottom most floor.
2. D and R are both guitarists and they stay in adjacent floors but neither of them stay in the topmost or the bottommost floor.
3. P and C are both singers and P had exactly one guitarist staying in an adjacent floor.
4. A who stays in the top floor is a violinist and F is not a drummer.
5. T stays in a floor adjacent to at least one drummer and Q, the keyboard player, stays in the 7th floor.
6. All the singers stayed three floors apart from each other.
7. There were three floors between where Q and B, the violinist, stayed and there was only one female guitarist.
8. Both the drummers were males and neither of them stay in the top most or the bottom most floor.

5. How many male singers are there in the band?
(A) One (B) Two
(C) Three (D) Four

6. How many floors are there above the floor in which G stays?
(A) 4
(B) 6
(C) 8
(D) Cannot be determined

7. Who stays in the second floor?
(A) A
(B) S
(C) F
(D) Cannot be determined

8. Who among the following is a singer?
(A) S (B) F
(C) E (D) G

Directions for questions 9 to 12: These questions are based on the information given below.

Out of 800 persons living in a locality, 60% can speak in Hindi, 50% own a car and 500 can speak in English. 15% of the persons living in the locality own a car and can speak both in Hindi and English. Out of the people who own a car, 240 cannot speak in English. Out of the people who can speak in Hindi, 180 own a car. Everyone in that locality, either own a car or speak Hindi or speak English.

Directions for questions 9 to 12: Write your answer in the input box provided below the question.

9. What percent of the people who can speak in English, can also speak in Hindi?

10. What proportion of the people in that locality do not own a car or cannot speak in English?

11. How many persons can speak only in Hindi?

12. How many persons speak only in Hindi and English?

Directions for questions 13 to 16: These questions are based on the following information.

There is a group of five children Amrutha, Sathwik, Asresh, Chetan and Rishitha. Each of them selects a different toy among Car, Truck, Barbie, Train and Bus, each of which is of a different colour among White, Red, Blue, Green and Yellow, but not necessarily in the same order.

(i) Chetan selects either Car or White toy but not both.
(ii) Rishitha selects Green toy.
(iii) If Truck is Yellow in colour then it is selected by Amrutha.
(iv) Asresh selects Train, which is in either Green colour or White colour.
(v) Sathwik selects Car, if and only if it is Red in colour.
(vi) Neither Amrutha nor Chetan selects Yellow toy or Barbie.

13. Who selects a White coloured toy?
(A) Amrutha (B) Sathwik
(C) Asresh (D) Chetan

14. Who selects Barbie?
(A) Amrutha (B) Sathwik
(C) Chetan (D) Rishitha

15. Which of the following combinations is correct?
(A) Amrutha-Yellow
(B) Asresh-White
(C) Chetan-Red
(D) Sathwik-Blue

16. Who selects Blue colour toy?
(A) Asresh (B) Chetan
(C) Sathwik (D) Rishitha

Directions for questions 17 to 20: These questions are based on the following information.

Four girls baked four kinds of distinctly tasting biscuits for a cooking contest and served them in four different boxes P, Q, R and S each containing a different number of biscuits 11, 12, 13 and 14 not necessarily in the same order. The judge for the contest marked the boxes as B_1, B_2, B_3 and B_4 based on their tastes. Further, we know that

(i) the number of biscuits in the box which is marked B_1 lies between the number of biscuits in the boxes marked B_3 and B_2. B_1 is not P.
(ii) the box which is marked B_2 has 13 biscuits and it is not Q.
(iii) the number of biscuits in box R is 14 and the biscuits in the box marked B_3 has the same taste as those in box Q.

17. Which of the following statements is true?
(A) The number of biscuits in the box marked B_3 is more than the number of biscuits in the box marked B_4.
(B) The number of biscuits in the box S is less than the number of biscuits in the box Q.
(C) The sum of the number of biscuits in the boxes P and R is more than the sum of the number of biscuits in the boxes Q and S.
(D) The number of biscuits in the box R is less than the number of biscuits in the box marked B_2.

18. Which of the following is the correct combination?
(A) P – 13 biscuits, Q – B_3, R – 12 biscuits, S – B_1
(B) Q – B_2, P – 11 biscuits, R – B_4, S – B_3
(C) R – 14 biscuits, Q – 11 biscuits, P – B_2, S – B_1
(D) S – 12 biscuits, P – B_2, R – 13 biscuits, Q – B_3

19. Two more girls came to the contest with baked biscuits in boxes T and U. The number of biscuits in the box T is the average of the number of biscuits in P and Q where as that in U is the average of the number of biscuits in R and S. If each biscuit contains 2 gms of fat then what is the average fat content in all the six boxes together? (in gms)
(A) 15
(B) 35
(C) 25
(D) None of these

20. How many biscuits does box P contain?
(A) 13
(B) 12
(C) 11
(D) Cannot be determined

Directions for questions 21 to 25: These questions are based on the information given below.

A newspaper publication has invited SMSs in favour of any cricket player among A, B, C, D, E and F under two heads, BEST PLAYER and BEST CAPTAIN. Under each head depending on the number of SMSs in favour of each player they were awarded points among 1 through 5. Under each head, out of six players, two persons were awarded with equal points. Based on the sum of the points awarded under two heads the players are ranked such that the player with the maximum points gets first rank and the player with the minimum points gets the fifth rank. Two of the six players got the same rank.

We know the following additional information.

(1) Under the head – BEST CAPTAIN, F is awarded with more points than all other players and his overall ranking is better than all other players. Under the head – BEST PLAYER, A got the least points and the number of players who got more points than C is the same as that who got less points than C.
(2) Under the head – BEST CAPTAIN, three players were awarded with less points than B. Under the head – BEST CAPTAIN, C is the only player who was awarded with one point less than E who is awarded with one point less than only one player.
(3) Under at least one head equal number of players were awarded with more and less points than E. B's rank is better than (numerically less than) that of three players.
(4) Under BEST PLAYER, D got five points.

