Mixed Graph

Career Launcher

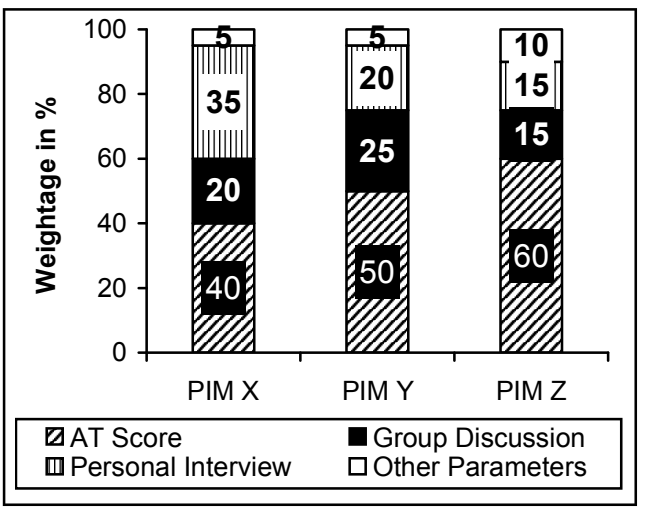
LRDI - 03

CEX-D-0275/18

Number of Questions : 30

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

Three Prominent Institutes of Management (PIMs): PIM X, PIM Y and PIM Z select students for their post graduate programmes by judging them on various parameters. They conduct an Admission Test (AT), followed by Group Discussion (GD) and Personal Interview (PI). They consider the scores of the students in AT, GD and PI along with some other parameters. The relative weights of these parameters in the selection criteria of the PIMs are shown in the following bar chart. The maximum score in AT, GD, PI and other parameters is 100, 50, 50 and 50 respectively. All weightages are in integral multiples of 5%. Marks obtained by a few students in these parameters are compiled in the table given below.



Students	AT	GD	PI	Other Parameters
Narayan	99	22	31	42
Ratan	97	23	35	34
Mukesh	98	24	30	30
Deveshwar	95	27	33	36
Azim	94	29	33	41

PIM X will offer final admission to top two, PIM Y to top three and PIM Z to top three students from the students mentioned in the table above according to their respective selection criteria.

1. Who among the following will fail to get an admission offer from any of the PIMs?
(1) Mukesh (2) Deveshwar (3) Azim (4) Narayan

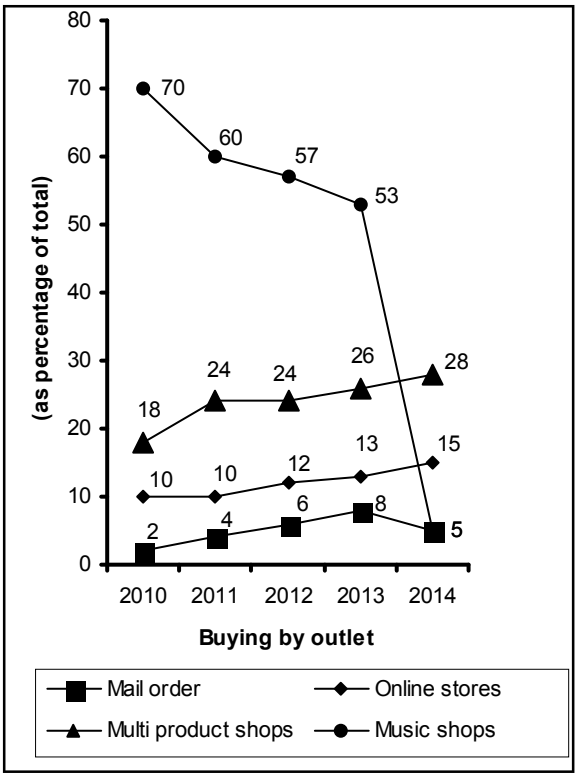
2. If Anil also joins the list of probable students with scores of 96, 26, 34 and 31 in AT, GD, PI and Other parameters respectively, then how many final admission offer(s) will Anil receive?
(1) 0 (2) 1 (3) 2 (4) 3

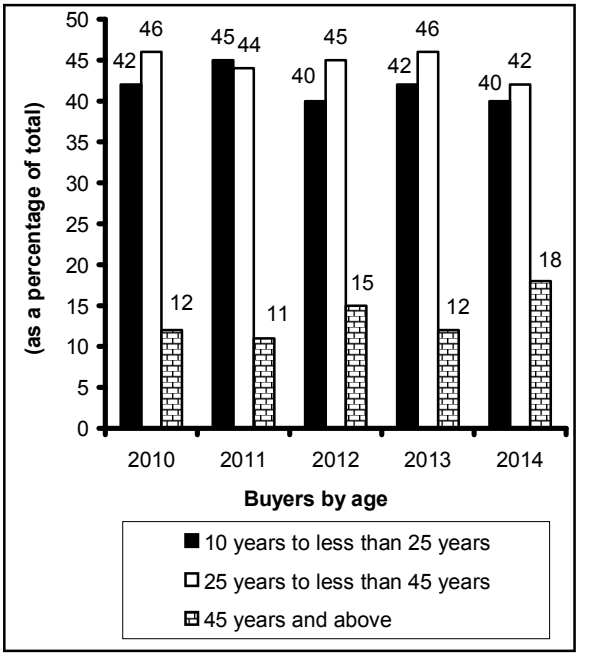
3. In order to secure an admission in PIMX, Narayan can improve his score by how much and in which parameter?
(1) 1 mark in GD (2) 1 mark in PI
(3) 2 marks in Other parameters (4) Any one among (1), (2) or (3)

4. On the basis of the weights of the selection parameters of the PIMs, the total marks of the given five students is the highest for which of the following PIMs?
(1) PIM X (2) PIM Y (3) PIM Z (4) Data Insufficient

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

For a city called Phoren, the bar chart given below shows the music cassettes/CDs buying behavior of the people according to their age and their preference for different types of sales outlets during the period 2010 to 2014. It is assumed that nobody below the age of 10 years buys any music cassette/CD in this city. The line chart given below represents the buying pattern for the same set of people classified according to the type of sales outlets from where music cassettes/CDs are bought.





