

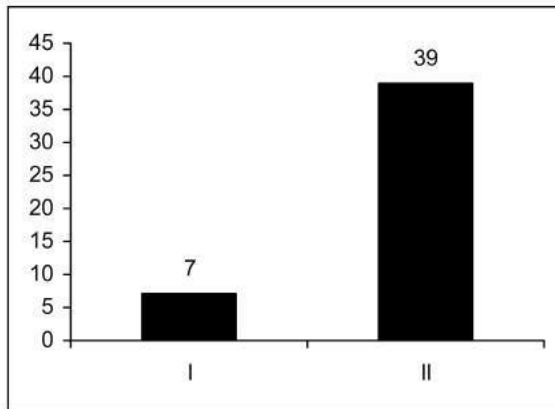
Combination

PRACTICE EXERCISE

Level - 1

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

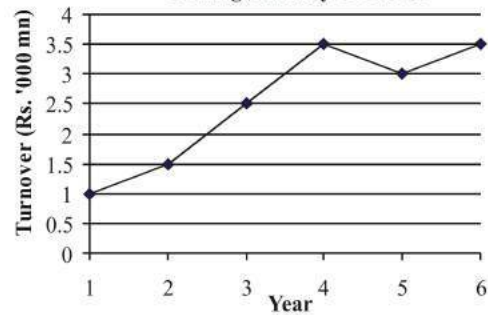
The bar graph given below shows the data regarding the marks secured by three students Andy, Bruce and Will in a class test. The maximum marks for the test was 20. Bar-I represents that Bruce has scored 7 marks more than Andy and bar II represents the sum of the marks of the three students. No student has scored either 0 or 20 marks in the test.



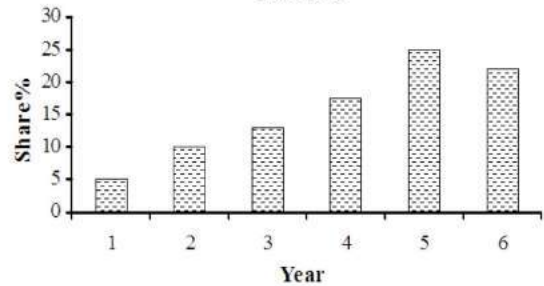
- Which of the following cannot be the marks scored by Bruce?
(a) 12 (b) 14
(c) 17 (d) 19
(e) 15
- Which of the following can be the maximum marks scored by Andy?
(a) 19 (b) 14
(c) 7 (d) 12
(e) 11
- Which of the following can be the minimum sum of marks scored by Bruce and Will?
(a) 32 (b) 27
(c) 23 (d) 22
(e) 28

Direction for questions 4 to 8: Study the following graphs and answer the question that follow.

Mining Industry Turnover



Share of Coal Sales in Mining Industry Turnover



- What was the percentage increase in coal sales between year 1 and year 4?
(a) 1220 (b) 450
(c) 630 (d) 940
(e) 1080
- Between which two years was the growth rate of coal sales maximum?
(a) 1 and 2 (b) 2 and 3
(c) 3 and 4 (d) 4 and 5
(e) 5 and 6
- Between which two years did the maximum change in coal sales take place?
(a) 1 and 2 (b) 2 and 3
(c) 3 and 4 (d) 4 and 5
(e) 5 and 6

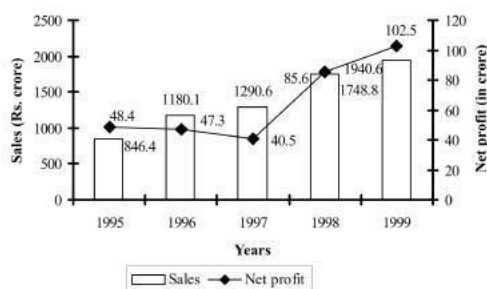
7. What was the minimum absolute percentage change in coal sales between any two consecutive years?

- (a) 18.4 (b) 25.2
(c) 16.4 (d) 28.4
(e) 20.6

8. What was the annual growth rate of coal sales between the years 1 and 3 ?

- (a) 249% (b) 251%
(c) 254% (d) 275%
(e) 281%

Direction for questions 9 to 13: Are based on the following Line Chart: The sales and net profit of XPL Electronics in Rs. (crores) is given below.



Note: Net profit = Gross Profit – Tax. Gross profit = Sales – Expenses. The figures for sales is given at the bottom of the bar chart and the figures for net profit is given on top of the line chart.

9. What is the net profit percentage of XPL in 1998?

- (a) 4.6% (b) 4.8%
(c) 5.1% (d) 6.2%
(e) 6.5%

10. Which year showed the maximum percentage increase in sales?

- (a) 1999 (b) 1998
(c) 1997 (d) 1996
(e) 1995

11. By how much percentage has the net profit dropped in 1996?

- (a) 1.1% (b) 2.27 %
(c) 2.53 % (d) 2.65%
(e) 1.83%

12. If XPL sold 20000 units in both 1998 and 1999, by what percentage has the price / unit changed?

- (a) 8.7% (b) 10.96 %
(c) 9.86 % (d) 11.43%
(e) 12.82%

13. The year in which the expenses of XPL Electronics are highest is

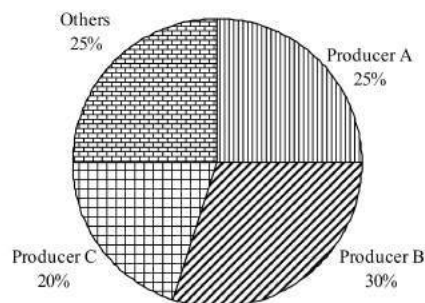
- (a) 1999. (b) 1998.
(c) 1997. (d) 1996
(e) Cannot be determined

Direction for questions 14 to 18: Answer the questions based on the information given below.

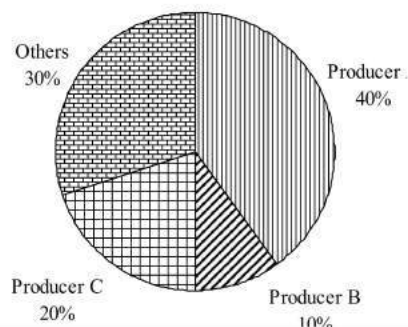
Revenues from Domestic and International markets are Rs. 60 million and Rs. 20 million respectively.

percentage share of various film producers is given in the pie charts for the year 1999.

Market Share in International Market



Market Share in Domestic Market



	% increase in 2000
Revenue from domestic market	10
Revenue from International market	50
Number of domestic films	20
Number of International films	100

14. International markets constitute what fraction of A's total revenues ?

- (a) 5/8 (b) 3/8
(c) 8/23 (d) 3/4
(e) None of these

15. B's overall share is

- (a) 20% (b) 12%
(c) 33% (d) 40%
(e) 15%

16. If on an average, the revenue of a film for an international market is five times that from a domestic market, what percentage of the markets are international markets ?
- (a) 6 (1/4)%
 (b) 6 (1/3)%
 (c) 6 (2/3)%
 (d) 6 (3/4)%
 (e) 2 (3/8)%
17. What is the percentage decline in the average revenue per international film ?
- (a) 15 (b) 25
 (c) 50 (d) 75
 (e) 30
18. The average value of an international film in 2000 is what fraction of the average value of a domestic film in the same year ?
- (a) 1/5
 (b) 44/225
 (c) 1/3
 (d) 5/6
 (e) Indeterminate

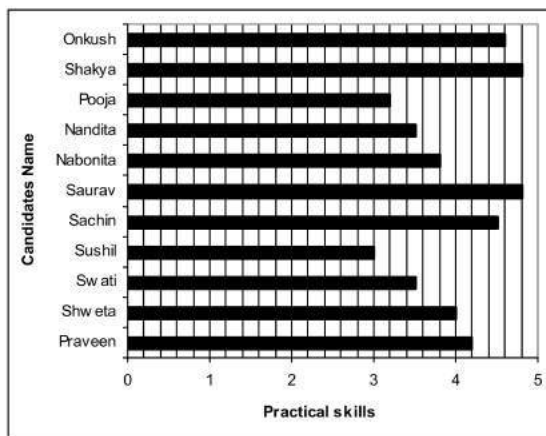
Level - 2

Directions for questions 19 to 22: Answer the questions on the basis of the information given below:

The table given below shows the grades achieved by 11 students in four semesters Semester-I, Semester-II, Semester-III and Semester-IV. The grading scheme is such that the grades A⁺, A, B⁺, B and C are awarded with 5, 4, 3, 2 and 1 points respectively. At the end of the Semester IV, a test of practical skills is necessary for all the students which is graded on a scale of 1 to 5 points. The bar graph given below shows the point obtained by the students in the practical skills. While calculating the value of GPA, 60% weightage is given to 'Practical skills' and rest of the weightage is given to the average of points scored in all semesters.