21. Who got the fifth rank?
(A) A (B) C (C) D (D) F

22. How many points did B get under the head – BEST CAPTAIN?
(A) 4 (B) 5 (C) 3 (D) 2

23. What is the rank of E?
(A) 2^{nd} (B) 3^{rd} (C) 4^{th} (D) 5^{th}

24. Who are awarded with same points under the head BEST CAPTAIN?
(A) A and C (B) A and B
(C) B and D (D) E and D

25. Who is awarded even number of points under both the heads: BEST PLAYER and BEST CAPTAIN.
(A) A (B) B (C) D (D) E

Exercise – 6

***Directions for questions 1 to 4*:** These questions are based on the following information.

Mr. Chemics wrote a paper of 100 questions, out of which, each question is either easy or difficult. Each of the 100 questions has two sub questions, one is based on Physics and other is based on Chemistry. Among the difficult questions, Mr. Chemics did not answer 20 Chemistry based sub questions correctly. Out of 21 easy questions, he answered only Physics based sub questions correctly. Among the difficult questions, only in one of the questions he answered both sub questions, correctly. Out of all the 100 questions, in 45 questions he did not answer Physics based sub questions correctly. Only in 23 questions, he answered both the sub questions correctly. There are 30 difficult questions. In 2 easy questions, he answered neither of the two sub questions correctly.

Directions for questions 1 to 4: Write your answer in the input box provided below the question.

1. In how many easy questions, only Chemistry based sub questions were answered correctly?

2. In how many questions, only Physics based sub questions were answered correctly?

3. In how many questions, either both the sub questions or neither of the sub questions were answered correctly?

4. In how many difficult questions, were only physics based sub questions answered correctly?

Directions for questions 5 to 8: These questions are based on the following information.

Five persons, each of whom belongs to a different country, rears a different pet and owns a different vehicle, are standing in a row. The following are known about them.

- The one who is from Nigeria, is standing next to the person who owns a bus.
- The person, whose pet is a snake is from Nigeria.
- The one who owns a car, is standing at an end of the row.
- The person standing in the middle is from Afghanistan.
- The one who owns a scooter rears octopus.
- The person whose pet is a zebra is adjacent to the one who owns a car.
- The one who owns a bus is adjacent to the one who is from Afghanistan.
- The one whose pet is an octopus is adjacent to the one who pet is a zebra.
- The one from Lebanon does not own a motorbike.
- The one from Turkey owns a bus. The one who owns a train is adjacent to the one who is from Turkey..

5. Which of the following options best represents the position of the person from North Korea?
(A) Standing next to the person whose pet is a bird.
(B) Standing next to the person whose pet is a fox.
(C) Owns a motorbike.
(D) Standing next to the person who is from Turkey.

6. Whose pet is an octopus?
(A) The one who owns a bus.
(B) The one who is two places away from the person who is from Nigeria.
(C) The one who is three places away from the person whose pet is a snake.
(D) Standing next to the person who owns a car.

7. What best can be said about the person whose petis a bird?
(A) The person is from Lebanon.
(B) The person is from Turkey.
(C) Either (A) or (B)
(D) None of these

8. If the person whose pet is a a fox owns a car, then who could be next to the person who owns a motorbike?
(A) The person who is three places away from the person whose pet is a a bird.
(B) The person who is next to the person from Turkey.
(C) The person from Lebanon.
(D) All of the above

Directions for questions 9 to 12: These questions are based on the following information.

A large cube is formed from 125 small but identical cubes. After the large cube is formed, each small cube is numbered (1, 2, 3, ... so on) starting from the left-most cube in the front row of the bottom layer and moving to the right, the numbering is continued from the left to the right on next row of cubes of the bottom layer that is immediately behind the previously numbered cubes until all the small cubes in the bottom layer are numbered.

Next, the cubes in the layer just above the bottom layer is numbered continuing the sequence in a manner similar to the way the bottom layer was numbered. Similarly, all the other layers of the cubes are numbered.

Directions for questions 9 to 12: Write your answer in the input box provided below the question.

9. What is the sum of the numbers on the smaller cubes forming a vertical edge of the larger cube, that is immediately behind the right vertical edge of front face of the larger cube?

10. What is the sum of the numbers forming a face diagonal that starts from the top left cube to the bottom right cube of the front face?

11. What is the sum of the numbers of the set of cubes that are immediately above the small cubes forming the bottom edge of the front face of larger cube?

12. What is the sum of the numbers on the cubes forming a diagonal that originates at the cube numbered 1 and ends at the cube numbered 125?

Directions for questions 13 to 16: These questions are based on the information given below.

Five students – A, B, C, D and E – are the five top rankers in three subjects Maths, Physics and Chemistry. Points allocated for each of the ranks – 1st to 5th in each of the three subjects is as shown below.

Points allocated

Rank	Maths	Physics	Chemistry
1st	8	7	5
2nd	7	6	4
3rd	6	5	3
4th	5	4	2
5th	4	3	1

Further it is known that,

(1) None of them got the same rank in any of the two subjects and in any particular subject, no two of them got the same rank.
(2) None of them scored the same points (based on their ranks) in any two subjects.
(3) B got four points more than the minimum possible points and he did not get 2nd rank in any of the three subjects.
(4) C's rank in each of the subjects Maths and Physics is better (numerically smaller) than his rank in Chemistry. Same is the case with D.
(5) A got two points more than the minimum possible points and C got the highest possible points.
(6) A got 4th rank in Chemistry and E did not get 3rd rank in any of the three subjects.

13. Who obtained the 5th rank in Maths?
(A) A (B) B (C) C (D) D

14. What is the rank of E in Chemistry?
(A) 1 (B) 2 (C) 3 (D) 4

15. What is the sum of the ranks of B?
(A) 12 (B) 11 (C) 10 (D) 8

16. What is the difference in sum of ranks of A and D?
(A) 0 (B) 1 (C) 2 (D) 3

Directions for questions 17 to 20: These questions are based on the data given below.

Six people – A through F are sitting in a row facing the same direction. Each of them is a topper in different subject among – Chemistry, Biology, Mathematics, History, English and Physics, not necessarily in the given order. Each of them has a different roll number among 11 through 16. Further information regarding their seating arrangement is as follows:

(1) The sum of the roll numbers of C and B is 26. Topper of Mathematics is sitting adjacent to A. A and C are not sitting at the extreme ends and also, A is sitting three places away to the left of C.
(2) The persons who topped in Biology and History are sitting adjacent to each other. The sum of the roll numbers of the topper of English and C is 27 and they both are sitting adjacent to each other.
(3) A is sitting adjacent to the person whose roll number is 16, who is not sitting at the extreme ends.
(4) The person who topped in Physics is sitting at the extreme left. The sum of the roll numbers of the persons who topped in History and Biology is 28.
(5) C's roll number is not 13 and F is sitting at the extreme right. B is three places away to the left of E. The roll number of the person who topped in Biology is not 15.

