Practice Exercise – 2

Career Launcher

LRDI - 18

CEX-D-0290/18

Number of questions : 32

Directions for questions 1 to 4: Answer the questions on the basis of the information given below.

In a square layout of size 5 m × 5 m, 25 equal-sized square platforms of different heights are built. The heights (in metres) of individual plalforms are as shown below:

6	1	2	4	3
9	5	3	2	8
7	8	4	6	5
3	9	5	1	2
1	7	6	3	9

Individuals (all of same height) are seated on these platforms. We say an individual A can reach an individual B if all the three following conditions are met:

(i) A and B are in the same row or column

(ii) A is at a lower height than B

(iii) if there is/are any individual(s) between A and B, such individual(s) must be at a height lower than that of A.

Thus in the table given above, consider the individual seated at height 8 on 3rd row and 2nd column. He can be reached by four individuals. He can be reached by the individual on his left at height 7, by the two individuals on his right at heights of 4 and 6 and by the individual above at height 5.

Rows in the layout are numbered from top to bottom and columns are numbered from left to right.

(CAT 2017)

1. How many individuals in this layout can be reached by just one individual?
   (1) 3 (2) 5
   (3) 7 (4) 8

2. Which of the following is true for any individual at a platform of height 1 m in this layout?
   (1) They can he reached by all the individuals in their own row and column.
   (2) They can be reached by at least 4 individuals.
   (3) They can be reached by at least one individual.
   (4) They cannot be reached by anyone.

3. We can find two individuals who cannot be reached by anyone in
   (1) the last row.
   (2) the fourth row.
   (3) the fourth column.
   (4) the middle column.

4. Which of the following statements is true about this layout?
   (1) Each row has an individual who can be reached by 5 or more individuals.
   (2) Each row has an individual who cannot be reached by anyone.
   (3) Each row has at least two individuals who can be reached by an equal number of individuals.
   (4) All individuals at the height of 9 m can be reached by at least 5 individuals.

Directions for questions 5 to 8: Answer the questions on the basis of the information given below.

A tea taster was assigned to rate teas from six different locations - Munnar, Wayanad, Ooty, Darjeeling, Assam and Himachal. These teas were placed in six cups, numbered 1 to 6, not necessarily in the same order The tea taster was asked to rate these teas on the strength of their flavour on a scale of 1 to 10. He gave a unique integer rating to each tea. Some other information is given below:

(a) Cup 6 contained tea from Himachal.
(b) Tea from Ooty got the highest rating, but it was not in Cup 3.
(c) The rating of tea in Cup 3 was double the rating of the tea in Cup 5.
(d) Only two cups got ratings in even numbers.
(e) Cup 2 got the minimum rating and this rating was an even number.
(f) Tea in Cup 3 got a higher rating than that in Cup 1.
(g) The rating of tea from Wayanad was more than the rating of tea from Munnar, but less than that from Assam.

(CAT 2017)

5. What was the second highest rating given?

6. What was the number of the cup that contained tea from Ooty?

7. If the tea from Munnar did not get the minimum rating, what was the rating of the tea from Wayanad?
   (1) 3
   (2) 5
   (3) 1
   (4) 6

8. If cups containing teas from Wayanad and Ooty had consecutive numbers, which of the following statements may be true?
   (1) Cup 5 contains tea from Assam
   (2) Cup 1 contains tea from Darjeeling
   (3) Tea from Wayanad has got a rating of 6
   (4) Tea from Darjeeling got the minimum rating

Direction for question 9 to 11: Answer the questions on the basis of the information given below.

A courier service has offices at three locations: Jamshedpur, Kharagpur and Howrah. Its employees travel by trains from one location to antoher for pick-up and delivery. It take 40 minutes for an employee to travel from any railway station to the nearest office (and antoher 40 minutes for coming back); the paperwork to deliver the pareel at the respective office takes an additional 10 minutes. Assume employees do not waste any time. **(XAT 2018)**

Employees have the option to choose from any of the trains, whose timetable is given in the table below. Assume all trains travel on time and there is no time gap between arrival and departure of a train. Further, assume that the employee boards the train as soon as it arrives at the station.