The student having the highest GPA score has scored numerically lesser rank and so on.

	Semester I	Semester II	Semester III	Semester IV
Praveen	A ⁺	B ⁺	B	B
Shweta	A	B ⁺	A ⁺	A
Swati	A	A ⁺	A	B ⁺
Sushil	C	B ⁺	C	B ⁺
Sachin	B ⁺	A	B	B ⁺
Saurav	B ⁺	A ⁺	B ⁺	A ⁺
Nabonita	A	B	A ⁺	C
Nandita	C	B	B	B ⁺
Pooja	B	B ⁺	B ⁺	A
Shakya	A ⁺	A	B ⁺	A
Onkush	A	A ⁺	B	A ⁺



19. Who is the topper?
- (a) Onkush
 (b) Shakya
 (c) Saurav
 (d) Pooja
 (e) Cannot be determined
20. What is the difference between the GPA of Shakya and Sachin?
- (a) 0.58 (b) 0.47
 (c) 0.36 (d) 0.48
 (e) 0.32
21. How many students have a GPA greater than 3.20?
- (a) 7 (b) 8
 (c) 6 (d) 5
 (e) 4
22. What is the GPA of Shweta?
- (a) 4.24
 (b) 3.90
 (c) 4.00
 (d) 4.48
 (e) None of these

Directions for questions 23 to 27: Read the given information and answer the question based on it.

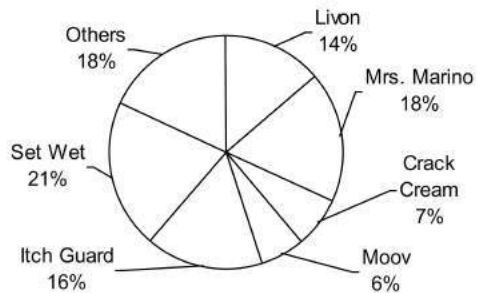
PARAS Pharmaceutical Company has a customer base in the following five states namely Himachal Pradesh, Uttar Pradesh, Uttranchal, Haryana, Punjab. The table gives the revenue from sales (in million dollars) in these states in 2006 and 2007. The pie-chart given below shows the product wise distribution of sales of PARAS Pharmaceutical of different products namely Livon, Mrs. Marino, Crack Cream, Moov, Itch Guard, Set Wet and Others for the year 2006 in Punjab.

Sales of PARAS Pharmaceutical Company

(in million Dollars)

States	Years	
	2006	2007
Himachal Pradesh	402	510
Uttar Pradesh	132	306
Uttaranchal	612	608
Haryana	428	612
Punjab	636	712

Product-wise distribution of sales of PARAS Pharmaceutical in the year 2006 in Punjab



23. What was the revenue from the sales of Moov in the year 2006 in Punjab?
- (a) \$36.25 million (b) \$38.06 million
(c) \$38.16 million (d) \$39.16 million
(e) \$36.64 million
24. What was the difference between the revenues from the sale of Livon and Mrs. Marino in Punjab in the year 2006?
- (a) \$23.64 million (b) \$25.44 million
(c) \$27.32 million (d) \$27.64 million
(e) \$23.64 million
25. The revenue earned from the sales of Crack Cream in Punjab in the year 2006 constituted what percentage of the total sales of the company in all the given states in the year 2006?
- (a) 2.01% (b) 2.25%
(c) 2.13% (d) 2.18%
(e) 2.31%
26. If the revenue earned from selling Crack Cream in Himachal Pradesh in the year 2007 was same as that in Punjab in the year 2006, then the revenue earned from sales of Crack Cream in Himachal Pradesh in the year 2007 is what percentage of the total revenue from Himachal Pradesh in that year?
- (a) 6.82% (b) 8.73%
(c) 8% (d) 9.23%
(e) 7.46%

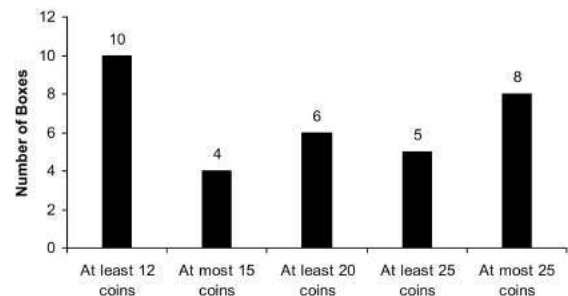
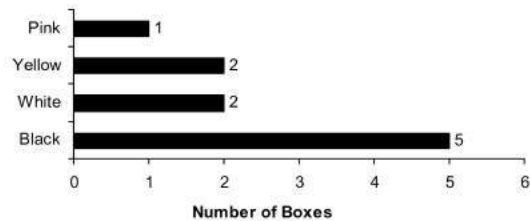
27. If the product-wise distribution in the year 2007 remained the same as in the year 2006 in Punjab, what was the increase in revenue earned from the sales of Itch Guard in Punjab in 2007 over the previous year?

- (a) \$12.57 million (b) \$12.16 million
(c) \$13.01 million (d) \$12.81 million
(e) \$13.72 million

Directions for questions 28 to 32: Answer the questions on the basis of the information given below.

There are ten boxes namely Box 1, Box 2, Box 3,.... Box 9 and Box 10 with Mr. Zero. Each of these ten boxes is colored with one out of the four colors namely Black, White, Yellow and Pink. The number of coins in each of these mentioned ten boxes is one of the five numbers 12, 15, 20, 25 and 30. The following bar – graphs provides information about the number of boxes that are colored Black, White, Yellow and Pink and also about the number of boxes that have different number of coins.

No two boxes that are colored with the same color have equal number of coins.



28. The number of boxes that have exactly 20 coins is
- (a) 4 (b) 3
(c) 2 (d) 1
(e) Cannot be determined
29. What is the total number of coins in all the boxes that are colored black?
- (a) 102 (b) 92
(c) 95 (d) 105
(e) Cannot be determined.

30. The total number of coins in all the ten boxes with Mr. Zero is at most

- (a) 202 (b) 207
(c) 212 (d) 222
(e) 227

31. If the number of coins in the box that is colored pink is 30, then which of the following can be the total number of coins in all the boxes that are colored white?

- (a) 45 (b) 37
(c) 42 (d) Both (1) and (2)
(e) (1), (2) and (3)

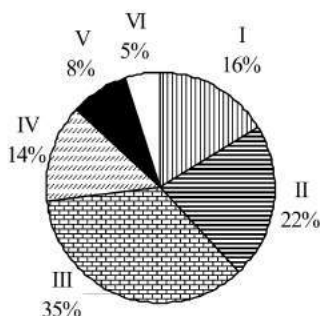
32. If the total number of coins in the boxes that are colored yellow is the maximum possible and the total number coins in all the boxes is least, then what is the number of coins in the box that is colored pink?

- (a) 25 (b) 30
(c) 15 (d) 12
(e) Cannot be determined

Direction for questions 33 to 39: These questions are based on the following data.