17. Who is the topper in Chemistry?
(A) A (B) B (C) C (D) D

18. Whose roll number is 12?
(A) B (B) A
(C) E (D) Cannot be determined

19. The student whose roll number is 11 is the topper in _____.
(A) Mathematics (B) Physics
(C) Chemistry (D) English

20. Who is the topper in English?
(A) E (B) F
(C) C (D) Cannot be determined

Directions for questions 21 to 25: These questions are based on the following information.

(i) Each student of a classroom is in at least one of the networks among Facebook, Linkedin, Hike, Instagram and Twitter.
(ii) No twitter user is in Facebook.
No Linkedin user is in Instagram.
Each Hike user is also a Facebook user.
(iii) The number of students in both Hike and Instagram is the same as the number of students in both Hike and Twitter.
(iv) The number of students in both Linkedin and Hike is the same as the number of students in only Facebook and Linkedin, which is same as those who are in Twitter and at least one more network.
(v) A total of 60 students use exactly one network, which is the same as the number of students who use more than one network.
(vi) Among the users of Facebook, the number of students who use exactly one more network is twice of those who use exactly two more networks.
(vii) All the users of exactly two networks together use not less than five different pairs of networks.

Directions for questions 21 to 23: Write your answer in the input box provided below the question.

21. What is the minimum possible number of users of exactly three networks?

22. What is the minimum possible number of Instagram users?

23. What is the maximum possible number of users of Linked In?

24. How many students use exactly two networks?
(A) Data inadequate (B) More than 45
(C) Exactly 45 (D) Less than 45

25. What is the minimum number of people who is/are on both Facebook and Instagram?
(A) 0 (B) 1 (C) 2 (D) 4

Exercise – 7

Directions for questions 1 to 4: These questions are based on the following information.

A semi-automatic assembler/ disassembler unit in a electric fan manufacturing plant can detect and either assemble or disassemble the input given to it. It has a workbench with a place for up to ten input trays in one row. The unit has two arms, each working on only one tray at a time, while both must work only on two adjacent trays at any point of time. The trays can be placed on the workbench either evenly spaced or unevenly spaced. Each arm can do only two functions as below;
(A) If any partly or fully assembled parts are given, disassemble them completely.
(B) If completely unassembled parts are given, then assemble them all

The workmen at the workshop will place the required input trays, with all required components, (in batches of trays) on the unit for getting a predetermined output from the unit. The assembler/ disassembler keeps working on the input trays, in the above pattern, until the desired output is achieved. An arm may work on the same tray more than once. If the workmen identify that the machine is unable to result the required output, they will intervene to stop the machine and change the trays to restart the process with a different input.

1. The unit received order for disassembling of 30 units of old completely assembled electric fans. The workmen have kept a different number of input trays in each batch, and each batch gave required output in minimum possible time without any intervention. Which of the following cannot be the number of input trays in any of the batches?
I: 4 trays II: 9 trays
III: 7 trays IV: 10 trays
(A) All the above
(B) Only II and III
(C) Only I and IV
(D) None of the above i.e., all combinations are possible

2. In the previous question, what is the total number of batches of input trays that the workmen have arranged on the workbench?
(A) Five (B) Six
(C) Seven (D) Cannot be determined

3. The assembler has received an order for complete assembly of 36 units. Only certain parts received from the suppliers are partly assembled, and the rest all are separate parts. All assembled units were obtained with four batches of equal number of input trays without any intervention by the workmen. Further one or two trays in each batch has completely disassembled parts.
Which of the following is necessarily false?
(A) Exactly one input tray in each batch has completely disassembled parts.
(B) Exactly two input trays in each batch has completely disassembled parts
(C) Both (A) and (B)
(D) Neither (A) nor (B)

4. In the previous question, if exactly three batches have equal number of input trays, which of the following is/are necessarily true?
(A) Exactly one input tray in each batch has completely disassembled parts.
(B) Exactly two input trays in each batch has completely disassembled parts
(C) Both (A) and (B)
(D) Neither (A) nor (B)

Directions for questions 5 to 8: These questions are based on the following information.

In a company, XYZ Ltd., the employees can work in two shifts – morning or evening – on any day of the week, from Monday to Saturday. Four employees of the company – Abra, Babra, Cabra and Dabra – work during these shifts as per the following conditions:

(i) Only one employee works in each shift.
(ii) Abra can work only in the evening shift and Dabra can work only in the morning shift.

(iii) Babra and Cabra can work in either the evening shift or the morning shift.
(iv) Each employee works in at least two shifts in the same week but no employee works in two shifts on the same day.
(v) No employee works in more than three shifts in the same week and no employee works on three consecutive days of the week.
(vi) Each of Babra and Cabra work such that, if either of them works in a morning shift, then the next shift that the person works in must be an evening shift, and vice versa.
(vii) Dabra works in the morning shift on Thursday.
(viii) Babra works in the morning shift on Monday and the evening shift on Friday.
(ix) Abra works in the evening shift on Tuesday.
(x) Cabra works in the morning shifts on Wednesday and Saturday.
(xi) Of the twelve shifts – morning or evening – in these six days, exactly one shift is *a shift off*, i.e., no employee works in that shift.

5. Which shift is the *shift off*?
(A) Tuesday morning
(B) Wednesday evening
(C) Monday evening
(D) Cannot be determined

6. Which of the following must be true about any given day?
(A) If Abra works in the evening shift, only Dabra may work in the morning shift.
(B) If Cabra works in the morning shift, only Abra may work in the evening shift.
(C) If Dabra works in the morning shift, only Cabra may work in the evening shift.
(D) None of these

7. If Babra works in any shift on a day, who among the following cannot work in the other shift on that day?
(A) Abra (B) Cabra
(C) Dabra (D) Cannot be determined

8. Who among the following works in the morning shift on Friday?
(A) Dabra (B) Babra
(C) Cabra (D) Cannot be determined

Directions for questions 9 to 12: These questions are based on the following information.

A team of top six Basketball players is to be selected from a group of 10 players – A through J. The selection would be done based on the ranks of four parameters – height, strength, speed and accuracy. The persons with higher rank in each parameter are preferred. If one of the two players with the same rank in different parameters is to be selected, then the order of priority would be speed, accuracy, strength and height respectively. No person got the same rank in two parameters. Following is the information known about their rankings.
(i) D and H got worst ranks than B in any parameter and the best rank of H is 6.
(ii) C is the only person who got the first rank as well as the last rank. B, E and J are the only persons who got neither the first rank nor the last rank.
(iii) In strength, F got a better rank than J, who in turn got better rank than G. In speed, F got a better rank than J, who got better rank than I, who got better rank than E.
(iv) G did not get consecutive ranks with H or D in any parameter.
(v) In height, C, F and G got the third, the fourth and the seventh ranks respectively.
(vi) In strength, B, A and D got the third, the fifth and the tenth ranks respectively.
(vii) In speed, A and B got the second and the sixth ranks respectively.
(viii) In accuracy, C, G, I and A got the second, the fourth, the eighth and the ninth ranks respectively.