5. If in 2010, there were a total of 1000 buyers of music cassettes/CDs in the city of Phoren and the number of buyers increase by 100 every year, then what was the total number of buyers of music cassettes/CDs who were from age group of 45 years and above during the period 2010 to 2014?
(1) 729 (2) 789 (3) 829 (4) 879

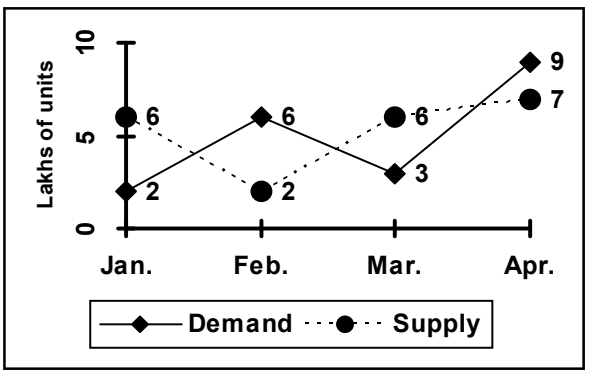
6. By what percentage did the difference between number of buyers who buy music from mail order and those from online stores change between 2010 and 2014? (Assume the total number of buyers of music cassettes/CDs remained the same for every year during this period)
(1) Decrease by 15% (2) Decrease by 25% (3) Increase by 15% (4) Increase by 25%

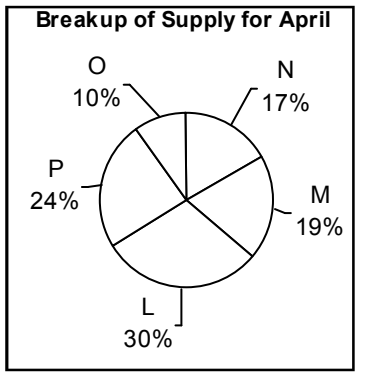
7. Which of the following outlet(s) has(have) managed to retain the number of its customers at almost the same level for a period of three consecutive years in the period 2010 to 2014?
(1) Multi product shops (2) Online stores (3) Both (1) and (2) (4) Data Insufficient

8. If in every age group the pattern of buying from various sales outlets show the same break-up as the one given for the total, then what, approximately, was the number of buyers in the age group 25 years to below 45 years buying music cassettes/CDs from music shops in 2010? (Use also data from question 5).
(1) 532 (2) 322 (3) 425 (4) 380

Directions for questions 9 to 12: Answer the questions on the basis of the information given below.

The demand and supply situation in a particular industry is given in the following line chart for products L, M, N, O and P put all together. The percentage break-up of supply in the month of April for different products is shown in the given pie chart.





Assume all the supplied units are sold, if demand is greater than supply.

9. In which month the demand was greater than supply by highest number of units?
Fill 1 if "your answer is January"
Fill 2 if "your answer is February"
Fill 3 if "your answer is March"
Fill 4 if "your answer is April"

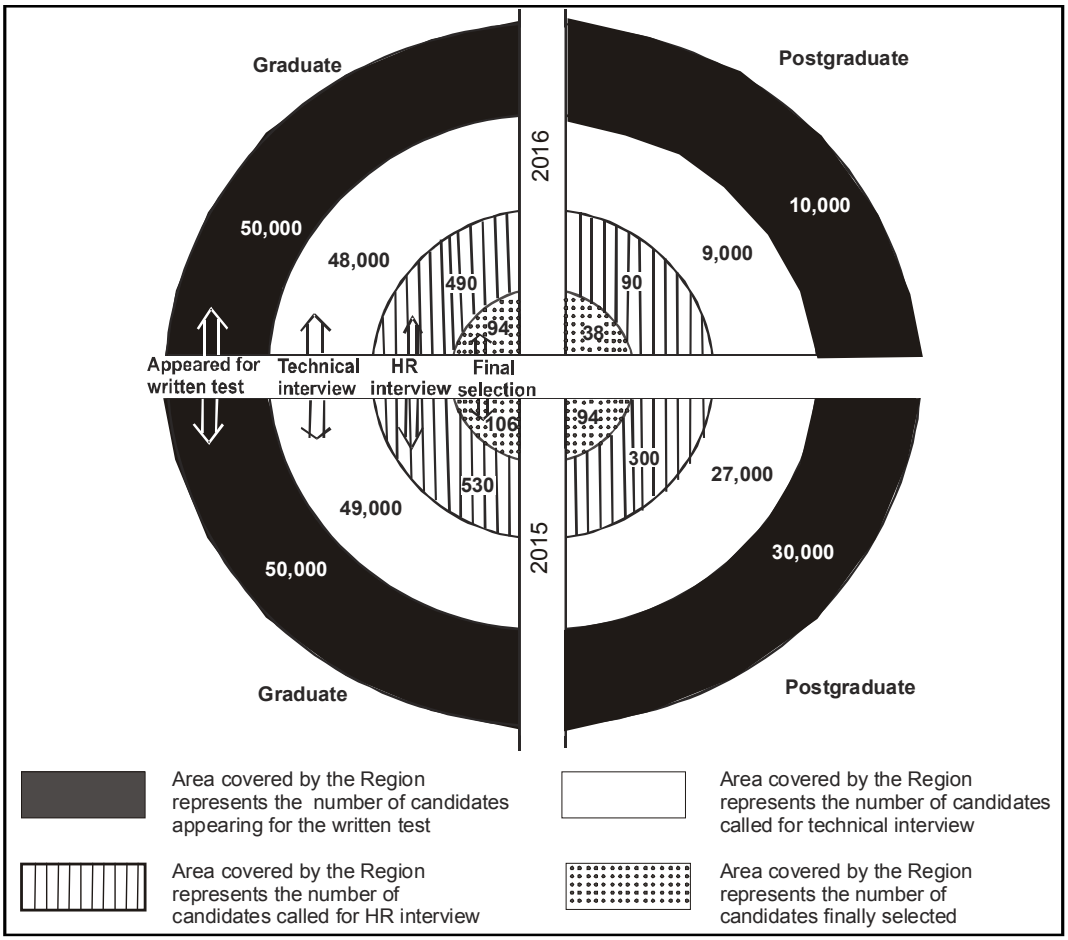
10. How many lakhs of units of 'L' were sold in the month of January?
Fill 1 if "your answer is 1.8"
Fill 2 if "your answer is 1.85"
Fill 3 if "your answer is 1.92"
Fill 4 if "your answer is Data insufficient"

