CHAPTER – 13
PRACTICE EXERCISE

Exercise – 13(a)

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

Four executives – Anand, Bharat, Chander and Dinesh – have to visit eight different companies viz., HLM, HCL, HPCL, BPCL, IPCL, IOL, FCI and BDL. Each executive visits two companies and no company is visited by more than one executive. These companies are situated in four out of six cities – Delhi, Mumbai, Chennai, Kolkata, Bangalore and Hyderabad. Further, it is known that:

I. BPCL and BDL are in the same city but are neither in Bangalore nor in Kolkata.
II. HLM and FCI are in the same city but are neither in Delhi nor in Hyderabad.
III. HCL and HPCL are in the same city but are neither in Mumbai nor in Bangalore.
IV. IPCL and IOL are in the same city but are neither in Delhi nor in Chennai.
V. Chander goes neither to Chennai nor to Mumbai, but visits the Company IPCL.
VI. Anand goes to Kolkata, but visits neither HPCL nor BPCL.
VII. Neither BDL nor HPCL is in Delhi nor in Chennai.
VIII. Each executive visits the two companies located in the same city.

1. Which of the following cities is not visited by the four executives?
(A) Mumbai (B) Kolkata
(C) Hyderabad (D) Chennai

2. Which statement out of the following must be true?
(A) HCL and HPCL are situated in Hyderabad and are visited by Bharat.
(B) Dinesh visits BPCL and BDL in Mumbai.
(C) Anand visits HLM and FCI in Bangalore.
(D) Chander visits IPCL and IOL in Bangalore.

3. After the arrangement, if the only change is that Anand visits the city earlier visited by Bharat, who now visits the city which was earlier visited by Chander, who now visits the city which was earlier visited by Dinesh, who now visits the city which was earlier visited by Anand, then the companies HLM and IOL will be visited respectively by
(A) Anand and Chander (B) Bharat and Dinesh
(C) Chander and Anand (D) None of these

4. Which companies does Anand visit?
(A) HLM and FCI (B) HPCL and HCL
(C) IPCL and IOL (D) BPCL and BDL

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

Amit, Amitabh, Abhishekh and Avilash took an objective type test in which, there were four answer choices to every question, out of which only one answer choice was correct. The following is the information regarding the answer choices they marked.

(i) The answer choices for any question are (a), (b), (c) and (d).
(ii) There were only four questions in the test paper and the time allotted to answer was 1 minute.
(iii) Each of the four candidates attempted all the questions but marked the wrong answer for every question.
(iv) No two questions had the same correct answer choice.
(v) No person marked the same answer choice for any 2 questions.
(vi) No question was marked the same answer choice by more than 2 persons.
(vii) Avilash and Abhishekh marked the same answer choice (b) to the first question.
(viii) Amitabh and Abishekh marked the same answer choice (a) to the fourth question.
(ix) Amit and Abhishekh marked the same answer choice (b) to the second question.
(x) Amit and Abhishekh marked the same answer choice to the third question.

5. If the correct answer choice for Q1 was not choice (c), then what was the answer choice marked by Avilash for Q3?
(A) a (B) b (C) c (D) d

6. If Amitabh marked choice (b) for Q3, then what was the correct answer choice for Q2?
(A) b (B) c (C) a (D) d

7. Which of the following statements must be false?
(A) Amitabh didn't mark choice (d) to Q3.
(B) Amitabh didn't mark choice (c) for Q2.
(C) Amitabh marked choice (a) for Q1.
(D) Amitabh marked choice (d) for Q2.

8. Which of the following statements must be true?
(A) The correct answer choice for Q1 was (c).
(B) The correct answer choice for Q2 was (a).
(C) Correct answer choice for Q4 was (c).
(D) None of these

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

Six faces of a large cube are painted with six different colours – Red, Violet, Yellow, Green, Orange and Blue. Green and Violet are opposite each other. Red and Orange are opposite each other. The cube is placed on a table with the Yellow face touching the table and the Orange face is towards the front. This cube is now cut into 210 identical pieces by making the least number of cuts. Out of the total cuts made, the maximum number of cuts are made in the horizontal direction and the least number of cuts in the direction parallel to the Violet face.