9. What is the rank of F in strength?
(A) 4^{th} (B) 6^{th}
(C) 2^{nd} (D) Cannot be determined

10. If E got the 8^{th} rank in height, then, who got the 3^{rd} rank in accuracy?
(A) J (B) G
(C) E (D) Cannot be determined

11. If E and D got the same rank in strength and speed respectively then who got the fourth rank in different parameters?
(A) D, A, I, B (B) F, B, A, C
(C) F, I, J, G (D) Cannot be determined

12. If A got better rank than H in any parameter, then what must be the selected team?
(A) A, C, G, F, B, I (B) A, B, C, D, E, F
(C) A, B, C, F, G, J (D) Cannot be determined

Directions for questions 13 to 16: These questions are based on the following information:

Five friends – A, B, C, D and E – played shooting at a bull's-eye, which have three concentric circles. In each round two boys participate. If any one shoots the innermost circle he gets 3 points. If one shoots in between innermost and second circle, one gets 2 points and if one shoots in the region between 2^{nd} and 3^{rd} circles one gets one point; if one shoots outside the bull's-eye one gets zero points. In each round, the person with the highest points is the winner of that round. No round was drawn. The details are given in the following table.

	No. of rounds participated	Win	Lost	Points for	Points against
A	4	2	2	6	6
B	3	1	2	5	8
C	3	2	1	7	6
D	2	0	2	1	3
E	2	2	0	5	1

Points against B means the total points scored by all the opponents of B.

B won the game against C.

In any two of the games that A played, neither the points scored by A nor the points scored by his opponent is the same.

13. Which of the following pairs of persons does not compete with each other?
(A) C – D (B) B – E (C) A – D (D) B – D

14. What is the score of A in the game in which he played against C?
(A) 1 (B) 2 (C) 3 (D) 4

15. What is the total score in the game in which B and C participated?
(A) 3 (B) 6 (C) 8 (D) 5

16. What is the total score of A in the matches he lost?
(A) 2 (B) 3 (C) 4 (D) 1

Directions for questions 17 to 20: These questions are based on the following data.

A survey is conducted in a city for five brands among Siyaram, S.Kumars, Mayur, Peter England and Koutons. According to the survey results, these five brands are ranked under two categories: Popularity and Cost price. The most popular brand is ranked 1, the second popular brand as ranked 2 and so on. Similarly, the costliest brand is ranked 1, the second costliest brand is ranked 2 and so on. Points are given to each brand under each of these categories based on their ranks such that five points are given to the most popular brand and 4 points are given to the second most popular brand and so on. The costliest brand got 1 point, second costliest brand got 2 points and so on. Further it is known that the total points of Peter England is one less than the maximum possible points. The total points of S.Kumars is 1 more than the minimum possible points. No brand got the same rank in both the categories and no two brands got the same rank in any category. Koutons is not one among the top three brands under the category of Popularity. Siyaram is the most popular brand and Koutons is the second costliest brand.

17. Of the five brands, which brand is the least popular brand?
(A) S.Kumars
(B) Koutons
(C) Mayur
(D) Peter England

18. Which is the costliest brand among the following?
(A) Siyaram (B) Koutons
(C) S.Kumars (D) Mayur

19. If the brand, whose total points are higher and are more suitable for common people, then which brand is the second most suitable?
(A) Siyaram (B) Koutons
(C) S. Kumars (D) Mayur

20. The total points scored by Mayur are _____.
(A) 5 (B) 8
(C) 9 (D) 7

Directions for questions 21 to 25: These questions are based on the following information.

Mathematicians are assigned a number called Erods number named after the famous mathematician Paul Erdos. Only Paul Erdos himself has an Erdos number zero. Any mathematician who has written a research paper with Erdos has an Erdos number of 1. For other mathematicians the calculation of his/her Erdos number is illustrated below.

Suppose that mathematician A has co-authored papers with several other mathematicians. From among them, mathematician X has the smallest Erdos number. Let the Erdos number of X be x, then A has an Erdos number x + 1. Any mathematician with no co-authorship chain connected to Erdos has an Erdos number of infinity.

A, B, C, D and E are mathematicians presenting their works in areas of mathematics at a conference.

(a) E, who had the lowest Erdos number among the five, if co-authored with the furthest in the chain of Erdos number within the group, results in a decrease of 6 points in the latter's Erdos number.
(b) But E, if co-authored with a mathematician having the closest Erdos number, would result in a decline of Erdos number of that mathematician by 1.
(c) B has Erdos number higher than D, and neither of them has the furthest nor the closest Erdos number to E.
(d) Initially the average Erdos number of the group was 6.
(e) All mathematicians at the conference had distinct Erdos numbers.

21. If the Erdos number of B is between A and D, what is C's Erdos number?
(A) 4
(B) 9
(C) 8
(D) Cannot be determined

Directions for questions 22 to 24: Write your answer in the input box provided below the question.

22. If each mathematician chose to collaborate with only one other mathematician, then what could possibly be the minimum average Erdos number for the group?

23. What are the minimum number of papers with exactly two authors required so that the group attain the lowest possible average Erdos number?

24. Suppose, another mathematician F joins the group and does not violate condition (e) and all have come to an understanding that any two of them will collaborate to publish a paper only if the difference in the Erdos number is not more than two, then how many values can be taken by Fs Erdos, number so as to have exactly five mathematicians with the same Erdos number?

25. If the Erdos number of C is greater ~~greater~~ than that of E but less than that of B, then what is the difference in Erdos numbers of B and A?
(A) 1 (B) 5 (C) 4 (D) 3

Exercise – 8

Directions for questions 1 to 4: These questions are based on the following information.

A charity cricket match is being organised, in which, both filmstars and cricket stars are likely to participate. P to Y are ten filmstars, and A to J are ten cricketers who have confirmed their interest in participating in the match. From the 20 stars, two teams of seven members each are to be formed such that in each team the number of filmstars is greater than the number of cricketers. The two teams are named "7–stars" and "Super–stars". From among the cricketers A to F are batsmen and the remaining are bowlers. In each of the two teams '7–stars' and 'superstars' the number of bowlers should be less than the number of batsmen; further each team must necessarily have at least one bowler.

Also P to T are male filmstars and the rest are female filmstars.