11. How many lakhs of units of 'P' were sold in the month of April?
Fill 1 if "your answer is 1.64"
Fill 2 if "your answer is 1.68"
Fill 3 if "your answer is 1.78"
Fill 4 if "your answer is 1.80"

12. How many units more of 'O' would have been sold in January had demand met with supply?
Fill 1 if "your answer is 0.64"
Fill 2 if "your answer is 1.28"
Fill 3 if "your answer is 0.32"
Fill 4 if "your answer is Data insufficient"

Directions for questions 13 to 16: Answer the questions on the basis of the information given below.

The following figure gives us the detailed information regarding the selected entry level software professionals for a reputed organization for the year 2015 and 2016. *Upper half* of figure gives detail of the data for the year 2015 and *lower half* for the year 2016. Also *left half part* of the figure tells about graduate candidates and *right half part* gives details about postgraduate candidates. Selection process consists of a written test followed by a technical interview and then an HR interview. A candidate can be eliminated at the end of each round.



13. What was the absolute difference in percentage of candidates finally selected as a percentage of the total number of candidates who appeared for the written test in the years 2015 and that in the year 2016?
(1) 13.33% (2) 0.03% (3) 0.3% (4) 1.33%

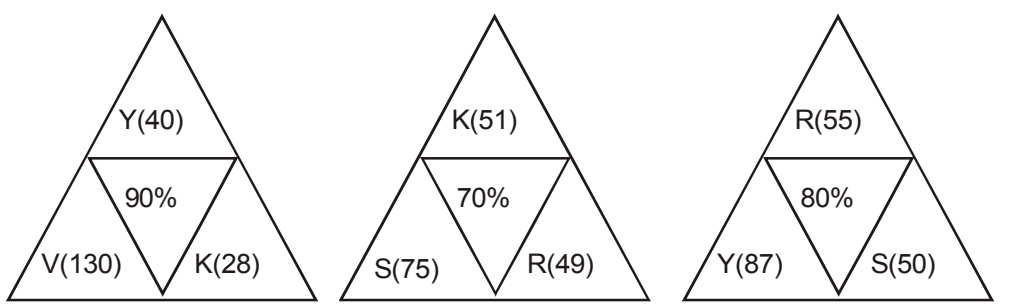
14. The ratio of graduates out of the total graduates appeared for written test not called for the technical interview in 2015 to that of postgraduates not called for the technical interview in 2015 and 2016 together is
(1) 2 : 1 (2) 3 : 4 (3) 1 : 2 (4) 2 : 3

15. The total final selection for the two years (2015 and 2016) taken together was approximately what percentage of the total postgraduate candidates called for HR interview in the period 2015-2016?
(2) 80% (2) 85% (3) 90% (4) 75%

16. Ratio of number of graduates in 2015 to that of postgraduates in 2016 who were selected is
(1) 1 : 1 (2) 2 : 3 (3) 27 : 50 (4) 3 : 2

Directions for questions 17 to 19: Answer the questions on the basis of the information given below.

Coach John sat with the score cards of Indian players from the 3 games in a one-day cricket tournament where the same set of players played for India and all the major batsmen got out. John summarized the batting performance through three diagrams, one for each game. In each diagram, the three outer triangles communicate the number of runs scored by the three top scores from India, where K, R, S, V, and Y represent Kaif, Rahul, Saurav, Virender, and Yuvraj respectively. The middle triangle in each diagram denotes the percentage of the total score that was scored by the top three Indian scorers in that game. No two players score the same number of runs in the same game. John also calculated two batting indices for each player based on his scores in the tournaments; the R-index of a batsman is the difference between his highest and lowest scores in the 3 games while the M-index is the middle number, if his scores are arranged in a non-increasing order.



17. For how many Indian players is it possible to calculate the exact M-index?
(1) 0 (2) 1 (3) 2 (4) More than 2

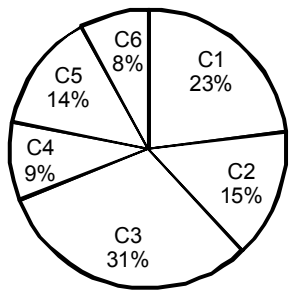
18. Among the players mentioned, who can have the lowest R-index from the tournament?
(1) Only Kaif, Rahul or Yuvraj (2) Only Kaif or Rahul
(3) Only Kaif or Yuvraj (4) Only Kaif

19. How many players among those listed definitely scored less than Yuvraj in the tournament?
(1) 0 (2) 1 (3) 2 (4) More than 2

Directions for questions 20 to 23: Answer the questions on the basis of the information given below.

There are 15 states viz. S1, S2, ... S15 that produce cocoa in the world. Each of these states is in one or the other of the six countries viz. C1, C2,...C6 and each of these 6 countries is in one or the other of the three continents viz. Asia, Europe and North America.
The following table and pie chart provide information about the quantity (by weight) of cocoa produced in each of the states and countries respectively as a percentage of total cocoa produced in the world. It is also given that the percentage contributions of the three continents Asia, Europe and North America are 40%, 29% and 31% respectively as a percentage of the total cocoa produced in the world.