The following table shows the number of students admitted into six colleges in a university through various quotas. The pie-chart shows the distribution of general category students in different colleges.

College	Handicapped	Outside university	Outside state	NRI	OBC	SC/ST	Industry sponsored
I	2	3	2	5	10	15	2
II	1	2	2	5	12	16	1
III	3	4	4	5	11	18	1
IV	1	1	1	4	10	19	2
V	1	2	2	3	11	11	1
VI	2	3	3	5	13	10	2



Total number of students: 500

33. The total number of OBC and industry sponsored candidates in all the colleges is ?

- (a) Greater than the total number of SC/ST students by 13.
(b) The same as the total number of SC/ST students.

(c) Lesser than the total number of SC/ST students by 13.

(d) Lesser than the total number of SC/ST students by 22.

(e) Greater than the total number of SC/ST students by 11.

34. The total number of outside university, outside state and NRI students of all colleges form what percentage of total students in college III ?

- (a) 43% (b) 23%
(c) 20% (d) 30%
(e) 25%

35. In which college is total number of handicapped, outside university, NRI and OBC students equal to the total number of outside state, SC/ST and industry sponsored students ?

- (a) IV (b) I
(c) II (d) III
(e) V

36. With respect to college IV students admitted through various quotas form what percentage of the general category students ?

- (a) 50% (b) 54%
(c) 44% (d) 40%
(e) 45%

37. If each industry sponsored student pays a fees of Rs.1 lakh, each SC/ST and OBC candidate pays a fees of Rs. 20,000 and all the remaining students pay a fees of Rs. 50,000, what was the total fees collected by college I ?

- (a) Rs. 50 lakh (b) Rs. 53 lakh
(c) Rs. 56 lakh (d) Rs. 60 lakh
(e) Rs. 57 lakh

38. With respect to the above question, if the college VI converts all its OBC and SC/ST seats into general category seats, how much more fees would it collect?

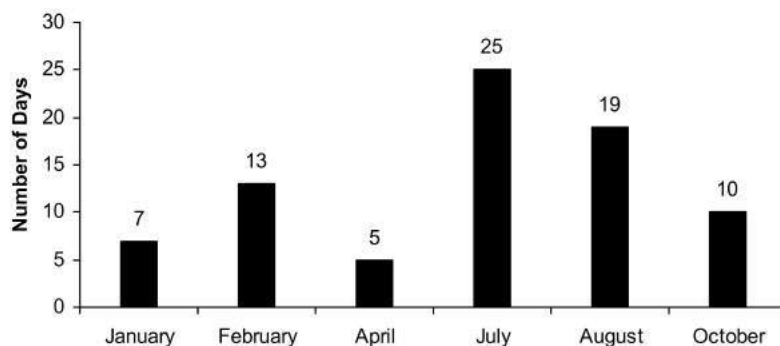
- (a) Rs. 3,90,000
(b) Rs. 3,00,000
(c) Rs. 6,90,000
(d) Rs. 5,10,000
(e) Rs. 4,50,000

39. The total fees provided by industry sponsored students form what percentage of total fees provided by general category students ?

- (a) 5.5% (b) 2%
(c) 1.4% (d) 3%
(e) 3.6%

Directions for questions 40 to 44: Answer the questions on the basis of the information given below.

The following bar – graph provides information about the number of days on which it rained in India in each of the six months viz. January, February, April, July, August and October of the year 2007.



The following table provides information about the number of days on which it rained in five states in India in each of the six mentioned months of the year 2007. Punjab and Haryana are in northern India. Kerala and Karnataka are in southern India and Maharashtra is in western India. Assume that it rained only in the five given states in the year 2007.

	Punjab	Kerala	Karnataka	Maharashtra	Haryana
January	2	6	4	3	1
February	7	9	11	10	8
April	0	1	4	2	2
July	17	21	19	18	14
August	7	11	9	14	15
October	5	8	4	7	6

Additional Information for questions 40 and 41:

The maximum possible number of days on which it rained in exactly one state in southern India in January, February, April, July, August and October is denoted by A, B, C, D, E and F respectively.

40. What is the value of D?

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

41. Out of the six mentioned letters, which letter has the maximum value?

- (a) B (b) C
(c) D (d) F
(e) E

Additional Information for questions 42 and 44:

The number of days on which it rained in western India and did not rain in southern India in each of the mentioned months of the year 2007 is maximum possible.

42. In July, on how many days it rained in both western and southern India?

- (a) 18 (b) 17
(c) 16 (d) 15
(e) 14

43. In how many of the mentioned months the number of days on which it rained both in western and southern India is zero?

- (a) Four (b) Zero
(c) Two (d) Four
(e) One

44. In how many of the mentioned months there are atleast two days on which it rained not only in Punjab, but also in exactly two more states?

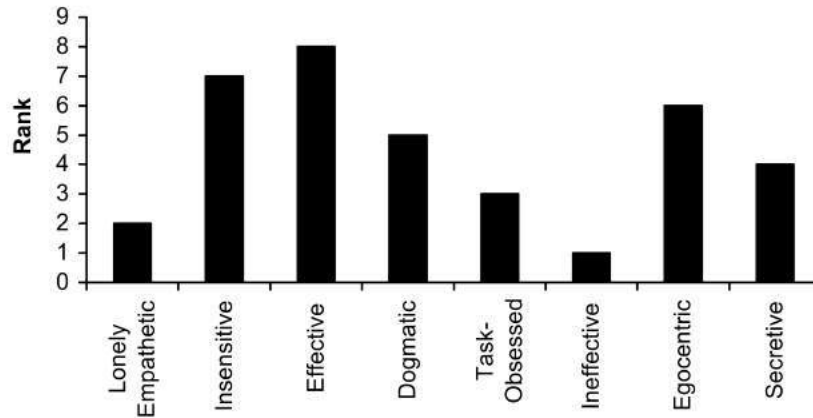
- (a) 1 (b) 3
(c) 4 (d) 2
(e) 0

Level - 3

Directions for questions 45 to 49: Answer the questions on the basis of the information given below.

Eight persons were to participate in the five-day Annual Personality Contest at Altica Green but only 6 of them were present on the first day. The information about the time of joining of the remaining two persons was not known in the beginning. In the contest, the participants were asked to interact with each other under the observation of panel of judges. All interactions will happen only between two people and not in a group. Each of the participants had one of the following personality types, which were also ranked from 1 to 8 as depicted in the following bar chart:

Personality Types



It was known that none of the 6 participants, who were there from the beginning, had a personality rank of 8.

The following table when studied horizontally shows the extent of the positive change in the rank attached to the personality type of any individual after an interaction with another participant. Wherever, there is a '0' in the table, it indicates there was no change of rank attached to the personality type of the concerned two people.

Effect of Interaction	Shradha	Radha	Shiv	Rajinder	Ashish	Sharma	Kuldeep	Lalchand
Shradha	—	2	3	1	2	0	2	1
Radha	1	—	2	2	1	2	0	3
Shiv	2	3	—	3	3	1	0	3
Rajinder	1	1	4	—	4	3	3	2
Ashish	3	1	3	4	—	3	6	2
Sharma	2	1	2	5	2	—	4	2
Kuldeep	1	0	4	4	3	2	—	0
Lalchand	2	3	3	3	1	1	2	—

For example if there is an interaction between Radha and Shradha, Radha's personality type will move up by 1 rank while Shradha's personality type will move up by 2 ranks. The Rank of any participant will keep moving up till it reaches the highest level 8. After reaching this stage there will be no change in the rank attached to the personality of an individual on further interactions, if any.

The average of the ranks of the 6 participants, who were there from the beginning, before the start of the competition was 4.5 and that average kept on changing at the end of each day depending on the interactions.