The managers of both teams, i.e, '7–stars' and 'Superstars', in the process of selecting the teams, laid down certain conditions based on input from the participants.

Manager of '7–stars':
(1) If Q is selected and G is not selected, then both E and F are selected.
(2) A is selected, as long as U or V is not selected.
(3) S and G must be selected together, besides the fact that they would like to play only as '7–stars' players.

Manager of 'Superstars'
(1) If P is selected, either H or I must be selected.
(2) Both A and B cannot be selected together.
(3) P and I are selected if and only if either C or D is selected but not both.
(4) Only if A is selected, H can be selected.
(5) T cannot be selected, if either R or H is selected.

1. P and Q are selected as captain of 'Superstar' and '7–stars' respectively. If neither S nor G is selected, then which of the following stars are definitely selected (in any of the teams)?
(A) Only E, F and I (B) Only E, F and H
(C) Only E, F, B and I (D) Only E, F, U and C

2. If U, V and G are selected in "7–star" team, while T along with only one among W, X and Y (one of who always plays with player B) join the 'Superstars', then in which team can R play?
(A) 7–stars (B) Super–star
(C) Either (A) or (B) (D) Neither (A) nor (B)

3. If the number of male filmstars selected is greater than the number of female filmstars selected in the 7–star team, and S plays the match, while A is selected in Superstars team, then which of the following film stars represent the 7–star team? (assume at least one female filmstar in each team).
(A) QRSU (B) TSPY
(C) RSTX (D) QRTW

4. If E and F are selected in the 'Superstars' team and in that team the number of female filmstars is less than the number of male filmstars, and further Q is selected in the 7–star team, which of the following is definitely true?(assume at least 1 female filmstar in each team)
(A) J can be the bowler in the superstar team.
(B) Q cannot be selected in any team.
(C) There are more number of male filmstars than female filmstars in 7 stars.
(D) At least one condition needs to be relaxed to form the teams.

Directions for questions 5 to 8: These questions are based on the following information.

When asked about their activities on last Sunday, the three brothers Anil, Pranil and Sunil made the following statements.

Anil	1	I went to purchase the groceries.
	2	Pranil went to the Stadium to watch the match.
	3	Sunil stayed at home.
Pranil	1	It is true that I went to watch the match at the Stadium
	2	It was Sunil who bought the groceries.
	3	Anil stayed at the home.
Sunil	1	I went to watch the match in the stadium

It is known that each of the three brothers belong to one of the three categories among truth teller, liar and alternator (the one who alternates between true and false statements). Also it is known that only one of the three stayed at the home and the other two either purchased the groceries or went to the stadium but did not participate in both the activities.

5. If Sunil's statement is believed to be true, who must be the liar(s)?
(A) Both Anil and Pranil must be the liars
(B) Either Anil or Pranil but not both
(C) Neither Anil nor Pranil
(D) Such a case is not possible

6. Which of the following is definitely false?
(A) All the three belong to the same category
(B) All the three belong to three different categories
(C) All the three belong to two different categories
(D) More than one of the above

7. If all the three belong to three different categories, who is the liar?
(A) Anil
(B) Sunil
(C) Pranil
(D) Such a case is not possible

8. If Anil is the liar, which of the following is necessarily true?
(A) Pranil is the liar.
(B) Sunil is the truth teller.
(C) Pranil is the alternator.
(D) Sunil is the alternator.

Directions for the questions 9 to 12: These questions are based on the following information.

Sixty four identical cubes are painted with different numbers from 1 to 64. These cubes are arranged to form a large cube in the following manner.

(i) The large cube is formed with the help of identical cuboids. These cuboids are built one after the other from the rear to the front such that the first built cubiod forms the rear face of the large cube, and the last built cuboid forms the front face of the large cube.
(ii) Each cuboid is formed with the help of identical columns which are built from the left side to the right side.
(iii) Each column is built by placing one cube over the other.
(iv) The cubes are used starting with the cube with number 64, and further in the descending order of numbers up to the cube numbered 1.

Directions for questions 9 to 12: Write your answer in the input box provided below the question.

9. What is the sum of the numbers on the smaller cubes that form the diagonal on the front face of the larger cube starting from the top right cube?

10. What is the sum of the numbers on the smaller cubes that form the diagonal that connects the two opposite corners of the large cube starting from the top right cube on the front face?

11. What is the sum of numbers on the smaller cubes used to build the third cuboid in forming the larger cube?

12. What is the sum of numbers on the smaller cubes that are at the bottom of each column of the larger cube?

Directions for questions 13 to 16: These questions are based on the information given below.

Two houses – Rohini and Sagarika were guarded by four guards – G_1, G_2, G_3 and G_4. On any day of a week a house is guarded by exactly one guard. Due to security measures each day the guards are changed but the guard will be the same for the same house on the same day of different weeks, i.e., if G_1 was the guard of Sagarika on Monday of a particular week, he will be the guard of Sagarika on every Monday. No guard will be posted to guard in three consecutive days and no guard is posted at both the houses simultaneously. None of them guards the same house on two consecutive days. Further the following information is also known.

(i) In a week, each guard is posted at each of the houses for the same number of days.
(ii) No guard can be posted for more than four days in a week. G_1 and G_2 were posted for same number of days in a week.
(iii) On Wednesday, Monday and Tuesday, Rohini was guarded by G_4, G_2 and G_3 respectively.
(iv) On Wednesday, Friday and Sunday, Sagarika was guarded by G_3, G_4 and G_2 respectively.

13. Who was the guard at Rohini on Sunday?
(A) G_3 (B) G_4 (C) G_1 (D) G_2

14. Who was the guard at Sagarika on Tuesday?
(A) G_1 (B) G_2 (C) G_3 (D) G_4

15. Who was the guard at Rohini on Thursday?
(A) G_2 (B) G_3 (C) G_1 (D) G_4

16. How many occasions were there when these houses were guarded by the same guard on two consecutive days in a week i.e., Sunday to Saturday?
(A) One (B) Two (C) Three (D) Four

Directions for questions 17 to 20: These questions are based on the information given below.

Six persons – A, B, C, D, E and F – are sitting around a circular table. They are studying different courses among engineering, medical, B.Sc. and polytechnic. Two of them are studying medicine and two engineering, one B.Sc. and one polytechnic. Each of these persons are studying in a different college among P, Q, R, S, T and U. Further it is known that:

(1) If E does not take admission in engineering, then A takes admission in medical.
(2) If D takes admission in P, then B takes admission in R and C sits between A and E.
(3) If E takes admission in U, then B takes admission in polytechnic and A takes admission in B.Sc.
(4) If E does not take admission in U, then C takes admission in P.
(5) Unless F takes admission in engineering then D takes admission in engineering.
(6) Two of them, who neither want to take admission in B.Sc. nor in polytechnic take admission in college P and Q.
(7) F does not want to take admission in engineering but sits neither opposite nor adjacent to B.
(8) D does not take admission in college Q and B sits adjacent to A, who is two places to the left of E.
(9) C takes admission in college S.