9. How many pieces have at most one face painted?
(A) 116 (B) 124 (C) 164 (D) 154

10. How many pieces have at least two surfaces painted or none of the surfaces painted?
(A) 116 (B) 124 (C) 142 (D) 154

11. How many pieces have exactly two colours on them?
(A) 48 (B) 40 (C) 36 (D) 42

12. How many pieces have three different colours on them?
(A) 15 (B) 12 (C) 10 (D) 8

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

Four housewives Anita, Babita, Christy and Drishti purchased four different brands of rice of prices (in ₹/kg) 2, 4, 7, 9 (not necessarily in the same order). Each of them bought different quantities (in kg) of rice, which were 3, 5, 8 and 10. Had Babita bought at Anita's price, the expenditure would have been less by ₹40. Had Christy bought the rice at Drishti's price, she would have spent an extra amount of ₹25. The total expenses of each of the four persons were different.

13. If the minimum expenses incurred by a housewife were ₹10, then find the person who incurred the maximum expenses.
(A) Drishti (B) Babita
(C) Christy (D) Anita

14. If the total expenses for Babita is more than that for Anita by ₹50, then find the expenses for Drishti.
(A) ₹56 (B) ₹70
(C) ₹21 (D) ₹90

15. Which of the following statements is true?
(A) Anita bought the rice at a price which is ₹5/kg less as compared to that bought by Babita.
(B) Babita bought 3 kg less than Christy.
(C) Christy spent ₹70 less than Drishti on the purchase of rice.
(D) Christy spent ₹36 less than Babita.

16. What is the maximum possible expenditure (in ₹) any one can incur?
(A) 56 (B) 80 (C) 90 (D) 70

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

Anvar is planning to invest in a portfolio of stocks. He decides to invest in the stocks with the following tickers – INF, RTON, FH, DIP, NIT. Each stock is listed in either BSE or NSE and some are listed in both. The stocks belong to different sectors among the following – Healthcare, IT, Pharma, Power, and Technology. The market prices of all the stocks considered is a multiple of 10, and the expected return is 10% but with varying degree of certainty that ranges from 0 to 100 percent. Anvar shared the following information:

I. The lowest possible priced stock has the highest certainty, and it is neither listed on NSE nor a Technology stock
II. Four stocks are listed on BSE and three stocks are listed in NSE
III. The stock listed on only NSE is from Power sector and is priced at 110. On the other hand one of the stock listed only on BSE is RTON as its ticker with a certainty of 85%
IV. The health care stock and DIP are listed on both the exchanges with a price difference of 20 and certainty difference of 10% such that the sum of their certain values is 130%.
V. None of the stocks listed on both the exchanges is from Technology or IT sector. FH is priced at 80, while NIT is not an IT stock.
VI. The certainty is calculated by the formula = 100 – (price of stock/10)*5

Directions for questions 17 and 18: Write your answer in the input box provided in the question.

17. The average price of the stocks listed on both the exchanges is [ ].

18. What is the difference between the certainty of stocks whose price ratio is 2?
[ ]

Directions for questions 19 and 20: Select the correct alternative from the given choices.

19. Which stock's price is closest to the value where price and certainty are equal?
(A) IN
(B) RTON
(C) Stock in healthcare
(D) The Pharma stock

20. If Anvar purchase a unit each of the stocks listed on BSE and NSE, is it equivalent to purchasing RTON and the power stock (in terms of return) ?
(A) Yes, returns are 10%
(B) No, returns are 10 % but certainty varies
(C) No, higher price higher risk
(D) Yes, lower return compensated by higher return

Directions for questions 21 to 24: These questions are based on the following information.

Five teachers – Kamala, Janaki, Indira, Hansika and Gayatri teach in class six of a school. Every day the class has five periods I to V and there will be classes from Monday to Friday only. Every day, all the five teachers are scheduled to exactly one period but no teacher is scheduled in the same period in any two consecutive days. Also, for each period, only one person will be scheduled twice during the week and for different periods, the person who is scheduled twice is different.
It is also known that,
(i) Neither Janaki nor Hansika is scheduled in either period I or period V on Wednesday. Kamala is not scheduled in period II on Tuesday.
(ii) Hansika is not scheduled in period IV on Monday and Indira is not scheduled in period IV or V on Tuesday.
(iii) Neither Gayatri nor Indira is scheduled in either period IV or period II of Thursday and Kamala is scheduled in period IV on Wednesday.
(iv) Neither Kamala nor Janaki is scheduled in either period IV or period III on Monday and Gayatri is scheduled in period III on Tuesday.
(v) Janaki is scheduled in period III of Thursday and Indira is scheduled in period II of Monday.