State	%	State	%	State	%	State	%	State	%
S1	5	**S4**	3	**S7**	8	**S10**	9	**S13**	6
S2	7	**S5**	6	**S8**	2	**S11**	9	**S14**	7
S3	11	**S6**	13	**S9**	7	**S12**	4	**S15**	3



20. Which of the following countries is in Europe?
(1) C1 (2) C5 (3) C3 (4) Cannot be determined

21. Which of the following countries can never be in North America?
(1) C1 (2) C6 (3) C4 (4) C3

22. If the number of mentioned countries in each of the three continents is not the same and the number of states in North America is maximum possible, then the number of states in C3, out of the mentioned 15 states, is
(1) 6 (2) 5 (3) 7 (4) Cannot be determined

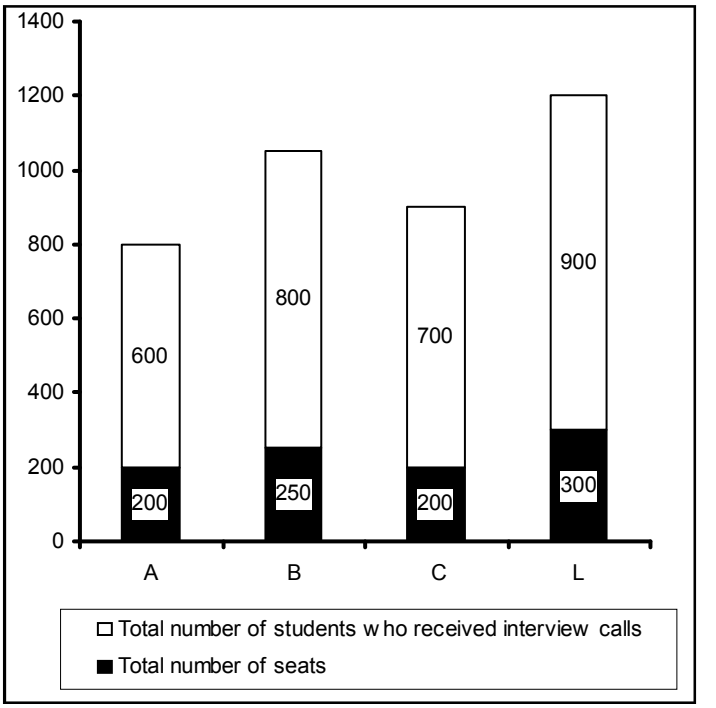
23. If number of mentioned countries in each of the three continents is not the same and the number of states in North America is maximum possible, then which of the following states can never be in C3?
A. S8 B. S4 C. S12

(1) A only
(2) A and B
(3) A and C
(4) They all (not necessarily simultaneously) can be there in C3

Directions for questions 24 to 26: Answer the questions on the basis of the information given below.

The following table gives the summary of interview calls that have been sent out to the students by four institutes viz. A, B, C and L. For example, from among the students who have calls from institute C, the number of students with exactly three interview calls is 210 and the number of students with exactly two interview calls is 150. There are 150 students who received calls from all the four given institutes. The bar-graph provides information about the total number of seats in each institute and the total number of students who have received interview calls from these institutes.

Institute	Students with 3 interview calls	Students with 2 interview calls
A	230	140
B	220	120
C	210	150
L	180	170



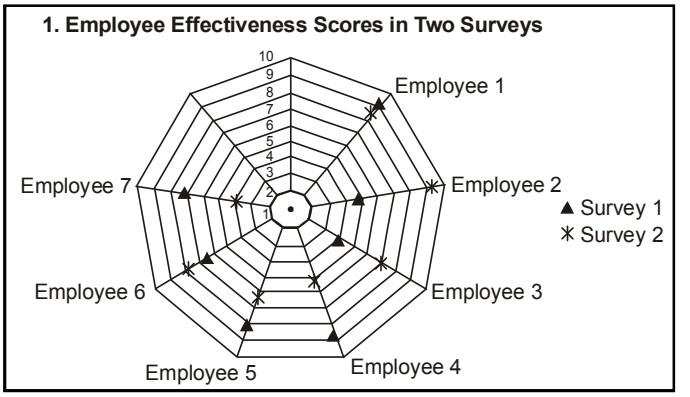
24. How many students received exactly one interview call?
(1) 1380 (2) 980 (3) 860 (4) 1580

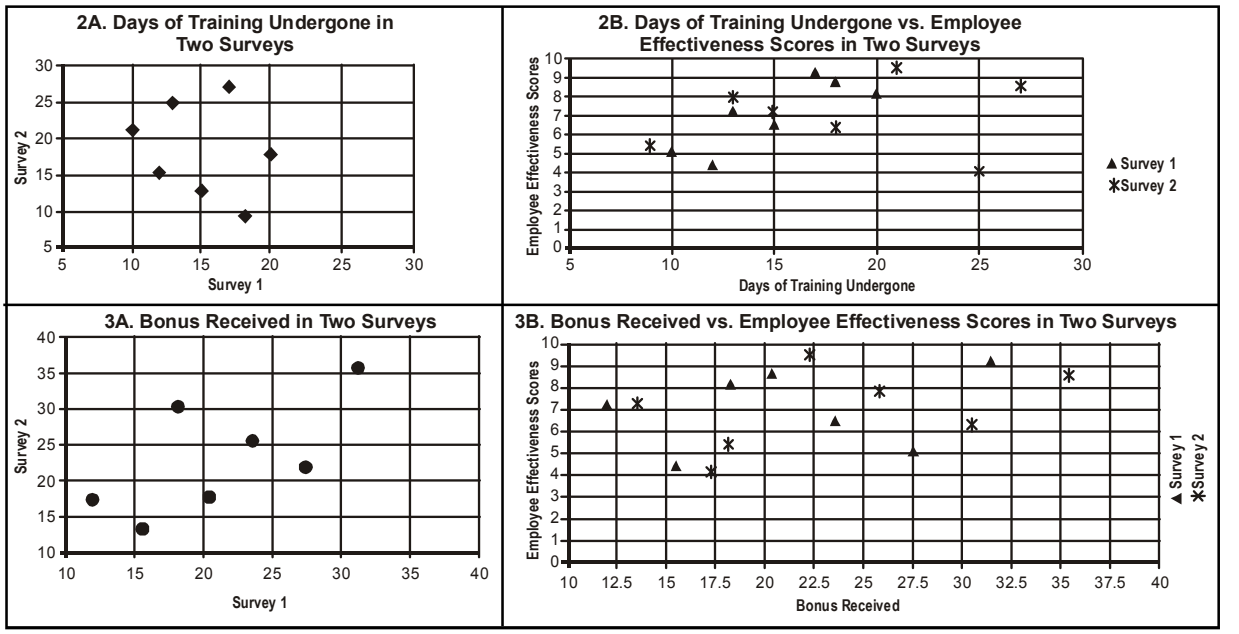
25. The total number of seats in these four institutes, as a percentage of total number of individuals with interview calls from these institutes, is closest to
(1) 31.6% (2) 61.3% (3) 55.9% (4) Data Insufficient