17. Who wants to take admission in college P?
(A) A (B) B (C) D (D) E

18. Who is sitting opposite D?
(A) A (B) B (C) C (D) E

19. In which college does F want to take admission?
(A) P (B) Q (C) R (D) T

20. Which of the following statements is/are true?
I. F sits adjacent to C.
II. F and C take admission in medical course.
III. A takes admission in college T.
(A) Only I (B) Only II
(C) Only I and II (D) Only II and III

Directions for questions 21 to 25: These questions are based on the following information.

A new manufacturing unit was established in the year 2017 with only one department, A to take care of the only product line that the unit has. The CEO Mr. Dynamite had

a plan to increase the product lines to four by 2020, adding one product line a year. Each product line would be operated and managed by a separate department. Mr. Dynamite was also concerned for the employee welfare and had started a canteen that can be utilized by every employee, as big as to serve 100 employees. Further, he had earmarked another place for a new canteen of the same capacity as the unit would grow. The employees were also very enthusiastic, and everyone was committed to working for the next 5 years. The new departments when it materialize would be based on the following rules.

(a) As one product line is added, the new department is staffed with both new employees and existing employees from all departments established in the previous years.
(b) An employee can be transferred to at most two departments during the period under consideration.
(c) As and when the number of employees reaches 100 or more, a new canteen will be added to the exiting one.
(d) Any employee of existing departments can be transferred only to the new department.

The following incomplete table shows the number of employees in each department as years progress:

Department / Year	A	B	C	D	Total
2017					
2018				21	
2019				24	
2020		26		22	

It is also known that

(1) One fifth of the employees in the existing department were transferred to the new department started in the year 2018.
(2) In 2019, all the employees eligible for the 2nd transfer were transferred to the new department, and the same number of persons was transferred from the other department. These were the only transfers to the new department.
(3) In 2020, all the eligible persons for the second transfer were transferred from a department to the new department B, and their number is equal to the first time transfer from other departments to the new department.
(4) The lowest-capacity ultization for the canteen was 40% in any year under consideration; moreover it has seen steady rise and was at 68% in 2019.
(5) In 2020, out of a total of 31 new recruits joining the manufacturing unit, for the first time, department A got new recruits (a total of 7) while none of the new recruits was assigned to department D.

21. In which year was the second canteen started?
(A) 2020 (B) 2019
(C) Either 2020 or 2019 (D) None of these

22. What is the total number of employees transferred from department A to the latest of the departments started?
(A) Six (B) Eight (C) Four (D) Two

23. Which department saw a maximum number of new recruits joining a newly started department in any year?
(A) B (B) C
(C) D (D) Cannot be determined

24. What is the minimum number of new recruits joining a new department, and in which year?
(A) 2020, 2 (B) 2019, 8 (C) 2019, 4 (D) 2020, 11

25. What is the 2nd highest number of new recruits joining a new department and in which year?
(A) 14 (B) 13 (C) 11 (D) 10

Exercise – 9

Directions for questions 1 to 4: These questions are based on the following information.

In an exhibition a shopkeeper sells 3 different types of toys – Pokemon toy, Ben10 toy and Beyblade toy. A lot of children come and buy toys at his shop. The shopkeeper analyses his business at the end of the day. 800 children visited his shop to buy toys. 323 children bought Pokemon toy, 439 bought the Ben10 toys and 412 bought Beyblade toys. 91 children bought all 3 toys and 40 bought none of the toys.

Directions for questions 1 to 4: Write your answer in the input box provided below the question.

[

1. If the number of children who bought only Pokemon toys and Beyblade toys is 84, then how many children bought only Ben10 toys?

2. If the number of children who bought only Pokemon toys is 97 then how many children bought both Beyblade and Ben10 toys?

3. If the number of children who bought only Ben10 toys is more than those who bought only Beyblade toys which in turn is more than those who bought only Pokemon toys, then what is the maximum possible number of children who bought only Ben10 and Beyblade toys?

4. By taking the conditions from previous question if the Ben10 toys break, then minimum how many children have no toys to play with?

Directions for questions 5 to 8: These questions are based on the following information.

An annual recruitment test which consists of three sections Numerics, Intelligence and Language, has sectional and final cut offs.

A candidate is not allowed to appear for the test again, if:
(a) The candidate qualifies in each of the three sections.

(b) The candidate is not qualified in any of the three sections.
(One is said to have qualified if he/she clears the cut-off)

Ravi, who belongs to one of the three categories: truthteller (who always speaks truth), liar (who always lies) or an alternator (who alternates between truth and lies), has made the following four statements in the same order, when asked about his result in the test.

P: I did not clear the cut-off in Numerics section.
Q: I did not clear the cut-off in Intelligence section.
R: I did not clear the cut-off in Language section.
S: I am eligible to appear for the exam again.

5. Which of the following is definitely true?
(A) Statement P is true.
(B) Ravi cannot be a liar.
(C) Statement S is true.
(D) Statement R is false.

6. Which of the following is not logical?
(A) If P is true, Q must be false.
(B) If Q is False, R must be false.
(C) If S is true, Q must be true.
(D) If Q is false, S must be false.

7. Assuming statement S to be true, which of the following can be a statement that Ravi could have made immediately before statement P?
(A) I cleared exactly one sections.
(B) I cleared exactly two sections.
(C) I cleared exactly three sections.
(D) More than one of the above is possible.

8. Assuming statement S to be true, Ravi belongs to which category?
(A) Alternator with first statement P being false
(B) Truth teller
(C) Alternator with first statement true
(D) Cannot be determined

Directions for questions 9 to 12: These questions are based on the following information.

Ten children A through J, among whom only A, B, C, D are girls, are to be divided into three groups P, Q and R such that each group has a girl and a total of at least three children. We know the following additional information.
(i) If one of E, F and G is selected in group R, then the other two must be in that group.
(ii) If F is in the same group as C, then D must be in that group. Neither C nor D can be with I.
(iii) No two of G, H and I can be in the same group.
(iv) Unless J is selected in group P, A cannot be selected in group R.
(v) If and only if H is a member of group P then it has four children.
(vi) The number of children in group Q cannot be more than that in group R.
(vii) A and H must be in the same group.