21. Who is scheduled in period III on Friday?
(A) Kamala (B) Hansika
(C) Indira (D) Gayatri

22. Who is scheduled in period IV on Thursday?
(A) Gayatri (B) Indira
(C) Kamala (D) Hansika

23. In which period is Janaki scheduled twice?
(A) I (B) II (C) III (D) IV

24. On Friday, Kamala is scheduled in period _____.
(A) I (B) III (C) IV (D) V

Directions for questions 25 to 28: These questions are based on the following information.

Anna, Broad, Coase, David, Elena, Flora, George are reviewing their annual horoscope forecasts for the year 2016. They belong to different zodiac signs from among the 12 zodiac signs, namely Aries, Taurus, Gemini, Cancer, Leo, Virgo, Libra, Scorpio, Sagittarius, Capricorn, Aquarius and Pisces. They evaluate their forecast into four parameters: Health, Career, Finance and Family, with each parameter taking value 2, 0 or -1. The final score was the sum of the four ratings. The following information is known:

I. Two of the friends, Flora and the one with Taurus sign obtained the highest rating, which is an even number but it is not eight, and the lowest is zero by a Libra.
II. Brad and Elena finished with a score of 3, the only other odd score.
III. The difference between two different non-zero even scores is 2, and one of these scores belong to Coase who is of the Aries sign.
IV. George a Gemini got a score of 5, the one with the sign Leo and Virgo had the same score. Brad is neither Scorpio nor Virgo, while one of the friends is a Cancer.
V. Anna was not the lowest scorer.

25. Finance and Career being closely related can take any two consecutive ratings only. Which of the following category could be the least rated in case of George?
I. Health
II. Career
III. Finance
IV. Family
(A) Either I or II (B) Either II or III
(C) Either III or IV (D) Either I or IV

26. In how many parameters do Flora and Anna have the same rating?
(A) Two (B) Three
(C) At least two (D) All the above

27. Who is a Gemini and what is the individual's score?
(A) Flora, 3 (B) Anna, 6
(C) George, 5 (D) Elena, 3

28. How many even scores do the friends have?
(A) Three (B) Four (C) Five (D) Six

Directions for questions 29 to 32: These questions are based on the following information.

Mr. Moneywala is planning to invest in a few manufacturing units from at least one of the three cities among Ratnagiri, Nilgiri and Raalgiri. In each city he has both the options to invest in at least one oil and gas unit or at least one electronic manufacturing unit. Each of the unit has a name among – A, B, C, D, E and F and all capacities in multiples of 100. Mr. Moneywala has calculated a 'value-added ratio (VAR)' for each plant (for example, if a plant has a ratio of 2/3 it would mean for every three rupees of input, it is able to command 2 rupees more on the final product. This is called 'value-add ratio' VAR).

I. Unit A neither belongs to oil and gas sector nor belongs to Nilgiri, and it has a capacity to process inputs worth ₹300 crores.
II. E and F belong to Raalgiri, with VAR calculated as 3/11 and 19/9, the lower ratio represents electronic manufacturing unit.
III. A, C and E belong to the same sector, also it is known that A and B are in the same city.
IV. A and B have a VAR of 2/3 and 4/7 respectively together producing output worth ₹1600 crores.
V. C and D together process ₹500 crores more amount of output than what A and B together produce, however with ₹200 crores less input than the value of inputs of A and B (taken together) C's VAR is 6/5.

29. What is the VAR of unit-D, and where is it located?
(A) 3/7, Raalngiri (B) 6/5, Nilgiri
(C) 3/7, Ratnagiri (D) 7/3, Nilgiri

30. If E and F together produce output worth ₹7200 crores, then what is the value of the sum of inputs used (in crores)?
(A) 5600 (B) 4000
(C) 5760 (D) None of these

31. If Mr. Moneywala wants to invest in only one city for ease of managing and controlling the units. What is his best option (Assume no capacity constraints)?
(A) Ratnagiri (B) Nilgiri
(C) Raalngiri (D) All are the same

32. If he would like to select two plants, each belonging to a different sector, and he decides to purchase one plant from Ratnagiri, then what is his best option for the other plant?
(A) Oil & Gas, Ratnagiri
(B) Electronics, Raalngiri
(C) Electronics, Nilgiri
(D) Oil & Gas, Nilgiri

Directions for questions 33 to 36: These questions are based on the information given below.