45. A seventh participant with a rank of 8 joined the contest at the end of the first day and interacted with Kuldeep on the second day. If there were no other interactions on the first and second days and the average rank of the 7 contestants at the end of second day was 5, then who was the seventh participant?
- (a) Sharma (b) Radha
(c) Shiv (d) Lalchand
(e) Cannot be Determined
46. Radha was one of the participants who started the event. She ended as 'Insensitive' personality at the end of the second day. If she had exactly one interaction everyday, the personality type having the lowest rank that Radha could have started with was
- (a) Ineffective (b) Lonely empathetic
(c) Dogmatic (d) Egocentric
(e) Secretive
47. All the people started the competition except for Kuldeep and Sharma and at the end of second days, there had been exactly three interactions between the contestants. What is the maximum possible change in the average rank of the 6 contestants, who were there from the beginning, at the end of the second day?
- (a) 3.00 (b) 3.16
(c) 3.25 (d) 3.50
(e) 3.83

48. A person started as a 'Lonely Empathetic' personality and after two interactions had become an 'Effective' personality. This person could be all of the following except

- (a) Shradha (b) Kuldeep
(c) Sharma (d) Ashish
(e) Lalchand

49. Ashish and Lalchand were absent on the first day in which there were only three interactions as follows:

- (a) Rajinder and Shradha
(b) Shiv and Radha
(c) Sharma and Kuldeep

What will be the average rank of the mentioned 6 contestants at the end of the first day?

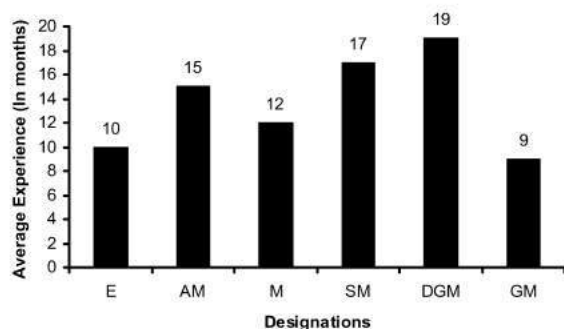
- (a) 7.00 (b) 6.5
(c) 6.66 (d) 7.5
(e) 6.33

Directions for questions 50 to 54: Answer the questions on the basis of the information given below.

XYZ Limited assigns six different designations to its employees namely Executive (E), Assistant Manager (AM), Manager (M), Senior Manager (SM), Deputy General Manager (DGM) and General Manager (GM). Each employee is assigned one of these six different designations.

Experience of the individual employees or average experience of a group of employees, wherever mentioned in the given data and the subsequent questions are in completed months. So, the will always be an integer.

The following bar graph provides information about the average experience of people having the mentioned designations.



The following table provides information about the number of employees having each of the mentioned designations with experience less and more than the average experience of employees having that particular designation. The average experience of employees having experience less and more than the average experience of employees having that particular designation is always an integer.

	Number of Employees	
	Less than the Average Experience	More than the Average Experience
E	16	28
AM	10	12
M	24	10
SM	8	16
DGM	4	10
GM	8	2

50. Find the difference between the aggregate experience of Executives having more and less experience than the average experience of Executives.

- (a) 344 (b) 360
(c) 316 (d) 372
(e) 324

51. The average experience of DGMs having experience more than 19 months is at least

- (a) 20 (b) 21
(c) 22 (d) 23
(e) 24

52. If the experience of seven SMs is 9, 16, 3, 15, 2, 3 and 4 respectively and experience of every SM is an integer, then find the maximum possible experience of an SM.

- (a) 85 (b) 84
(c) 83 (d) 82
(e) 81

53. Given that 'a' and 'b' are the average experiences of the GMs having experience less and more than the average experience of all the GMs respectively. Which of the following can be a possible value of (b - a)?

- (a) 2 (b) 16
(c) 30 (d) 42
(e) 32

54. If the experience of 9 AMs is 14, 17, 13, 6, 9, 18, 27, 33 and 7 respectively and the experience of every AM is an integer, then find at most how many AMs have an experience greater than 25 months or less than 4 months?

- (a) 6 (b) 5
(c) 4 (d) 3
(e) 8

Directions for questions 55 to 59: Answer the questions on the basis of the information given below.

Mr. Alfonso has six cars such that each car is of a different brand. The cars with Mr. Alfonso are of one out of the six brands Chevrolet, Ferrari, Honda, Mercedes, BMW and Hyundai. In the months of January and February in the year 2008, Mr. Alfonso drove only one car a day. The following table gives details about the

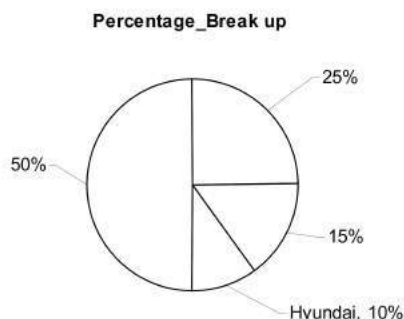
days in January and February 2008 on which he did not drive a car of each of the given six brands. Given that January 1, 2008 was a Tuesday.

Chevrolet	Sunday	Monday	Wednesday	Friday
Ferrari	Tuesday	Thursday	Saturday	Monday
Honda	Sunday	Wednesday	Thursday	Friday
Mercedes	Tuesday	Monday	Wednesday	Thursday
BMW	Friday	Monday	Saturday	Tuesday
Hyundai	Sunday	Tuesday	Wednesday	Saturday

The number of days in January and February 2008 on which he drove a car of brand Chevrolet, Ferrari, Honda, Mercedes, BMW and Hyundai is denoted by CH, FE, HO, ME, BM and HY respectively.

It is also known that $HO > ME > CH > BM > HY > FE$.

The following pie – chart gives details about the number of days in January and February 2008 on which he drove a car of brand Honda, BMW and Hyundai.



55. Given that the number of days in January 2008 on which Mr. Alfonso drove the car of brand Honda is the maximum. What is the number of days in February 2008 on which he drove the car of brand Honda?

- (a) Zero (b) One
(c) Two (d) Three
(e) Four

56. If Mr. Alfonso drove the car of brand Ferrari only once on each of the possible different days of a week in the given two months, what is the total number of days in the given two months on which he drove the car of brand Chevrolet?

- (a) 11 (b) 12
(c) 13 (d) 10
(e) Cannot be uniquely determined.

57. Which of the following statements CANNOT be true?

- (a) The difference between the number of days on which Mr. Alfonso drove the car of brand Mercedes and Chevrolet is 3.
(b) Mr. Alfonso drove the car of brand Mercedes only in January 2008.
(c) Mr. Alfonso drove the car of brand Ferrari only in January 2008.
(d) The difference between the number of days on which Mr. Alfonso drove the car of brand Chevrolet and Ferrari is 9.
(e) More than one of the above given statements.

Additional Information for questions 58 and 59:

Mr. Alfonso drove the cars of the brand Mercedes only in February 2008.

58. The difference between the total number of days on which Mr. Alfonso drove the car of brand Mercedes and Chevrolet in January and February 2008 is

- (a) 2 (b) 3
(c) 4 (d) 1
(e) Cannot be uniquely determined.