26. The number of students who got interview calls from both A and L cannot exceed
(1) 420 (2) 290 (3) 270 (4) 470

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

As a part of employee improvement programs, every year an organization conducts a survey on three factors – number of days (in integers) of training undergone, amount of bonus (in lacs) received by an employee and employee effectiveness score (on the scale of 1 to 10). Survey results for last two years are given for the same seven employees as:





27. In Survey 1, what was the average bonus earned by employees who underwent training for more than 17 days?
(1) Between 16 and 17 lacs (2) Between 17 and 18 lacs
(3) Between 18 and 19 lacs (4) Between 19 and 20 lacs

28. Identify the number of employees whose employee effectiveness score was higher than 7 in Survey 1, but whose bonus was lower than 20 lacs in Survey 2.
(1) 2 (2) 3 (3) 4 (4) 5

29. How many employees, whose annual bonus was decreased, underwent more days of training from Survey 1 to Survey 2?
(1) 1 (2) 2 (3) 3 (4) 4

30. For how many employees, training days from Survey 1 to Survey 2 increased along with an increase in the employee effective score by at least 1.0 rating?
(1) 2 (2) 3 (3) 4 (4) 7

LRDI - 03
Answers and Explanations

CEX-D-0275/18

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

For questions 1 to 4: From the cumulative bar diagram, we can compile the weights of various parameters in the following table:

	AT	GD	PI	Other
PIM X	0.4	0.2	0.35	0.05
PIM Y	0.5	0.25	0.2	0.05
PIM Z	0.6	0.15	0.15	0.1

Calculating the total scores of all the students, according to the individual selection criteria of different PIMs, we get the following data:

Parameters	AT	GD	PI	Other	PIM X score	PIM Y score	PIM Z score	Admission offers from PIM
Maximum Possible Score	100	50	50	50	70	75	80	
Narayan	99	22	31	42	56.95	63.30	71.55	Y, Z
Ratan	97	23	35	34	57.35	62.95	70.30	X, Y, Z
Mukesh	98	24	30	30	56.00	62.50	69.90	Z
Deveshwar	95	27	33	36	56.75	62.65	69.60	
Azim	94	29	33	41	57.00	62.90	69.80	X,Y

1. 2 It is evident that Deveshwar will fail to get any admission offer.

2. 2 If Anil joins the list of students, then scenario changes slightly:

Parameters	AT	GD	PI	Other	PIM X score	PIM Y score	PIM Z score	Admission offers from PIM
Maximum Possible score	100	50	50	50	70	75	80	
Narayan	99	22	31	42	56.95	63.30	71.55	Y, Z
Ratan	97	23	35	34	57.35	62.95	70.30	X, Y, Z
Mukesh	98	24	30	30	56.00	62.50	69.90	Z
Deveshwar	95	27	33	36	56.75	62.65	69.60	
Azim	94	29	33	41	57.00	62.90	69.80	Y
Anil	96	26	34	31	57.05	62.85	69.70	X

Anil will receive a single offer from PIM X only.

3. 4 If Narayan scores 23 in GD, his total score according to PIM X admission process will be 57.15. If Narayan scores 32 in PI, his total score according to PIM X admission process, will be 57.3 and if he scores 44 in Other, his total score according to PIM X admission process will be 57.05, thus beating Azim (Total score of 57.0) in each case, in the run for the other PIM X offer.

4. 3 It is clear from the table that marks scored by 5 candidates is the maximum for PIM Z.

5. 3 The total number of buyers = 1000 × 0.12 + 1100 × 0.11 + 1200 × 0.15 + 1300 × 0.12 + 1400 × 0.18 = 829.

6. 4 The number of people who buy music by mail order changed from 2% (2010) to 5% (2014). Number of people buying from online stores changed from 10% to 15%. Difference between number of people who buy music by mail order and those buying from online stores changed from (10 – 2) = 8% in 2010 to (15 – 5) = 10% in 2014.

Thus the registered change was an increase of $100 \times \frac{(10-8)}{8} = 25\%$.

7. 4 Note that for 3 consecutive years 2011, 2012 and 2013, online shops managed to retain the number of customers 12%, 12% and 13% respectively and multiproducts-shops managed to retain the number of its customers 24%, 24% and 26% respectively. Thus, both outlets have managed to retain the percentage share (as % of total) of its customers at almost the same level. But nothing can be said about the number of customers as no data on number of buyers in each of these years is given.

8. 2 In 2010, 46% people are from 25 years to below 45 years age group. 70% people purchased from music shops. Note that in every age group the pattern of buying from various sales outlet shows the same break up as the total, and the total number of buyers in 2010 was 1000 as in Q. 5. So, in 2010 the number of people in age group of 25 years to below 45 years buying from music shops was approximately $\frac{46}{100} \times \frac{70}{100} \times 1000 = 322$.