Two merchants, Das and Gupta, were involved in the buying and selling of wheat on five trading days. At the beginning of the first day, the price of 100 kgs of wheat was ₹1000, while at the end of the fifth day it was ₹1100. At the end of each day, the wheat price either went up by ₹100, or else it came down by ₹100, each for 100 kgs. Both Das and Gupta took buying and selling decision at the end of each day. The beginning price of wheat, on a given day was the same as the ending price on the previous day. Das and Gupta started with the same quantity of wheat and same amount of cash, and had plenty of both. Below are some additional facts about how Das and Gupta traded over the five trading days.

Each day if the price went up, Das sold 1000 kgs of wheat at the closing price. On the other hand, each day, if the price went down, he bought 1000 kgs at the closing price.

If on any day, the closing price was above ₹1100, then Gupta sold 1000 kgs of wheat, while if it was below ₹900, he bought 1000 kgs, all at the closing price.

33. If Das sold 1000 kgs of wheat on three consecutive days, while Gupta sold 1000 kgs only once during the five days, what was the price of wheat per 100 kgs at the end of day 3?
(A) ₹900 (B) ₹1000 (C) ₹1100 (D) ₹1200

34. If Das ended up with ₹13,000 more than Gupta at the end of day 5, then what was the price of wheat at the end of day 4?
(A) ₹900 (B) ₹1000 (C) ₹1100 (D) ₹1200

35. If Gupta ended up with 2000 kgs of wheat more than Das at the end of day 5, what was the price of 100 kgs of wheat at the end of day 3?
(A) 900 (B) 1000 (C) 1100 (D) 1200

36. What could have been the maximum possible increase in the combined cash balance of Das and Gupta at the end of day 5?
(A) ₹37000 (B) ₹38000 (C) ₹47000 (D) ₹50000

Directions for questions 37 to 40: These questions are based on the following information.

Five vegetables – brinjals, carrots, onions, potatoes and tomatoes, along with their respective price tags, are placed in a row in a retail store not necessarily in this order. A carry bag dispensing machine and an electronic weighing scale is on either end of the row. Mrs and Mr Mani, regular customers of the store came for a weekly purchase with a total budget of ₹514, and picked-up the vegetables in five different multiples of 500 gms. They also decided to wrap up their shopping quickly by dividing the purchase between them. The following information is known:

I. Mr. Mani picks up required vegetables from the side where the weighing scale is to his right end, while his wife stands opposite picking up vegetables, and the weighing scale is to her left.
II. According to Mr. Mani, the second costliest vegetable was priced at ₹60 per kg and was placed at the extreme right end, and they spent ₹17 less than half of the budget on it.
III. According to Mr and Mrs Mani, the costliest vegetable was potatoes and its position was the same when counted from left end according to each of them, however Mrs Mani purchased only 500 gms of it, spending ₹34 from her budget.
IV. The price of brinjals is twice the price of onions, which was placed on the right end among the vegetables and it is the least priced item, as per Mrs Mani.
V. Mr Mani purchased brinjals and the ₹40 per kg vegetable weighing 3 kg and 1 kg respectively, and brinjals is placed right of potatoes.
VI. The total weight of the purchase was 10.5 kg, and tomatoes were fourth from left end as per Mrs Mani.

Directions for questions 37 to 40: Write your answer in the input box provided below the question.

37. What is the amount spent on the vegetable that is second from the left end according to Mrs Mani?

38. While billing, there was an interchange of the pricetags of vegetables that are second from the left according to Mrs Mani and Mr Mani. What will be the difference between the amounts actually payable and actually billed?

39. By how much should the price of onions be dropped if another kg of it is to be purchased using same budget for onions? (Round-off to the nearest integer)

40. What is the rank of the lowest priced vegetable in terms of total spend on its purchase ?

Exercise – 13(b)

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

A total of 40 chocolates are distributed among five children P, C, S, R and J. Each one received at least five chocolates, but no two children received the same number of chocolates. The number of chocolates received by at least four of them is consecutive numbers. Then, the students exchanged chocolates among themselves.