59. The total number of Fridays on which Mr. Alfonso drove the car of brand Ferrari cannot be more than

- (a) Five (b) Four
(c) One (d) Two
(e) Three

ANSWERS

- | | | | | | | | | | |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1. (a) | 2. (d) | 3. (b) | 4. (a) | 5. (c) | 6. (c) | 7. (c) | 8. (d) | 9. (c) | 10. (d) |
| 11. (b) | 12. (b) | 13. (e) | 14. (c) | 15. (e) | 16. (a) | 17. (b) | 18. (d) | 19. (e) | 20. (a) |
| 21. (b) | 22. (c) | 23. (c) | 24. (b) | 25. (a) | 26. (b) | 27. (b) | 28. (d) | 29. (a) | 30. (c) |
| 31. (b) | 32. (d) | 33. (c) | 34. (e) | 35. (d) | 36. (b) | 37. (b) | 38. (c) | 39. (e) | 40. (c) |
| 41. (e) | 42. (e) | 43. (b) | 44. (d) | 45. (e) | 46. (b) | 47. (d) | 48. (a) | 49. (c) | 50. (a) |
| 51. (b) | 52. (d) | 53. (c) | 54. (d) | 55. (c) | 56. (c) | 57. (d) | 58. (d) | 59. (c) | |

SOLUTIONS

Level - 1

For questions 1 to 3:

Let the marks scored by Andy, Bruce and Will be A, B and W respectively.

$$\therefore B - A = 7 \text{ and } A + B + W = 39$$

From above two equations, we get

$$2A + W = 32 \text{ and } 2B + W = 46$$

The possible values of A, B and W are:

$$A = 12, 11, 10, 9, 8, 7$$

$$B = 19, 18, 17, 16, 15, 14$$

$$W = 8, 10, 12, 14, 16, 18$$

1. a

2. d

3. b

$$4. a \quad \left(\frac{0.66 - 0.05}{0.05} \right) \times 100 = \frac{0.61}{0.05} \times 100 \\ = 12.2 \times 100 = 1220$$

5. c

6. c

7. c

$$8. d \quad \left(\frac{0.325 - 0.05}{0.05} \right) \times \frac{100}{2} = 275\%$$

9. c Profit percentage of XPL in 1998

$$= \frac{85.6}{1748.8 - 85.6} \times 100 = \frac{85.6}{1663.2} \times 100 = 5.15\%$$

10. d By observation, it could be 96 or 98.

Though 98 shows a larger magnitude of change, the denominator of 1998 is high. Therefore, it has to be 1996.

11. b Percentage drop in net profit

$$= \frac{48.4 - 47.3}{48.4} \times 100 = 1.1/48.4 \times 100 = 2.272\%$$

12. b Per cent by which price/unit has changed

$$= \frac{1940.6 - 1748.8}{1748.8} \times 100 \\ = \frac{191.8}{1748.8} \times 100 = 10.96\%$$

13. e Since percentage of tax is not known so the expenses cannot be found out.

For questions 14 to 18:

A's total revenue = 25% of 60 + 40% of 20 = 15 + 8 = 23.

\therefore Fraction = 8/23

	Revenue per film	Total	No. of films
Domestic	x	60	60/x
International	5x	20	20/5x

$$\% \text{ of Int. films} = \left(\frac{4/x}{60/x} \right) = 6\frac{1}{4}\%$$

	1999	2000
No. of Int. films	x	2x
Revenue from Int. films	20	30
Avg. % decline = 25%	20/x	30/2x = 15/x

14. c

15. e B's share in international market

$$= \frac{30 \times 20(m)}{100} = 6 \text{ million}$$

B's share in domestic market

$$= \frac{10 \times 60(m)}{100} = 6 \text{ million}$$

$$\text{Total share} = \frac{12(m)}{80(m)} \times 100 = 15\%$$

16. a

17. b

18. d

Level - 2

For questions 19 to 22: Based on the given information, the following table can be constructed.

	Avg marks	Practical skills	Final GPA
Praveen	3	4.2	$3 \times 0.40 + 4.2 \times 0.60 = 3.72$
Shweta	4	4	$4 \times 0.40 + 4 \times 0.60 = 4.0$
Swati	4	3.5	$4 \times 0.40 + 3.5 \times 0.60 = 3.70$
Sushil	2	3	$2 \times 0.40 + 3 \times 0.60 = 2.60$
Sachin	3	4.5	$3 \times 0.40 + 4.5 \times 0.60 = 3.90$
Saurav	4	4.8	$4 \times 0.40 + 4.8 \times 0.60 = 4.48$
Nabonita	3	3.8	$3 \times 0.40 + 3.8 \times 0.60 = 3.48$
Nandita	2	3.5	$2 \times 0.40 + 3.5 \times 0.60 = 2.90$
Pooja	3	3.2	$3 \times 0.40 + 3.2 \times 0.60 = 3.12$
Shakya	4	4.8	$4 \times 0.40 + 4.8 \times 0.60 = 4.48$
Onkush	4	4.6	$4 \times 0.40 + 4.6 \times 0.60 = 4.36$

19. e 20. a 21. b 22. c

23. c Revenue from the sales of Moov in Punjab in the year 2006 = $0.06 \times 636 = 38.16$ million dollar.

24. b In the year 2006, in Punjab, Revenue from the sales of Livon = 0.14×636 million dollars.

Similarly, revenue from the sales of Mrs. Marino = 0.18×636 million dollars

\therefore Difference = $0.04 \times 636 = 25.44$ million dollars.

25. a Revenue earned from the sale of Crack Cream in Punjab in the year 2006 = $0.07 \times 636 = 44.52$ million dollars.

Total sales in the year 2006

$$= 636 + 428 + 612 + 132 + 402 \\ = 2210 \text{ million dollars.}$$

$$\therefore \text{Required percentage} = \frac{44.52}{2210} \times 100$$

$$= \frac{44.5}{22} = 2.01\%$$

26. b Revenue earned from selling Crack Cream in Himachal Pradesh in the year 2007 = 44.52 million dollars.

\therefore Percentage share in revenue earned in Himachal Pradesh in the year 2007

$$= \frac{44.52}{510} \times 100$$

$$= \frac{445}{51} = 8.73\%.$$

27. b Increase in revenue earned from the sales of Itch Guard in the year 2007 over 2006

$$= 0.16 \times (712 - 636)$$

$$= 12.16 \text{ million dollars.}$$

For questions 28 to 32:

The number of boxes that are colored Pink, Yellow, White and Black is 1, 2, 2 and 5 respectively.

It is also given that no two boxes that are colored with the same color have equal number of coins.

It is also given that the number of coins in each of the ten boxes is 12, 15, 20, 25 or 30.

Also, since there are five boxes that are colored, the number of coins in the boxes are 12, 15, 20, 25 and 30.

Number of Coins	Number of Boxes
12	1 - 3
15	1 - 3
20	1
25	3
30	2

28. d The number of boxes that have exactly 20 coins is 1.

29. a The total number of coins in all the boxes that are coloured black = $12 + 15 + 20 + 25 + 30 = 102$

30. c The total number of coins in all the boxes with Mr. Zero will be when there are 3 three boxes that have 15 coins each and there is only box that has 12 coins.

Therefore, the total number of coins with Mr. Zero is at most

$$1 \times 12 + 3 \times 15 + 1 \times 20 + 3 \times 25 + 2 \times 30 = 212$$

31. b We already know that the number of coins in 5 boxes that are colored Black are 12, 15, 20, 25 and 30.

Given that the number of coins in the box that is colored Pink is 30.

Total number of boxes with Mr. Zero that are colored white is 2.

The total number of coins in the boxes that are colored White can be $(25 + 12 = 37)$, $(25 + 15 = 40)$ and $(12 + 15 = 27)$

Hence, option (2) is the correct choice.

32. d Given that the total number of coins in the boxes that are colored Yellow is maximum possible, which means that, the total number of coins in the boxes that are colored Yellow is $25 + 30 = 55$.

Also, since the total number of coins in all the boxes is least, which means that the number of boxes in which there are 15 coins and 12 coins is 1 and 3 respectively.

So, the only possibility that is left is the box that is colored Pink has 12 coins and the two boxes that are colored White have 25 and 12 coins.