Train Numbers →	T101	T102	T103	T104	T105
Jamshedpur Stations	06:00	07:30	10:15	15:00	17:00
Kharagpur Station	07:30	09:05	12:05	16:50	18:25
Howrah Station	09:05	11:10	14:30	19:00	20:30
Train Numbers →	T201	T202	T203	T204	T205
Howrah Station	06:30	08:30	10:30	14:30	16:00
Kharagpur Station	08:15	10:40	12:15	16:15	17:55
Jamshedpur Station	10:20	12:35	14:00	17:45	20:00

9. What will be the minimum time required to deliver a parcel at Kharagpur office from Jamshedpur station and come back to Jamshedpur station?
(1) 4 hours 25 minutes
(2) 5 hours 5 minutes
(3) 6 hours 35 minutes
(4) 7 hours 30 minutes
(5) None of the above

10. An employee, starting from Howrah station, has to deliver one parcel at Kharagpur office and another parcel at Jamshedpur office. His task starts the moment he boards the train at Howrah station, and gets completed immediately after delivering the second parcel.

Which of the following trains should he board at Howrah station to **minimize** the time required to complete his task?
(1) T201
(2) T202
(3) T204
(4) Both Option A and Option B
(5) Both Option B and Option C

11. An employee, starting from Kharagpur station, has to deliver one parcel at Howrah office and another parcel at Jamshedpur office. His task starts the moment he boards the train at Kharagpur station, and gets completed immediately after delivering the second parcel.

Which of the following trains should he board at Kharagpur station to **minimize** the time required to complete the task?
(1) T102
(2) T103
(3) T202
(4) T203
(5) Both Option (2) and (4)

Directions for questions 12 to 16: Answer the questions on the basis of the information given below.

Five MBA students - Aman, Manish, Rohit, Sandeep and Vinay, specializing in sales and marketing got final campus placement in five different companies - Asian Paints, Dabur, Hindustan Unilever, ITC and L'Oreal. (though not necessarily in the same order). Their initial job assignment has been fixed in five different cities - Bhopal, Chennai, Delhi, Mumbai and Patna (in any order). They are avid book readers, but like different themes - business and management, classic fiction, historical fiction, mystery fiction and non-fiction (again in any order). Further the following additional information are provided:

(a) Vinay got placed in Asian Paints.
(b) Aman is not placed in Hindustan Unilever.
(c) Manish's job location is not in Chennai and he does not like books on mystery fiction.
(d) Sandeep got placed at Delhi, while Vinay is not placed at Mumbai.
(e) Aman likes reading books on historical fiction and is placed either at Chennai or Patna and the student who got placed in ITC does not like mystery fiction and his job posting is in the other city amongst Chennai or Patna.
(f) The student who got placed in L'Oreal likes reading non-fiction books and is not posted at Mumbai.
(g) The student who likes reading classic fiction, is posted at Bhopal. **(XAT 2018)**

12. In which company has Aman got placed?
(1) Dabur
(2) Hindustan Unilever
(3) ITC
(4) L'Oreal

13. Name the person who likes reading books on business and management.
(1) Manish
(2) Rohit
(3) Sandeep
(4) Vinay

14. Name the type of books the student who is placed in Mumbai likes reading.
(1) Business and management
(2) Historical fiction
(3) Mystery fiction
(4) Non-fiction

15. If Sandeep is transferred to Rohit's city and Rohit is transferred to Sandeep's city, then in which city the student who likes reading mystery fictions will work?
(1) Chennai
(2) Delhi
(3) Mumbai
(4) Patna

16. Who among the following is posted in Patna?
(1) Manish
(2) Rohit
(3) Aman
(4) Cannot be determined

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

A professor keeps data on students tabulated by performance and sex of the student . The data is kept on a computer disk, but unfortunately some of it is lost because of a virus. Only the following could be recovered :

	Performance			Total
	Average	**Good**	**Excellent**	
Male			10	
Female				32
Total		30		

Panic buttons were pressed but to no avail. An expert committee was formed, which decided that the following facts were self evident:

Half the students were either excellent or good.
40% of the students were females.
One third of the male students were average.