No one gave chocolates to more than one child and no child took chocolates from more than one child. No child both took and gave chocolates.

Then, some of them started eating some of the chocolates with them. They all in total ate at least 21 chocolates. R didn't eat any chocolate and gave chocolates equal to half the highest number of chocolates received by any one of them. P didn't trade his chocolates and ate half of the chocolates with him. Only S had the same number of chocolates he initially had. C doubled the number of chocolates he had by borrowing more. Nobody ate more than 11 chocolates. Number of chocolate S ate was 1/4th of the total number of chocolates the other 4 ate. The numbers of chocolates left with them are consecutive natural numbers.

1. What is the number of chocolates that J ate?
(A) 7 (B) 5 (C) 0 (D) 3

2. What is the least number of chocolates after exchange (before anybody ate chocolates)?
(A) 4 (B) 3 (C) 1 (D) 2

3. What is the number of chocolates that S ate?
(A) 2 (B) 0 (C) 3 (D) 5

4. Who ate the highest number of chocolates?
(A) C (B) P (C) R (D) J

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

Six companies- A, B, C, D, E and F are ranked based on different parameters, each given a rank from 1 to 6. There are six employees, one from each company.
The company F and the company ranked 2nd do not have either Kiran or Deva as its employee. The company ranked 1st has either Pradeep or Shyam as its employee. A is ranked 4th. Anup is the employee of company B. Raj is not an employee of company F. Kiran works in C, which is not ranked 6th. Shyam's company or F is not ranked 1st but is ranked in even number. The number of letters in the name of the employee of company D is equal to the rank of the company B.

5. Who works in the company D?
(A) Dev (B) Shyam (C) Kiran (D) Raj

6. Which company does Kiran work in?
(A) B (B) A (C) D (D) C

7. What is the rank of the company that Anup works in?
(A) 2 (B) 1 (C) 3 (D) 6

8. Which company is ranked 5th?
(A) A (B) C (C) B (D) D

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

Five colleges- A, B, K, L and M have certain number of libraries, students and gardens.
The sum of the number of libraries and students is called the Value factor.
The number of libraries in L is 5 less than the number of students in K. The colleges having value number as a multiple of 12 have number of gardens 12 less than value factor. The number of libraries in B is 27 more than that in K. The colleges having value factor as a prime number have the same number of gardens. The number of students in M is 3 more than the number of libraries in K. The number of students in A is equal to the ratio of number of libraries in A and number of libraries in L. The number of gardens in K is equal to the difference of the highest value factor and the lowest value factor. The number of students in K is 7. The number of gardens in L is equal to the sum of the value factors of K and M. M and A have 6 and 8 students respectively. At least three of the ratios of number of libraries and number of students is an integer. There are a total of 29 students and 56 libraries in all the five colleges.

9. What is the total number of gardens in K and L?
(A) 32 (B) 53 (C) 59 (D) 23

10. What is the number of students in B?
(A) 6 (B) 2 (C) 4 (D) 3

11. Which college has the highest number of gardens?
(A) B (B) M (C) K (D) L

12. For which college are the numbers of libraries, students, value factor and gardens in increasing order?
(A) K (B) L
(C) M (D) Both K and L

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

The data below gives some details regarding the number of passengers travelled by a boeing 737 flight from India to USA.

	First Class	Business Class	Economy Class
Indians	5	7	
US citizens		3	8
Others	1		4

I. The cost of a ticket in the First, Business and Economy class from India to USA are 20,000 USD, 10,000 USD, and 5,000 USD respectively.
II. The revenue generated by sale of the first-class tickets during onward journey (India to US) is 1,80,000 USD, which is 10,000 USD more than the same revenue generated during backward journey.
III. The revenue generated by sale of each of business class and economy class tickets in either of onward/backward journey is 1,20,000 USD.
IV. The cost of a ticket in First, Business and Economy class from USA to India are 25,000 USD, 15,000 USD and 5,000 USD respectively.
V. It is also known that the number of US citizens travelling from USA to India in first and business classes are not equal.
VI. In each of the first and business class, the number of Indian citizens is greater than US citizens which is in turn greater than other citizens. There is at least one citizen from each of the three nationalities mentioned in every class.
VIII. Seventeen Indians were travelling from USA to India.
IX. Total number of US citizens travelling from USA to India in economy is equal to the total number of US citizens travelling from USA to India in the remaining two classes.