33. c Total number of OBC students

$$= 10 + 12 + 11 + 10 + 11 + 13 = 67$$

Total number of industry sponsored students

$$= 2 + 1 + 1 + 2 + 1 + 2 = 9$$

Total number of SC/ST students

$$= 15 + 16 + 18 + 19 + 11 + 10 = 89$$

34. e Total number of outside university students

$$= 3 + 2 + 4 + 1 + 2 + 3 = 15$$

Total number of outside state students

$$= 2 + 2 + 4 + 1 + 2 + 3 = 14$$

Total number of NRI students

$$= 5 + 5 + 5 + 4 + 3 + 5 = 27$$

Total number of College III students :

General Category = 35% of 500 = 175

Others = $3 + 4 + 4 + 5 + 5 + 11 + 18 + 1 = 46$

Hence, $(15 + 14 + 27) / (175 + 46) \times 100 = 25.38\%$

35. d In College III, total number of handicapped, outside university, NRI and OBC = 23

and total number of outside state, SC/ST and industry sponsored students = 23

36. b In college IV, students admitted through quotas = 38
Students admitted through general quota = 14% of 500 = 70

Hence, $38/70 \times 100 = 54.28\%$

37. b $(2 \times 100000) + (25 \times 20000) + (92 \times 50000) = \text{Rs } 53 \text{ lakhs}$

38. c Total number of candidates in SC/ST and OBC in college VI = 23.

Extra fees collected per student = $50000 - 20000 = \text{Rs. } 30,000$

Total additional fees collected = Rs. 6,90,000.

39. e Total number of industry sponsored candidates = 9 and hence total fees = Rs. 9 lakh

Total number of general category students = 500, hence, total fees = $500 \times 50000 = \text{Rs. } 250 \text{ lakh}$

Hence, $9/250 = 3.6\%$

For questions 40 and 41:

To find the maximum possible number of days on which it rained in exactly one state in southern India we need to minimize the number of days it rained in both the states in southern India.

The minimum possible number of days it rained in both Kerala and Karnataka in January as $(6 + 4) - 7 = 3$.

Similarly it has been calculated for other months.

No of days it rained	Jan	Feb	Apr	Jul	Aug	Oct
only in Kerala	3	2	1	6	10	6
in both Kerala and Karnataka	3	7	0	15	1	2
only in Karnataka	1	4	4	4	8	2

Therefore the value of A, B, C, D, E and F is 4, 6, 5, 10, 18 and 8 respectively.

40. c The value of D is 10.

41. e Out of the six mentioned letters, the value of E is the maximum.

For questions 42 and 43:

The maximum possible number of days on which it rained in western India and did not rain in southern India in January = $7 - \text{maximum } (6, 4) = 1$.

Similarly, the maximum possible number of days on which it rained in western India and did not rain in southern India in each of the given months can be calculated.

No of days it rained	Jan	Feb	Apr	Jul	Aug	Oct
In Western India but not in Southern India	1	2	1	4	8	2
In both Western and Southern India	2	8	1	14	6	5

42. e The number of days in July on which it rained in both western and southern India is 14.

43. b From the table given above, we can conclude that there is no such month in which the number of days on which it rained in both western and southern India is 0.

44. d August and October are the only months in which there are atleast two days on which it rained not only in Punjab but also in exactly two more states.

Level - 3

For questions 45 to 49:

45. e The average starting Rank of 6 people was 4.5 which means that the total of their ranks was 27. Now the seventh participant had a rank of 8 already. Therefore there will be no further change in the rank of this participant with any further interaction. Also given that after the interaction with Kuldeep, the average rank of the 7 contestants was 5, which means that the total was 35 which in turn would happen just because of the seventh contestant with personality rank of 8 joining in. That means that the interaction with the seventh contestant had no change on the personality rank of Kuldeep.

Therefore, we are looking for a person with whom Kuldeep should not have any change in personality rank after an interaction. As per the given data, there are 2 people who could be the seventh person (Lalchand and Radha) and therefore the answer is cannot be determined.

46. b If Radha ended as Insensitive personality type after exactly two interactions, and we need to find her lowest possible initial rank, then we should know the maximum change in Radha's possible rank after two interactions. From the Table, the Maximum change possible in Radha's Rank after two interactions will be a change of 3 ranks after an interaction with Lalchand and a change of 2 ranks after an interaction with either Shiv or Rajinder or Sharma. Total Maximum change possible = 5 ranks. Therefore the minimum rank that Radha could have started with was Rank 2 which is 'Lonely Empathetic'.

47. d For maximum change to be possible, we need to look at the interactions with the maximum change among the contestants which will be as follows:

A change of 8 ranks after an interaction between Ashish and Rajinder.

A change of 7 ranks after an interaction between Shiv and Rajinder.

A change of 6 ranks after an interaction between Ashish and Shiv.

Therefore maximum change in ranks = $8 + 7 + 6 = 21$ and when divided by 6 the maximum average change in rank of the 6 contestants will be 3.5

48. a A person started as a 'Lonely Empathetic' personality and after two interactions had become an effective personality i.e a change of 6 rank points in two interactions. For Shradha, the maximum change possible in two interactions is

equal to 5. Therefore this person cannot be Shradha. It is possible for all the other participants among the given options.

49. c The total change after the interactions will be as follows :

- i. Rajinder and Shradha : change = 1 + 1 = 2 ranks
- ii. Shiv and Radha : change = 2 + 3 = 5 ranks
- iii. Sharma and Kuldeep : change = 4 + 2 = 6 ranks

Total change = 13 ranks.

Previous total = 27 ranks.

New total = 27 + 13 = 40 ranks.

$$\text{Average rank} = \frac{40}{6} = 6.66$$

50. a Let 'x' and 'y' be the average experience of Executives whose experience is less and more than the average experience of all the executives.
 $16x + 28y = 10(16 + 28) = 440$.

$4x + 7y = 110$. Since $x < 10 < y$, the only value of x and y that satisfy are 3 and 14 respectively.

Required difference = $28 \times 14 - 16 \times 3 = 344$.

51. b Since we need to minimize the average experience of DGMs having experience more than 19 months, we have to maximize the average experience of DGMs having experience less than 19 months.

If we take the average experience of DGMs having experience less than 19 months to be 18 months we do not get a integer value of average experience of DGMs having experience more than 19 months.

If we take the average experience of DGMs having experience less than 19 months to be 14 months, then $14 \times 4 + 21 \times 10 = 14 \times 19$. Hence the average experience of DGMs having experience more than 19 months is at least 21.

52. d Let 'a' and 'b' be the average experience of SMs whose experience is less and more than the average experience of all the SMs.

Therefore, $8a + 16b = 17 \times 24$, $a + 2b = 51$.

Possible values of (a, b) in that particular order are (3, 24); (5, 23); (7, 22); (9, 21); (11, 20); (13, 19) and (15, 18).

Aggregate experience of 7 SM's that is given in the question = 52, therefore the values of (a, b) that satisfy are (7, 22), (9, 21), (11, 20), (13, 19) and (15, 18).

But we need to maximize the experience of one particular SM, so we will consider the pair (7, 22).

In this case, aggregate experience of SMs whose experience is more than the average experience of all the SM's = $16 \times 22 = 352$.

To maximize the experience of a SM we will minimize the aggregate experience of 15 SMs. We will consider that each of them has an experience of 18 months. So aggregate experience of these 18 SMs will be $15 \times 18 = 270$.

Maximum possible experience of an SM

$$= 352 - 270$$

$$= 82 \text{ months.}$$

53. c Let 'a' and 'b' be the average experience of GMs whose experience is less and more than the average experience of all the GMs.

Therefore, $8a + 2b = 9 \times 10 = 90$ or $4a + b = 45$.

Here $a < 9 < b$

Possible values of (a, b) in that particular order are

(8, 13); (7, 17); (6, 21); (5, 25); (4, 29); (3, 33); (2, 37) and (1, 41).

For $a = 3$ and $b = 33$ we get $(b - a) = 30$

Hence option (3) is the correct choice.

54. d It is given that the experience (in months) of 9 AMs is 14, 17, 13, 6, 9, 18, 27, 33 and 7. Out of these 9 AM's five AMs have experience less than the average experience of all the AMs.