(CAT 1993)

17. How many students were both female and excellent?
    (1) 0
    (2) 8
    (3) 16
    (4) 32

18. How many students were both male and good?
    (1) 10
    (2) 16
    (3) 22
    (4) 48

19. Among average students, what was the ratio of male to female?
    (1) 1 : 2
    (2) 2 : 1
    (3) 3 : 2
    (4) 2 : 3

20. What proportion of female students were good?
    (1) 0
    (2) 0.25
    (3) 0.5
    (4) 1.0

21. What proportion of good students were male?
    (1) 0
    (2) 0.73
    (3) 0.4
    (4) 1.0

Directions for questions 22 to 25: Answer the questions on the basis of the information given below.

A study to look at the early learning of rural kids was carried out in a number of villages spanning three states,, chosen from the North East (NE), the West (W) and the South (S). 50 four-year old kids each were sampled from each of the 150 villages from NE, 250 villages from W and 200 villages from S. It was found that of the 30000 surveyed kids 55% studied in primary schools run by government (G), 37% in private schools (P) while the remaining 8% did npt go to school (O).

The kids surveyed were further divided into two groups based on whether their mothers dropped out of school before completing primary education or not. The table below gives the number of kids in different types of schools for mothers who dropped out of school before completing primary education;

	G	P	O	Total
NE	4200	500	300	5000
W	4200	1900	1200	7300
S	5100	300	300	5700
Total	13500	2700	1800	18000

It is also known that;

1. In S, 60% of the surveyed kids were in G. Moreover in S, all surveyed kids whose mothers had completed primary education were in school.
2. In NE, among the O kids, 50% had mothers who had dropped out before completing primary education.
3. The number of kids in G in NE was the same as the number of kids in G in W.

(CAT 2017)

22. What percentage of kids from S were studying in P?
(1) 37% (2) 6% (3) 79% (4) 56%

23. Among the kids in W whose mothers had completed primary education, how many were not in school?
(1) 300 (2) 1200 (3) 1050 (4) 1500

24. In a follow up survey of the same kids two years later, it was found that all the kids were now in school. Of the kids who were not in school earlier, in one region, 25% were in G now, whereas the rest were enrolled in P; in the second region, all such kids were in G now; while in the third region, 50% of such kids had now joined G while the rest had joined P. As a result, in all three regions put together, 50% of the kids who were earlier out of school had joined G. It was also seen that no surveyed kid had changed schools.

What number of the surveyed kids now were in G in W?
(1) 6000 (2) 5250 (3) 6750 (4) 6300

25. In a follow up survey of the same kids two years later, it was found that all the kids were now in school. Of the kids who were not in school earlier, in one region, 25% were in G now, whereas the rest were enrolled in P; in the second region, all such kids were in G now; while in the third region, 50% of such kids had now joined G while the rest had joined P. As a result, in all three regions put together, 50% of the kids who were earlier out of school had joined G. It was also seen that no surveyed kid had changed schools.

What percentage of the surveyed kids in S, whose mothers had dropped out before completing primary education, were in G now?

(1) 94.7%
(2) 89.5%
(3) 93.4%
(4) Cannot be determined from the given information

Directions for questions 26 to 29: Answer the questions on the basis of the information given below.

Abdul has 8 factories, with different capacities, producing boutique kurtas. In the production process, he incurs raw material, cost, selling cost (for packaging and transportation) and labour cost. These costs per kurta vary across factories. In all these factories, a worker takes 2 hours to produce a kurta. Profit per kurta is calculated by deducting raw material cost, selling cost and labour cost from the selling price (Profit = selling price – raw materials cost – selling cost – labour cost). Any other cost can be ignored.

(XAT 2017)

Exhibit : Business Details of Abdul's 8 Factories

	Production Capacity	Selling Price/Kurta	Profit/Kurta	Selling Cost/Kurta	Labour Cost/Hour
#	(No. of Kurtas)	₹	₹	₹	₹
Factory 1	2500	4800	775	60	450
Factory 2	1500	5300	800	45	400
Factory 3	800	5800	900	60	550
Factory 4	1000	5500	800	68	450
Factory 5	1500	5400	600	75	600
Factory 6	1100	6000	875	65	400
Factory 7	2500	4900	500	85	350
Factory 8	2000	5300	600	70	420

26. Which of the following options is in decreasing order of raw materials cost?
(1) Factory 3, Factory 4, Factory 7, Factory 5
(2) Factory 4, Factory 3, Factory 2, Factory 5
(3) Factory 6, Factory 3, Factory 5, Factory 7
(4) Factory 6, Factory 8, Factory 7, Factory 2
(5) Factory 8, Factory 3, Factory 2, Factory 4