9. If F is selected in Q, then who must be selected in R?
(A) C (B) I (C) A (D) H

10. If C is selected in P, then who must be selected in Q?
(A) A (B) B (C) D (D) E

11. If B is selected in P, then in how many ways group Q can be selected?
(A) 3 (B) 0 (C) 2 (D) 1

12. If B is selected in R, then in how many ways group P can be selected?
(A) 5 (B) 1 (C) 4 (D) 3

Directions for questions 13 to 16: These questions are based on the following information:

(i) There are six godowns, three on either side of the road, each storing paints of different colour.
(ii) These godowns are labeled as P, Q, R, S, T and U.
(iii) The godown stores different colours of paints, namely red, blue, green, orange, yellow and white.
(iv) The godowns have different capacities.
(v) T, the highest capacity godown, is exactly opposite the godown containing red paint.
(vi) The least capacity godown is exactly opposite the godown that has green paint.
(vii) U, the godown containing orange colour, is located between P and S.
(viii) R, the godown containing yellow paint, is exactly opposite P.
(ix) Q, the godown containing green paint, is exactly opposite U.
(x) P, the godown containing white colour paint, has a higher capacity than R, but less than S and Q.

13. What colour is stored in the godown that is diagonally opposite the godown storing yellow paint?
(A) White (B) Red
(C) Green (D) None of these

14. Which is the second largest godown (based on capacity)?
(A) P (B) S
(C) Q (D) Cannot be determined

15. Which colour paint does the highest capacity godown hold?
(A) Red (B) Blue (C) Green (D) Yellow

16. The sum of capacities of the three godowns on either side follow the relation given below except
(A) Less than (B) Greater than
(C) Equal to (D) Both (A) and (B)

Directions for questions 17 to 20: These questions are based on the information given below.

Three persons Ram, Shyam and Mohan have ₹32, ₹43 and ₹46 with them respectively. Each of them has only coins of denominations – ₹1, ₹2, and ₹5. The number of coins with any of them of any denomination is a distinct single-digit natural number, i.e., these will be nine distinct single digit natural numbers for nine possible combinations of persons and denominations. Further, the number of ₹2 coins with Ram is six less than the number of ₹1 coins Mohan has.

Directions for questions 17 to 20: Write your answer in the input box provided below the question.

17. What is the difference between the number of ₹2 coins with Ram and the number of ₹5 coins with Mohan?

18. How many ₹5 coins are there with Ram, Shyam and Mohan altogether?

19. In total, how many coins are there with Shyam?

20. How many two rupees coins are there with Mohan?

Directions for questions 21 to 25: These questions are based on the following information.

A boy has to select 4 keys from three boxes A, B and C. It is known that Box A contains keys P, Q and R, Box B contains keys S, T and U and Box C contains keys X, Y and Z. The boy must select at least one key from each box. Further, it is known that,

(i) If a key from box A is selected, then only one key from box C is to be selected.
(ii) If T is selected, then neither R nor Z is to be selected.
(iii) Z and R cannot be selected together. Q and S must be selected together.
(iv) Y cannot be selected unless U is selected.
(v) If P is selected, then X must not be selected.

21. Which among the following cannot be selected if R is selected?
(A) Q (B) S
(C) U (D) None of these

22. Which among the following must be selected, if Y and R together are selected?
(A) Q (B) P (C) Z (D) S

23. In how many ways can the four keys be selected?
(A) Eight (B) Ten
(C) Six (D) Seven

24. Which among the following must be selected, if P and T together are selected?
(A) Q (B) S (C) U (D) V

25. In how many ways the four keys can be selected, if T is not selected?
(A) 10 (B) 8 (C) 6 (D) 7

Exercise – 10

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

A, B, C, D and E appeared for a written test that consists of eight questions. In category I, five questions carry three marks each for the correct response and one mark is deducted for an incorrect response. In category II, three questions carry five marks each for correct response and two marks are deducted for an incorrect response. None of them scored less than 10 marks and all of them got at least one question correct in both the categories.

I. E got three marks less than the topper. The sum of the marks of B and D is equal to the marks scored by the topper.
II. Only one person correctly marked all the questions of category 1 and only one person correctly marked all the questions of category 2.
III. Only C marked two questions wrong in category 2 and only D marked three questions wrong in category 1. No other person marked more questions wrong in the respective categories than C and D. i.e., C in category 2 and D in category 1.
IV. B scored 15 marks.
V. No two people scored same marks. A scored the most marks.

Directions for questions 1 to 4: Write your answer in the input box provided below the question.

1. How many more marks did C score than the person who scored the least marks?

2. How many more category 1 questions did B get wrong than the category 2 questions that D got wrong?

3. What is the difference between the lowest and second highest score?

4. What is the difference between the number of questions marked wrong by B and C?

Directions for questions 5 to 8: Read the information given below and answer the questions that follow.

A group of 9 children decided to work on five projects. The nine children belong to different classes. E and D belong to class VI. F, A, H and B belong to class X. I, C and G belong to class XII.

1. E, D, F and H work on project 2
2. A and I work on project 1.
3. B and G work on project 3.
4. D and C work on project 5.
5. I and G work on project 4.

Each project required some ground digging work and the three classes had only one shovel each. These shovels were given to the students in such a way that every project had at least one shovel for the project.

5. Which of the following children will always get the shovel from her class?
(A) C (B) D (C) I (D) A

6. Which of the following children will never get a shovel from her class?
(A) F (B) E (C) I (D) B

7. How many of the nine children were never given the shovel?
(A) 2 (B) 3 (C) 4 (D) 5

8. Which project could have more than one child with a shovel?
(A) Project 2 (B) Project 1
(C) Project 3 (D) None of them

Directions for questions 9 to 12: Answer the questions based on the data given below.

Four persons – A, B, C, and D – have four different occupations, namely filmmaker, YouTuber, wedding photographer and wildlife photographer, not necessarily in the same order. They have four different cameras, namely Nikon, Sony, Red, and Canon, not necessarily in the same order. Also, they have different number of followers on social media.

- The one who has five lac followers uses Nikon.
- The user of Red is a filmmaker. The wildlife photographer uses Sony.
- D does not have three lac followers on social media and does not use Canon.
- A does not have one lac followers on social media.
- B is a youtuber and has the highest number of followers among them all on social media.
- The filmmaker has Four lac followers on social media. C has more followers than D.