9. 2 In February demand was greater than supply by highest number of units.

10. 4 For January, percentage of demand and supply are not given.

11. 2 Units of 'P' sold in April (= supply of units of 'P' in April, since demand > supply) = $\frac{7 \times 24}{100} = \frac{168}{100}$ = 1.68 lakhs of units.

12. 4 Data of O for January is not given. Hence, the data is insufficient.

13. 2 Total selection in 2015 = 94 + 38 = 132.

$\therefore$ Percentage selection in 2015 = $\frac{132}{50,000 + 10,000} \times 100 = 0.22\%$

Similarly, percentage of selection in 2016 = $\frac{106 + 94}{50,000 + 30,000} = \frac{200}{80,000} \times 100 = 0.25\%$

$\therefore$ Difference = 0.25 – 0.22 = 0.03%.

14. 3 Number of graduates not called for technical interview in 2015 = 2000
Number of postgraduates not called for technical interview in 2016 and 2015 = 4000.

$\therefore$ Required ratio = $\frac{2}{4} = 1:2$

15. 2 Total final selection of both the years = 94 + 38 + 106 + 94 = 332
Postgraduate candidates called for an HR interview = 300 + 90 = 390

$\therefore$ Percentage selection with respect to HR interview = $\frac{332}{390} \times 100 \simeq 85\%$.

16. 1 Finally selected graduates in 2015 = 94
Finally selected postgraduates in 2016 = 94
$\therefore$ Ratio is 1 : 1.

For questions 17 to 19: Go through the following table.

	Pakistan	South Africa	Australia
K	28	51	≤ 48
R	≤ 22	49	55
S	≤ 22	75	50
V	130	< 49	≤ 48
Y	40	< 49	87
Top 3 batsmen	198	175	192
India Total	220	250	240

17. 3

18. 1

19. 2

For questions 20 to 23: There are two cases possible:

	Asia	Europe	North America
Case I	C3 and C4	C2 and C5	C1 and C6
Case II	C1, C4 and C6	C2 and C5	C3

20. 2 From the table above, it is clear that C5 is in Europe.

21. 3 C4 can never be a country in North America.

22. 1 As per the additional information given, we can conclude that only Case II is possible.
We arrange all the states in ascending order of their percentage contribution to the total production:-

2, 3, 3, 4, 5, 6, 6, 7, 7, 7, 8, 9, 9, 11, 13

S8 S4, S15 S12 S1 S5, S13 S2, S9, S14 S7 S10, S11 S3 S6

If we take eight smallest contributions, their sum is 36 (sum of 2, 3, 3, 4, 5, 6, 6, 7). Therefore, the number of states in C3 is 7 or less as 36 > 31.
We take 7 states together such that their total contribution is 31% then it is possible in two ways:-
(a) 2, 3, 3, 4, 5, 6, 8 and
(b) 2, 3, 3, 4, 6, 6, 7

But in case (a) it would be impossible for us to allocate 8% to C6 from the remaining 8 states and in case (b) once we allocate 8% to C6 it would be impossible for us to allocate 15% to C2, because of which percentage contributions could not match-up for Asia and Europe as stated in the question statement.
Thus we conclude that we can't allocate 7 states to C3.

Six states can be allocated to C3 in many possible ways of which we are giving two possibilities:-

	Asia (40%)			Europe 29%		North America (31%)
	C1(23%)	C4(9%)	C6(8%)	C2(15%)	C5(14%)	C3(31%)
Case I	S1(5%), S2(7%), S3(11%)	S10(9%)	S7(8%)	S5(6%), S11(9%)	S9(7%), S14(7%)	S8(2%), S4(3%), S15(3%), S12(4%), S13(6%), S6(13%)
Case II	S2(7%), S9(7%), S10(9%)	S11(9%)	S7(8%)	S6(13%), S8(2%)	S3(11%), S4(3%)	S15(3%), S12(4%), S1(5%), S5(6%), S13(6%) and S14(7%)

23. 4 As per the additional information given, we can conclude that only Case II is possible.
Thus, we can see in the table, each of S8, S4 and S12 can be there in C3.

Direction for Questions 24 to 26: The distribution of the total number of students with interview calls is as shown in the table here.

Institute	4 calls	3 calls	2 calls	1 call	No. of seats	No. of calls
A	150	230	140	600 – (150 + 230 + 140) = 80	200	600
B	150	220	120	800 – (150 + 220 + 120) = 310	250	800
C	150	210	150	700 – (150+210 + 150) = 190	200	700
L	150	180	170	900 – (150 + 180 + 170)= 400	300	900

24. 2 Total number of students who got exactly one interview call = 80 + 310 + 190 + 400 = 980.

25. 3 Number of individuals with exactly one call = 980

Number of individuals with exactly two calls = $\frac{1}{2}(140+120+150+170)=290$

We divided the sum by 2 as each of these individuals got counted twice initially.

Similarly, number of individuals with exactly three calls = $\frac{1}{3}$ (230 + 220 + 210 + 180) = 280.

We know that number of individuals with all 4 calls = 150.

$\therefore$ The total number of individuals who received calls $= 980+290+280+150=1700$.

The total number of seats = 200 + 250 + 200 + 300 = 950.

Hence, the required percentage = $\frac{950}{1700}\times 100 = 55.9$.

26. 1 We already know that the total number of students who have got an interview call from all the four institutes, exactly three and exactly two institutes is 150, 280 and 290 respectively.
So, the number of students who have got interview calls from all four institutes, which includes both A and L, is 150.

Let, the number of students who have got an interview call from exactly three institutes (A, B and C), (A, B and L), (B, C and L) and (A, C and L) be ‘x’, ‘y’, ‘z’ and ‘w’ respectively.