27. Which of the factories listed in the options below has the lowest sales margin (sales margin = profit per kurta divided by selling price per kurta)?
(1) Factory 2
(2) Factory 4
(3) Factory 5
(4) Factory 6
(5) Factory 7

28. Abdul has received an order for 2,000 kurtas from a big retail chain. They will collect the finished pre-packaged kurtas directly from the factories, saving him the selling cost. To deliver this order, he can use multiple factories for production. Which of the following options will ensure maximum profit from this order?
(1) Factory 1
(2) Factories 2 and 3
(3) Factories 4 and 6
(4) Factories 3, 6 and 4
(5) Factory 1 or Factory 7 or Factory 8

29. Abdul has introduced a new technology in all his factories. As a result, a worker needs just 1.5 hours to produce a kurta. If raw materials cost and selling cost remain the same, which of the factories listed in the options below will yield the highest profit per kurta?

(1) Factory 2 (2) Factory 3
(3) Factory 4 (4) Factory 5
(5) Factory 6

Direction for question 30 to 32: Answer the questions on the basis of the information given below.

Six teams are playing in a hockey tournment where each team is playing against every other team **exactly once**. At an intermediate stage, the status is as follows:

Teams	No. of Matches Played	No. of Matches won	No. of Matches Lost	No. of Matches Drawn	Goals scored by the team	Goals conceded by the team
Team A	2	2	0	0	5	1
Team B	2	1	0	1	5	1
Team C	2	1	0	1	2	0
Team D	2	0	0	2	1	1
Team E	2	0	2	0	1	4
Team F	2	0	2	0	0	7

Notes:

- The team that scores more goals than it concedes wins the match, while if both the teams score the same no. of goals, the match is declared drawn.
- In a match played between Team X and Team Y, if team X scores 1 and concedes none, then the score line would read. Team X – Team Y (1-0).

(XAT 2018)

30. Which of the following matches are yet to be played?

(1) Team A - Team B and Team C - Team D (2) Team C - Team D and Team E - Team F
(3) Team E - Team F and Team B - Team D (4) Team C - Team D and Team A - Team E
(5) Team A - Team B and Team E - Team F

31. Which of the following score line is a possible outcome in the tournament?

(1) Team A - Team D (1-0) (2) Team A - Team E (2-1)
(3) Team B - Team D (1-0) (4) Team C - Team F (2-0)
(5) None of the above

32. Which of the following score line is **not** a possible outcome in the tournament?

(1) Team A - Team F (4-0) (2) Team B - Team F (4-0)
(3) Team C - Team D (0-0) (4) Team C - Team E (2-0)
(5) All of the above options are possible

LRDI - 18
Answers and Explanations

CEX-D-0290/18

1	3	**2**	4	**3**	3	**4**	3	**5**	7	**6**	4	**7**	2	**8**	2	**9**	2	**10**	5
11	2	**12**	1	**13**	1	**14**	3	**15**	2	**16**	1	**17**	1	**18**	3	**19**	4	**20**	2
21	2	**22**	1	**23**	1	**24**	1	**25**	1	**26**	1	**27**	5	**28**	4	**29**	2	**30**	5
31	2	**32**	1																

1. 3 As per the rule given in question, the following circled places can be reached by only one individual:

	1	(2)	4	3
9	5	3	2	8
(7)	8	(4)	6	(5)
(3)	9	5	1	(2)
1	7	6	(3)	9

∴ 7 individuals can be reached by just one individuals.

2. 4 Using (ii), '1' being the smallest number in given layout no individual can reach to the individual at a platform of height 1.

3. 3 In fourth column only, the individuals sitting at platforms of height 2 and 1 cannot be reached by any individual.

4. 3 (1) Row 1 doesn't have any individual who can be reached by 5 or more individual. Hence option (1) is FALSE.
(2) Row 3 doesn't have any individual who cannot be reached by anyone. Hence option (2) is FALSE.
(4) 9 in Row 2 can not be reached by 5 or more individual. Hence option (4) is also FALSE.