Aggregate experience of these 5 AMs

$$= 14 + 13 + 6 + 9 + 7$$

$$= 49.$$

So, the only possible value of average experience of AMs whose experience is less and more than the average experience of all the AMs is 9 and 20 respectively.

Aggregate experience of AMs whose experience is less and more than the average experience of all the AMs and not mentioned in the question = $[(10 \times 9) - 49] = 41$ and $[(12 \times 20) - (17 + 18 + 27 + 33)] = 145$.

Let's assume that the remaining 5 AMs, whose experience is less than the average experience of all the AMs have age 14, 14, 7, 3 and 3. So, at most 2 AMs have experience less than 4 months.

Let's assume that the remaining 8 AMs whose experience is more than the average experience of all the AMs be 16, 16, 16, 16, 16, 16, 16 and 33 months. Therefore at most one AM can have experience more than 25 months.

So at most $(2 + 1) = 3$ AMs can have experience more than 25 or less than 4 months.

For questions 55 to 59:

The total number of different days of the week in January and February 2008 are as follows:

Mondays: 8 (4 each in January and February)

Tuesdays: 9 (5 in January and 4 in February)

Wednesdays: 9 (5 in January and 4 in February)

Thursdays: 9 (5 in January and 4 in February)

Fridays: 9 (4 in January and 5 in February)

Saturdays: 8 (4 each in January and February)

Sundays: 8 (4 each in January and February)

Total number of days in January and February 2008 = 60

Total number of days on which he drove the car of brand Honda

$$= 25 \% \text{ of } 60 = 15.$$

Total number of days on which he drove the car of brand BMW

$$= 15 \% \text{ of } 60 = 9.$$

Total number of days on which he drove the car of brand Hyundai

$$= 10 \% \text{ of } 60 = 6.$$

Given that $HO > ME > CH > BM > HY > FE$

So, we get that $15 > ME > CH > 9 > 6 > FE$.

We also know that $ME + CH + FE = 60 - (15 + 9 + 6) = 30$.

From the table given in the question set, we can know the brands of cars that were driven by Mr. Alfonso in the months of January and February 2008.

Mondays: Honda and Hyundai

Tuesdays: Chevrolet and Honda

Wednesdays: Ferrari and BMW

Thursdays: Chevrolet, BMW, Hyundai

Fridays: Ferrari, Hyundai, Mercedes

Saturdays: Chevrolet, Mercedes, Honda

Sundays: Ferrari, Mercedes, BMW

- 55. c** Given that the number of days on which Mr. Alfonso drove the car of brand in January 2008 is the maximum.

Now, the car of brand Honda is only driven on either of the three days of any week, i.e. Monday, Tuesdays and Saturdays.

Total number of Mondays, Tuesdays and Saturdays in January 2008 = $4 + 5 + 4 = 13$.

Total number of days in January and February 2008 on which he drove the car of brand Honda is equal to 15.

$$\text{Required Answer} = 15 - 13 = 2$$

- 56. c** Given that the car of brand Ferrari is driven by Mr. Alfonso only once on each of the possible days of any week.

From this it can be concluded that number of days in January and February 2008 on which he drove the car of brand Ferrari is 3, i.e. once each on Wednesday, Friday and a Sunday.

Now, we already know that $15 > ME > CH > 9 > 6 > FE$ and $ME + CH + FE = 30$

Also, $FE = 3$ as per the question

The only possible value of ME and CH that satisfies the above given constraints is 14 and 13 respectively.

Required Answer = 13

- 57. d** The only possible value of ME, CH and FE can be (14, 13, and 3), (14, 12, and 4), (14, 11, 5), (13, 12, and 5)

So, from the above information we can say that option (4) cannot be true.

Hence, option (4) is the correct choice.

For questions 58 and 59:

Given that Mr. Alfonso drove the car of brands Mercedes only in February 2008.

This is possible only if he drove the car of brand Mercedes on every Friday, Saturday and Sunday in February 2008.

This also means that the total number of days on which he drove the car of brand Mercedes = $5 + 4 + 4 = 13$

Hence, the only feasible combination is

$$15 > 13 > 12 > 9 > 6 > 5.$$

- 58. d** Required Difference = $13 - 12 = 1$.

- 59. c** Mr. Alfonso will drive the car of brand Mercedes on all the Fridays, Saturdays and Sundays in February.

So, on all the Wednesdays and Sundays he can drive only the car of brands Ferrari and BMW.

Also, the total number of days on which he drives the car of brands Ferrari and BMW is $9 + 5 = 14$.

Out of these 14 days, 13 will be either Wednesdays or Sundays, therefore he cannot drive the car of brand Ferrari more than once on a Friday.

PREVIOUS YEARS QUESTIONS

LEVEL - 1

1996

Directions for Questions 1 to 5: Answer the questions on the basis of the information given below.

The first table gives the percentage of students in MBA class, who sought employment in the areas of finance, marketing and software. The second table gives the average starting salaries of the students per month, (rupees in thousands) in these areas. The third table gives the number of students who passed out in each year.

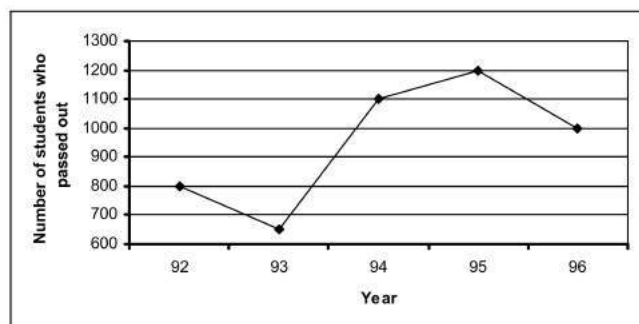
First table

	Finance	Marketing	Software	Others
1992	22	36	19	23
1993	17	48	23	12
1994	23	43	21	13
1995	19	37	16	28
1996	32	32	20	16

Second table

	Finance	Marketing	Software
1992	5450	5170	5290
1993	6380	6390	6440
1994	7550	7630	7050
1995	8920	8960	7760
1996	9810	10220	8640

Third table

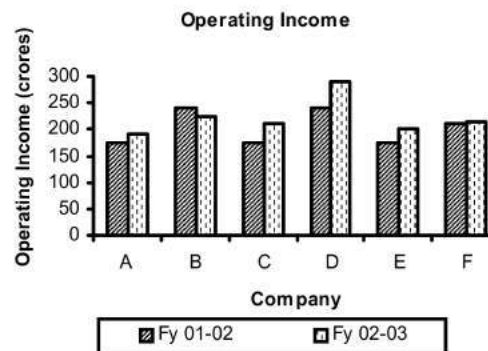


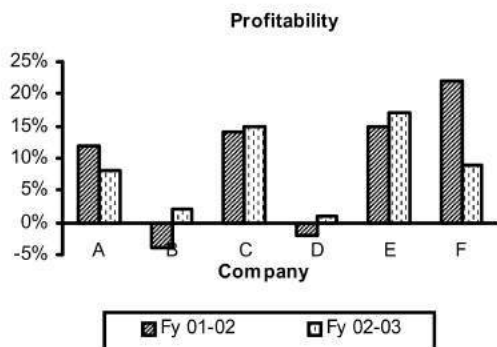
- The number of students who get jobs in finance is less than the students getting marketing jobs, in the 5 years, by
 (a) 826 (b) 650
 (c) 750 (d) 548
- What is the percentage increase in the average salary of finance from 1992 to 1996?
 (a) 60% (b) 32%
 (c) 96% (d) 80%
- The average annual rate at which the initial salary offered in software increases is
 (a) 21% (b) 33%
 (c) 15.9% (d) 65%
- What is the average monthly salary offered to a management graduate in 1993?
 (a) Rs. 6,403 (b) Rs. 6,330
 (c) Rs. 6,333 (d) Cannot be determined
- In 1994, students seeking jobs in finance earned _____ more than those opting for software (per annum).
 (a) Rs. 43 lakh (b) Rs. 33.8 lakh
 (c) Rs. 28.4 lakh (d) Rs. 38.8 lakh

2003 (R)

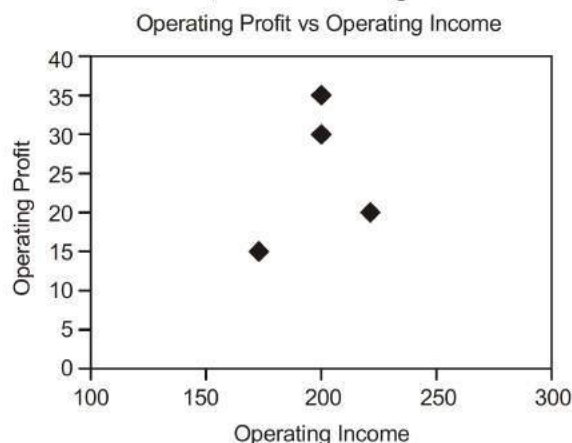
Directions for Questions 6 to 9: Answer the questions on the basis of the following charts.