Therefore, x + y + z + w = 280
Also, x + y + w = 230, x + y + z = 220, x + z + w = 210 and y + z + w = 180

Solving the above 5 equations we get : z = 50, w = 60, y = 70, x = 100.

So, the number of students who have got interview calls from A, L and one more institute is w + y = 60 + 70 = 130.

Let the number of students that have got interview calls from exactly two institutes (A and B), (A and C), (A and L), (B and C), (B and L) and (C and L) be ‘a’, ‘b’, ‘c’, ‘d’, ‘e’ and ‘f’ respectively.

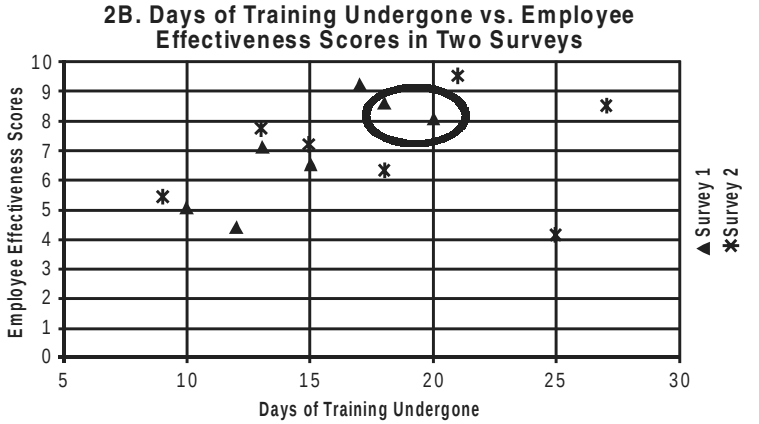
Therefore, a + b + c + d + e + f = 290
a + b + c = 140
a + d + e = 120
b + d + f = 150
c + e + f = 170
We need to find the maximum possible value of ‘c’.

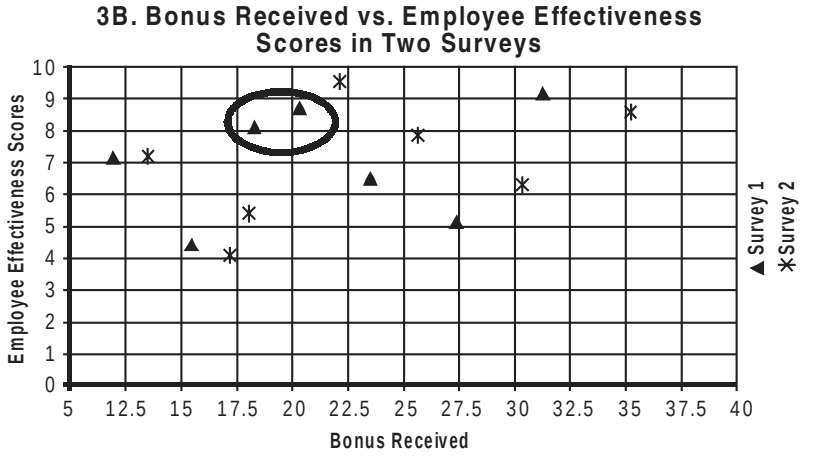
The value of 'c' cannot be more than 140 as a + b + c = 140.
If c = 140, a = b = 0.
So, d + e = 120, d + f = 150 and e + f = 30.
Solving for d, e and f, we get that e = 0, d = 120 and f = 30.

So, the maximum number of students, who have got interview calls from only institutes A and L, is 140.

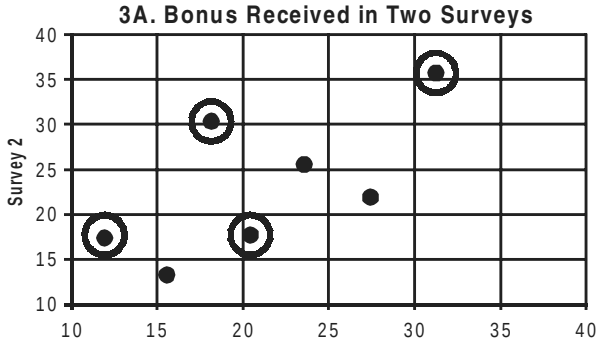
Required Answer = 150 + 130 + 140 = 420.

27. 4 In this question, we have to identify the employees who underwent training for more than 17 days. As training days are integer, from Graph 2B there are two employees who had training days 18 and 20 (encircled) and corresponding employee effectiveness in Survey 1 are 8.5+ and 8 respectively. From Graph 3B, corresponding bonus values in Survey 1 are 18+ and 20+. Thus, average will be 19+ (option 4).

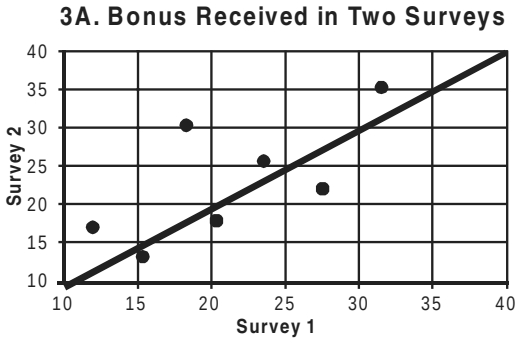




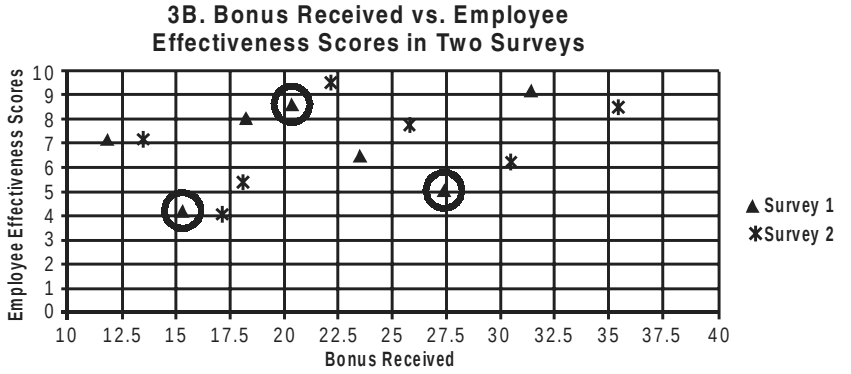
28. 1 There are 4 employees 'whose employee effectiveness score was higher than 7 in Survey 1' (Refer red line in Graph 3B). Bonus received by those 4 employees, in Survey 1, are < 12.5, > 17.5, > 20 and > 30.
Corresponding bonus in survey 2, for these 4 employees are, < 20, > 30, < 20 and > 35 respectively (refer Graph 3A) Hence, two employees are satisfying both the criteria mentioned in the question.