For questions 5 to 8:
Only two cups got even ratings
even numbers from 1–10
⇒ 2, 4, 6, 8, 10
Other 4 places got odd ratings
1, 3, 5, 7, 7
Since, smallest rating is even
and rating of cup 3
= 2 × rating of cup 5
∴ Possible combinations are (3, 6) (5, 10)
Out of which the only acceptable scenario is
minimum rating is 2 which is of cup 2
cup 3 rating is 6 and cup 5 rating is 3
Since only 2 cups have even ratings. Therefore, cup 1, cup 4, cup 6 have ratings 5, 7 and 9 not necessarily in this order.
Also, since cup 3 got higher rating than cup 1, the only possibility is cup 1 got the rating of 5.
Tea from Himachal is cup 6 and Tea from Ooty got the highest rating.
Therefore Ooty is cup 4 and got rating of 9 and cup 6 that is Himachal got rating of 7.
The final information is tabulated below.

Places	Cup no	Rating	Rank
	1	5	4
	2	2	6
	3	6	3
Ooty	4	9	1
	5	3	5
Himachal	6	7	2

5. 7

6. 4

7. 2

8. 2

9. 2 Minimum time required to deliver a parcel at Kharagpur office from Jamshedpur station and come back to Jamshedpur station.
Case I:
If employee boards train T101 from Jamshedpur at 06 : 00 and departs 07 : 30 at Kharagpur. It takes (40 + 40 + 10) min = 1 hr 30 min to deliver the package i.e. 09 : 00. Then takes next train from Kharagpur i.e. T202 at 10 : 40 and departs 12 : 35 at Jamshedpur.
Total time between 06 : 00 to 12 : 35 is 6 hours 35 minutes

Case II:
If employee boards train T102 from Jamshedpur at 07 : 30 and departs 09 : 05 at Kharagpur. It takes (40 + 40 + 10) min = 1 hour 30 min to deliver the package i.e. 10 : 35. Then takes next train from Kharagpur i.e. T203 at 10 : 40 and departs 12 : 35 at Jamshedpur.
Total time between 7 : 30 to 12 : 35 is 5 hours 5 min

Similarly, **case III** if train is boarded from T103 and case IV if train is boarded from T104 can be formed and then you may observe that case II gives the minimum time required.

10. 5 Minimum time required to start from Howrah and to deliver one parcel at Kharagpur office and another parcel at Jamshedpur office.
Case I:
If employee boards train T201 from Howrah at 6 : 30 and departs to Kharagpur at 8 : 15 and then takes 1 hours 30 min to deliver the package (i.e. 9 : 45), then boards T202 train from Kharagpur at 10 : 40 and departs at Jamshedpur at 12 : 35 and again take 1 hr 30 min to deliver the package (i.e. 14 : 05), therefore completing his task.
So, total time between 6 : 30 to 14 : 05 is 7 hours 35 minutes.
Similarly, if he boards T202 and T204 the time taken to complete the task is 7 hours and 7 hours respectively.

11. 2 Minimum time required to start from Kharagpur station and to deliver one parcel at Howrah office and another parcel at Jamshedpur office.
Case I:
If the employee boards train T102 from Kharagpur at 09 : 05 and departs at Howrah at 11 : 10 and then takes 1 hour 30 minutes to deliver the package (i.e. 12 : 40), then boards T204 at 14 : 30 departs at Jamshedpur at 17 : 45 and then again takes 1 hour 50 minutes to deliver the package (i.e. 19 : 15)
So, total time between 09:05 to 19:15 is 10 hours 10 minutes.
Similarly, if he boards. T103, T202 and T203 the total time taken to complete the task would be 7 hours 55 min, 8 hours 22 minutes and 8 hours 15 minutes respectively.

For questions 12 to 16:
From the given information we can make the following arrangement.

Name	Company	City	Book
Vinay	Asian Paints	Bhopal	Classic fiction
Aman	Dabur	Chennai	Historical fiction
Manish	ITC	Patna	Business and management
Rohit	HUL	Mumbai	Mystery fiction
Sandeep	L'Oreal	Delhi	Non fiction

12. 1 Aman got placed in Dabur

13. 1 Manish reads books on business and management

14. 3 Rohit lives in Mumbai and he reads mystery fiction

15. 2 Rohit reads mystery fiction and he will go to Delhi.

16. 1 Manish is posted in Patna.