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

13. What is the number of passengers travelling from USA to India?

14. What is the number of passengers travelling in economy from USA to India?

15. What is the total number of Indians travelling from USA to India in business class?

16. What is the total number of passengers travelling from USA to India in first class?

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

In MYC college each student plays exactly four out of six sports among cricket, basketball, tennis, rugby, football and archery.
It is also known that:
I. each student plays at least one sport among cricket, basketball and tennis.
II. Only 120 students play all the three games among rugby, football and archery.
III. The number of students who play only rugby, only football and only archery among rugby, football and archery are two, five and three respectively.
IV. 160 students play football.
V. 80,80 and 90 students play cricket, basketball and tennis respectively.
VI. 50 students play exactly two sports among cricket, basketball and tennis.
VII. Exactly 20 students play cricket and basketball, but not tennis. None of them play rugby.
VIII. Exactly 30 students play only cricket among cricket basketball and tennis.
IX. No student played football, archery and tennis without playing rugby.

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

17. What is the number of people who play basketball but do not play cricket and tennis?

18. What is the number of people who play basketball and tennis but do not play cricket?

19. What is the number of people who play Rugby and football but so not play archery?

20. What is the number of people who play Rugby and archery but not football?

Directions for questions 21 to 24: These questions are based on the following information.

A goods train with 23 wagons was loaded with goods as described. Each of the wagons were loaded with one among metal, liquid or gas containers. Further information about the train and its wagons is as follows.
First five wagons were labelled extremely urgent, next five in line were labelled urgent, Next three in line were labelled classified, Next four in line were labelled radioactive and the last six private.
At least one gas container was loaded into one of the urgent wagons.
Due to high temperature no gas container was loaded into the extremely urgent wagons.
Any wagon loaded with a gas container was adjacent to at least one wagon loaded with a metal container.
No two metal containers were loaded in adjacent wagons.
No gas container was loaded into private wagons
The first wagon in the urgent line was the only urgent wagon loaded with a metal container.
No two adjacent extremely urgent wagons are loaded with the same kind of containers.
The number of classified wagons with gas container is more than the number of classified wagons with liquid and metal containers combined.
The number of radioactive wagons with gas container is more than the number of radioactive wagons with liquid and metal containers combined.
The number of private wagons loaded with metal containers are equal to the number of private wagons loaded with liquid containers.

Directions for questions 21 to 24: Write your answer in the input box provided below the question.

21. What is the total number of metal container loaded into the train?

22. What is the number of liquid containers loaded into private wagons?

23. What is the total number of gas containers loaded into the train?

24. What is the number of containers which have their adjacent wagons different from each other?

Directions for questions 25 to 28: : These questions are based on the following information:

Four students A, B, C and D distributed 30 marbles among themselves.
No two students got equal number of marbles.
No student got more than ten marbles or less than five marbles.
A and C got odd number of marbles.
B and D got even number of marbles.

Directions for questions 25 to 28: Write your answer in the input box provided below the question.

25. If A got more marbles than B, C got more marbles than D, B got more marbles than D, what is the number of marbles with A?

26. If A got fewer marbles than C, D got fewer marbles than B, C got fewer marbles than D, what is the number of marbles with D?

27. If C has more marbles than exactly two students, what is the number of marbles with A?

28. If the number of marbles with D is the mean of the number of marbles with A and C, what is the number of marbles with B?

Directions for questions 29 to 32: These questions are based on the information given below.

Five boys P, Q, R, S and T – are standing in a queue in that order, from first to last. These five boys are the top five rankers, not necessarily in that order, in each of the three subjects – mechanics, philosophy and criminology. No persons got the same rank in any two subjects and no two persons got the same rank in any subject. Further, for any person, none of his ranks is the same as his position in the queue.
We also have the following additional information about them:
(A) P got the second rank in mechanics.
(B) Q got the third rank in philosophy.
(C) T got the first rank in criminology.
(D) Sum of ranks obtained by S is 9.
(E) The sum of ranks obtained by Q is not more than that of R.