9. If A is a film maker, then how many followers (in lacs) does C have?
(A) 3 (B) 4 (C) 5 (D) 1

10. What is the number of followers (in lacs) the wedding photographer has?
(A) 4 (B) 3
(C) Either (A) or (B) (D) None of the above

11. What best can be said about the user of Red?
(A) Is A
(B) The one who has 3 lac followers.
(C) Is C
(D) Cannot be determined

12. Which of the following statement is definitely false?
(A) A is a filmmaker (B) C is a filmmaker
(C) D is the filmmaker (D) None of the above

Directions for questions 13 to 16: These questions are based on the following information.

Mr. Golmol is planning to invite his friends for dinner on the occasion of his birthday. He expects all his sixty friends to come over for the dinner. Only 20 of his friends are vegetarian and it is known that the remaining friends are non-vegetarian. The non vegetarians can also have vegetarian dishes while the converse is not true. Mr. Golmol received a quotation for his requirements. The quotation received is as shown, because of the poor print quality some essential figures were missing

Item id	Description	Unit price (in ₹)	Quantity	Amount (in ₹)
	VEG:			
NAN 010	Butter Naan	10	30	
PAN 033	Paneer Tikka		35 Plates	3500
PAN 036	Paneer Kofta			4200
KOF 047	Veg Kofta	150		4500
KOF 053	Malayi Kofta			5000
BIR 066	Veg Biryani		20	3000
BIR 011	Plane Rice		20	2000
	NON-VEG			
CBC 029	Chicken (Butter)	70	30	
CBC 026	Chicken Tandoori	120		
CBC 081	Chicken Biryani	150	10	1500
CBC 071	Chicken Fried Rice	150	10	1500
			Total	29400

It is also known that:
(1) Every item is identified by a common alphabetic code Ex: CBC mean chicken item, which may have more than two varieties, each variety coded with a different '3' digit number.
(2) Every item ordered by Mr. Golmol had two varieties of dishes, and it was told that the order would cost ₹30,000.
(3) Any changes to the order are allowed before the order is executed.

Directions for question 13: Write your answer in the input box provided below the question.

13. What is the quantity for CBC026?

14. Mr. Golmol wanted to minimize the bill amount by cutting completely two different varieties excluding (BIROO6, BIR011) and (CBC081 and CBC071). However, he seems it fit that both veg and non-veg should have at least one item other than the excluded items in each category. Which of the following two varieties must be removed from the menu list?
(A) KOF053 and CBC029
(B) PAN036 and KOF053
(C) CBC026 and PAN033
(D) CBC029 and KOF047

Directions for questions 15 and 16: Write your answer in the input box provided below the question.

15. What is the number of plates of Malai Kofta, assuming varieties belonging to the same alphabetic code have been ordered in equal quantities?

16. Mr. Golmol was offered a suggestion by the caterer to include Panipuri to make this spending equal to the budgeted amount and serve all 60 persons. If a plate PaniPuri consists of 4 puris and one in every two persons had two plates while the rest had one what is the price of each PaniPuri (round off to the nearest higher decimal give answer in one decimal)?

Directions for questions 17 to 20: These questions are based on the following information.

In a highly competitive industry six companies (P, Q, R, S, T and U) are competing for the market shares in the same market. They all are looking at five quarter horizon starting from the second quarter of 2017 to second quarter of 2018 (both included).

Each company aims at overtaking a different company in every quarter which may result in either surpassing the rival or getting surpassed by the rival company. No company targets a rival more than once in all five quarters.

In 2017:
(1) One company surpassed all three rival companies.
(2) Two companies were surpassed by all their rival companies.
(3) S was surpassed by P, but it surpassed R and U.
(4) T was surpassed by Q, but it surpassed R and U.
(5) Q was surpassed by at least one rival company.
(6) U did not compete against the company who surpassed all of the rival companies.

In 2018:
(1) The company that was unsurpassed in 2017 was surpassed in the next two quarters of 2018 by its rivals.
(2) Of the two companies that was surpassed by all their rivals in 2017, one of the companies surpassed both its rival companies, while the other was surpassed by both its rival companies in 2018.
(3) There was another company that was surpassed by all of the rival companies in 2018.

17. The two companies that surpassed the company which had surpassed all its rival companies in 2017 are:
(A) S and U (B) T and U
(C) Q and S (D) S and U

18. The company or companies that won over their rival companies in 2018 is (are)
(A) Q (B) T and U
(C) A, T and U (D) Q, T and U

19. The companies that surpassed exactly two rivals in the period considered are
(A) P, S and U (B) S and T
(C) T and U (D) S and U

20. The company or companies that surpassed most of its rivals in the period considered is (are)
(A) P (B) T
(C) U (D) Q and T

Directions for questions 21 to 25: These questions are based on the following information.

There are ten students in a play school named Sunrise. The students are – Mamta, Kalyan, Arnab, Suneeta, Lakshmi, Ganesh, Nishant, Harsh, Rishi and Tulsi. The class teacher gave four sheets to each of them and each of the four sheets has the picture of a different fruit among Apple, Banana, Mango and Orange. The teacher asks them to identify the fruits. At the end, it was found that no one was able to identify all the four fruits correctly and also none of the fruits was identified correctly by all of them. It is also found that

(i) The total number of students who identified a fruit correctly is different for any two fruits.
(ii) All the students who identified Apple correctly also identified Banana correctly.
(iii) Only Mamta, Arnab and Suneeta identified one combination of fruits correctly.
(iv) Only Kalyan and Lakshmi identified the other combination of same fruits correctly.
(v) The number of students who identified Orange correctly is more than the number of students who identified Mango correctly which in turn is more than the number of students who identified Apple correctly.
(vi) Among all the sheets, only 29 sheets were correct. Tulsi cannot identify Banana correctly.

21. How many students identified Banana correctly?
(A) Eight (B) Seven (C) Nine (D) Five

22. Who among the following did not identify orange correctly?
(A) Mamta (B) Arnab
(C) Lakshmi (D) Suneeta

23. Which of the following could be the complete list of the people who cannot identify apple correctly?
(A) Tulsi, Rishi, Lakshmi, Arnab
(B) Tulsi, Ganesh, Nishant, Harsh, Lakshmi
(C) Nishant, Ganesh, Arnab, Harsh
(D) Nishant, Ganesh, Rishi, Harsh, Tulsi

24. Who among the following identified both mango and apple correctly?
(A) Kalyan (B) Ganesh
(C) Suneeta (D) Nishant

25. Who among the following didn't identify both banana and apple correctly?
(A) Tulsi (B) Nishant
(C) Harsha (D) Rishi