For questions 17 to 21: Since 40% of the students were females, i.e., 32 students. Total number of students was 80 and total number of male students was 48. Since half of the students were either excellent or good, (number of average students) = (number of good students + number of excellent students) = 40, number of excellent students = 40 – 30 = 10. As 1/3rd of male students were average, total number of male students that were average $= \left(\frac{1}{3} \times 48\right) = 16$ and hence, total number of male students that were good = (48 – 16 – 10) = 22.
Based on the above revelations, the following table can be drawn:

	Performance			Total
	Average	Good	Excellent	
Male	16	22	10	48
Female	24	8	0	32
Total	40	30	10	80

17. 1 Number of students who were both female and excellent = 0.

18. 3 Number of students who were both male and good = 22.

19. 4 Ratio of male to female among average students = 16 : 24 = 2 : 3.

20. 2 Proportion of female students who were good $= \left(\frac{8}{32}\right) = 0.25$.

21. 2 Proportion of good students who are male $= \left(\frac{22}{30}\right) = 0.73$.

For questions 22 to 25.

Mothers out of Primary	G	P	O	Total
NE	4200	500	300	5000
W	4200	1900	1200	7300
S	5100	300	300	5700
Total	13500	2700	1800	18000

Mothers Completed Primary	G	P	O	Total
NE	1050	1150	300	2500
W	1050	3850	300	5200
S	900	3400	0	4300
Total	3000	8400	600	12000

Total	G	P	O	Total
NE	5250	1650	600	7500
W	5250	5750	1500	12500
S	6000	3700	300	10000
Total	16500	11100	2400	30000

Total kids surveyed from each village is 50, and 150 villages in NE, so total = 150 × 50 = 7500
Similarly, for W, total kids = 12500, For S = 10000

22. 1 Required percentage $= \frac{3700}{10000} = 37\%$

23. 1 From the table given above, W has 300 kids not in school whose mothers had completed primary education.

24. 1 25% of one region went to G, 75% to P
100% of another to G,
50% of 3rd to G, 50% to P.
Given that 50% of total 'O' kids now go to 'G'
Let's fill the table for 'O' kids
Out of 2400, 1200 went to G & 1200 to P.
Given that 75% of 1 region + 50% of another region = 1200 (going to P)
There is only 1 option, 75% of 600 (NE) + 50% of 1500 (W) = 450 + 750 = 1200

Initial		Finally to G	Finally to P
NE	600	150	450
W	1500	750	750
S	300	300	0
Total	2400	1200	1200

∴ Now, G in W = 5250 + 750 = 6000

25. 1 In 'S', all 300 out of school kids have moved to 'G'
∴ 5400 kids are in G, out of total 5700

$\therefore \% = \frac{5400}{5700} \times 100\% = 94.7\%$

26. 1 Option (1) (Calculations at the end)

27. 5 Option (5) (Calculations at the end)

28. 4 Option (4) (Calculations at the end)

29. 2 Option (2) (Calculations at the end)

			Sales Margin	Raw Material	Profit	Profit
#	Labour Cost*2	Labour Cost*1.5	Q27	Q26	Q28	Q29
Factory 3	1100	825	15.5%	3740	1175	960
Factory 6	800	600	14.6%	4260	1075	940
Factory 4	900	675	14.5%	3732	1025	868
Factory 2	800	600	15.1%	3655	1000	845
Factory 1	900	675	16.1%	3065	1000	835
Factory 5	1200	900	11.1%	3525	900	675
Factory 8	840	630	11.3%	3790	810	670
Factory 7	700	525	10.2%	3615	675	585

For questions 30 to 32:
Since Team D had 2 draw matches, and Team B and C each had 1 draw match. Therefore, Team D necessarily had one match with B and other match with C.

Now Team B and C each won, 1 match and since Team A played 2 games and won therefore Team B and C must have won from either E or F.
Now, both Team E and F are left with one lost match and since A won 2 matches it must have won one match from E and another from F.
The only possible outcome of the game is:

30. 5 Therefore, the matches that are yet to be played are Team A - Team B and Team E - Team F.

31. 2 The possible outcome of the score line in the tournament is Team A - Team E (2 – 1)

32. 1 Team A - Team F (4 – 0) is not a possible outcome in the tournament.