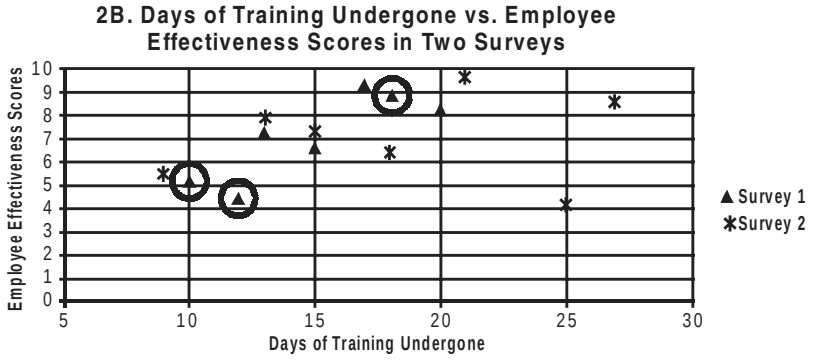
29. 2 Refer Graph 3A to identify employees for whom annual bonus decreased from Survey 1 to Survey 2. In Graph 3A, there are 3 employees for whom annual bonus decreased (below the red line).

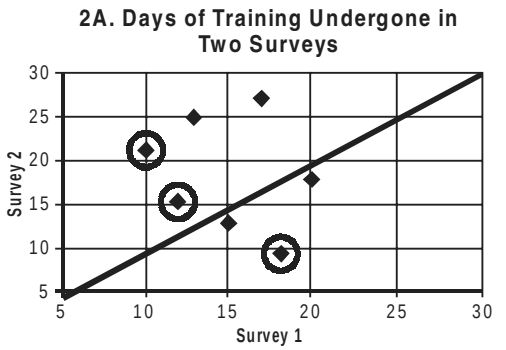


Corresponding points are encircled in Graph 3B.



These 3 employees are encircled in Graph 2B and 2A as follows:

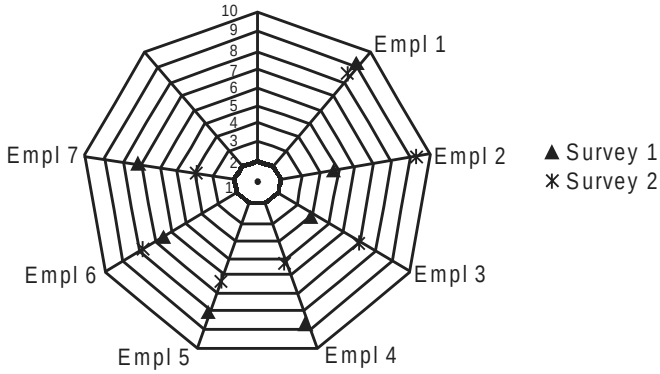




Refer Graph 2A to identify employees for whom training days increased from Survey 1 to Survey 2. In Graph 2A, there are 4 employees for whom training days increased (above the red line).
Only 2 employees satisfy both the conditions: above red line and encircled in Graph 2A.
Note: In Graph 2B, proceed along the axis: Days of training undergone and identify 1st, 2nd and 6th points and identify them also in Graph 2A (in the same order).

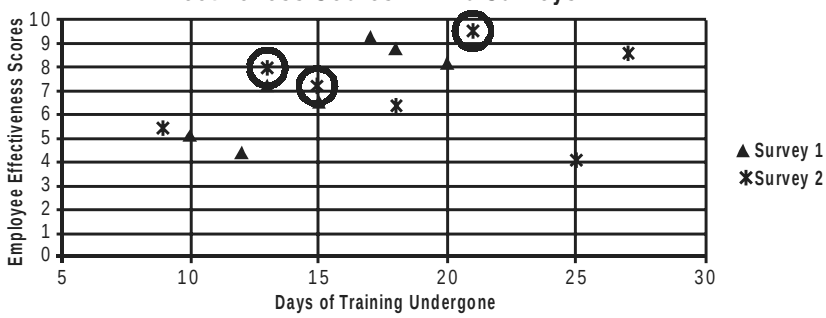
30. 1

1. Employee Effectiveness Scores in Two Surveys

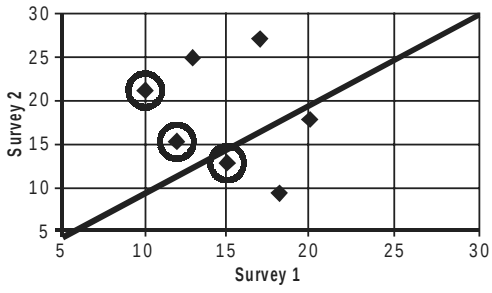


As per Graph 1, there are 3 employees 'with an increase of employee effective score by at least 1.0 rating' (Employees 2, 3, and 6). Corresponding employees/points have been encircled for Survey 2 in Graph 2B, followed by Graph 2A, as follows:

2B. Days of Training Undergone vs. Employee Effectiveness Scores in Two Surveys



2A. Days of Training Undergone in Two Surveys



Only 2 employees satisfy both the conditions (i.e. above the red line and encircled in Graph 2A).