Directions for questions 29 to 32: Write your answer in the input box provided below the question.

29. What is the sum of the ranks obtained by Q?

30. What is the rank of R in criminology?

31. In philosophy, at least how many persons have got ranks which are numerically between that of R and S?

32. What is the difference in the ranks obtained by Q and S in criminology?

Directions for questions 33 to 36: Answer the questions based on the following information.

Each of the five players - Virat, Sindhu, Singh, Bopanna and Anand - plays a different game among Cricket, Hockey, Badminton, Chess and Tennis. They live in five different cities – Mumbai, Kolkata, Delhi, Chennai and Hyderabad. The following information is also known about them.

(1) The cricketer does not live in Hyderabad or Mumbai.
(2) The person living in Chennai plays neither tennis nor badminton.
(3) Anand does not play tennis and the tennis player does not live in Delhi.
(4) Bopanna plays neither cricket nor chess.
(5) Sindhu is not a chess player.
(6) Anand and Singh do not live in Chennai or Hyderabad.
(7) Virat and Sindhu do not play tennis or badminton and they do not live in Delhi or Chennai.

33. Who plays badminton?
(A) Sindhu (B) Singh
(C) Anand (D) Virat

34. Who lives in Hyderabad?
(A) Virat (B) Singh
(C) Sindhu (D) Anand

35. Which statement among the following is false?
(A) The player who plays chess lives in Hyderabad.
(B) The player who lives in Kolkata plays cricket.
(C) The player who lives in Delhi plays chess.
(D) None of the above.

36. Who lives in Kolkata?
(A) Virat (B) Singh
(C) Sindhu (D) Anand

Directions for questions 37 to 40: These questions are based on the information given below.

Sixteen teams from different colleges participated in an inter-university hockey competition. Each of these teams has a different seed 1 to 16, in that order, the teams are A, B, C, D, E, F, G, H, I, J, K, L, M, N, O and P. The teams are divided into two groups of eight teams each. The first group consists of all the odd – number seeded teams (i.e. seed 1, seed 3, seed 5, ...) and the second group consists of the rest of the teams. In each group, each team plays against each of the other teams exactly once. None of the matches in the tournament ended in a draw. From each group, the top two teams (i.e. the teams with the highest number of wins) advance into the semifinals. If more than one team has the same number of wins, the team with the better goal difference is placed higher. Assume that no two teams end up with the same goals difference. In the semifinals, the top team from each group plays against the team which is placed second from the other group. The winners of the semi – finals play the finals and the winner of the finals is said to have won the tournament.

An upset is said to be caused whenever a lower seeded team beats a higher seeded team.

37. If team J won the tournament and the total number of upsets in the tournament is the least possible, then what is the maximum possible number of wins of team J?
(A) 5 (B) 6 (C) 7 (D) 8

38. If the number of upsets in the matches involving any team is at most three, which is the lowest seeded team that could have won the tournament?
(A) J (B) K (C) L (D) M

39. If more than half of the number of matches in the tournament ended up as upsets, which is the highest seeded team that could have won the tournament?
(A) A (B) D (C) G (D) F

40. If team I and team M played the finals, then what is the least possible number of upsets in the tournament?
(A) 6 (B) 7 (C) 8 (D) 9

Key

Exercise – 13(a)

1.	D	6.	C	11.	A	16.	C	21.	C	26.	D	31.	B	36.	D
2.	D	7.	C	12.	D	17.	70	22.	D	27.	C	32.	D	37.	150
3.	D	8.	D	13.	B	18.	60	23.	B	28.	B	33.	C	38.	20
4.	A	9.	D	14.	D	19.	D	24.	D	29.	D	34.	B	39.	8.33
5.	A	10.	A	15.	A	20.	B	25.	D	30.	B	35.	A	40.	3

Exercise – 13(b)

1.	A	6.	D	11.	C	16.	6	21.	8	26.	8	31.	2	36.	C
2.	C	7.	C	12.	A	17.	40	22.	3	27.	5	32.	1	37.	C
3.	D	8.	D	13.	38	18.	10	23.	6	28.	6	33.	C	38.	D
4.	A	9.	B	14.	24	19.	15	24.	10	29.	8	34.	A	39.	A
5.	D	10.	A	15.	4	20.	15	25.	9	30.	2	35.	C	40.	C