The profitability of a company is defined as the ratio of its operating profit to its operating income, typically expressed in percentage. The following two charts show the operating income as well as the profitability of six companies in the financial years (F.Ys.) 2001-02 and 2002-03.





The operating profits of four of these companies are plotted against their respective operating income figures for the F.Y. 2002-03, in the third chart given below.



6. Which of the following statements is NOT true?
 - (a) The company with the third lowest profitability in F.Y. 2001-02 has the lowest operating income in F.Y. 2002-03.
 - (b) The company with the highest operating income in the two financial years combined has the lowest operating profit in F.Y. 2002-03.
 - (c) Companies with a higher operating income in F.Y. 2001-02 than in F.Y. 2002-03 have higher profitability in F.Y. 2002-03 than in F.Y. 2001-02.
 - (d) Companies with profitability between 10% and 20% in F.Y. 2001-02 also have operating incomes between 150 crore and 200 crore in F.Y. 2002-03.
7. Which company recorded the highest operating profit in F.Y. 2002-03?
 - (a) A
 - (b) C
 - (c) E
 - (d) F
8. What is the approximate average operating profit, in F.Y. 2001-02, of the two companies excluded from the third chart?
 - (a) -7.5 crore
 - (b) 3.5 crore
 - (c) 25 crore
 - (d) Cannot be determined
9. The average operating profit in F.Y. 2002-03 of companies with profitability exceeding 10% in F.Y. 2002-03, is approximately
 - (a) 17.5 crore
 - (b) 25 crore
 - (c) 27.5 crore
 - (d) 32.5 crore

MEMORY BASED QUESTIONS

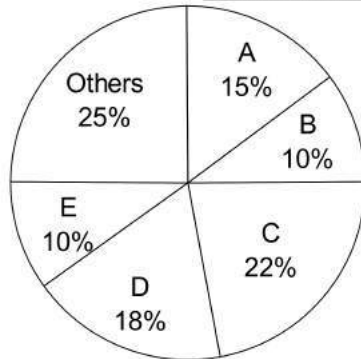
2012

Directions for Questions 10 to 12 : Answer the following questions on the basis of the information given below.

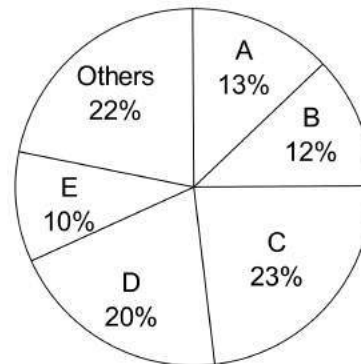
The following table gives the sales turnover (in crore Rs.) of the five major detergent brands A, B, C, D, E and others in the 4 regions East, West, North and South of India. The data is for the years 2008 and 2009. The pie chart gives the breakup of the sales of the same brands in terms of the number of units sold. The total number of units sold for 2008 and 2009 was the same.

Region → Brand ↓	East		West		North		South		Total	
	2008	2009	2008	2009	2008	2009	2008	2009	2008	2009
A	165	172	180	192	167	190	213	180	725	734
B	75	90	62	75	53	72	17	77	207	314
C	212	182	207	222	153	162	137	120	709	686
D	101	115	121	134	113	121	178	190	513	560
E	90	105	87	95	73	92	67	92	317	384
Others	250	310	152	175	143	162	57	83	602	730
Total	893	974	809	893	702	799	669	742		

Volumewise Breakup of Brands All India



2008



2009

10. What is the total sales turnover (in crore Rs.) of the detergent market in India in the year 2009?

- (a) 3073
- (b) 2842
- (c) 2906
- (d) 3408

11. Which brand registered the maximum percentage increase in the price per unit in 2009?

- (a) A
- (b) B
- (c) D
- (d) E

12. Which of the following statement(s) is/are true?

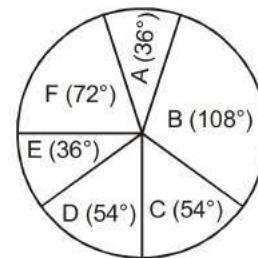
1. Exactly two brands could not register a growth in all the regions in 2009.
2. The number of units sold by B in 2009 has shown an increase of above 350% in South.
3. The number of units sold by C in 2009 was less than that sold by C in 2008.

- (a) Only 1
- (b) 1 and 2
- (c) 1 and 3
- (d) 2 and 3

2015

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

The pie chart given below shows the break-up of production cost of six products – A through F – of Zen Private Ltd. in year 2011. The total production cost was Rs. 250 Cr.



Each of the six products is produced in two varieties- Type P and Type Q. The ratio of the units produced for each product and the profit percentage on selling them is given in the table below.

Product	Ratio of production		Profit Percentage	
	Type P	Type Q	Type P	Type Q
A	3	2	15	30
B	4	3	25	20
C	5	6	15	20
D	1	1	15	10
E	5	3	25	20
F	5	4	20	15

Also for each product, the cost of production per item of Type P and Type Q varieties are in the ratio 4 : 5.

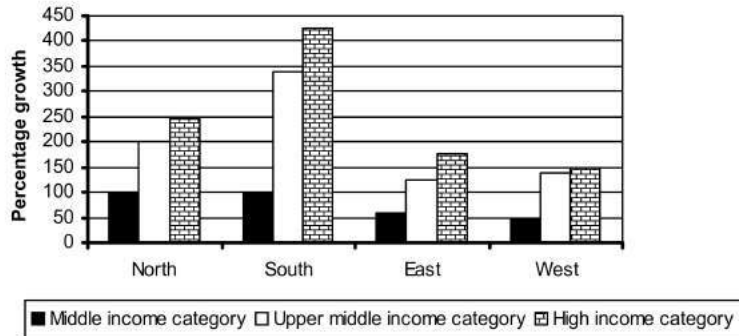
13. For how many of the six products, is the profit made on items of type Q not more than the profit made on items of type P?
14. For which product is the ratio of total profit to total production cost, the lowest?
 - (a) B
 - (b) C
 - (c) D
 - (d) F
15. For how many products, overall profit percentage is more than 20%?
16. The nearest integer to the total cost (In Rs. Cr.) incurred in producing type A of products A, D & F is

LEVEL - 2

1998

Directions for Questions 17 to 22: Answer the questions on the basis of the information given below.

The following bar chart gives the growth percentage in the number of households in middle, upper-middle and high income categories in the four regions for the period between 1987-88 and 1994-95.



	Number of households in 1987-88 (in thousands)	Average household income in 1987-88	Growth in average household income (1994-95 over 1987-88)
Middle income	40	Rs. 30,000	50%
Upper- middle	10	Rs. 50,000	60%
High income	5	Rs. 75,000	90%

17. Which region showed the highest growth in number of households in all the income categories for the period?
 - (a) North
 - (b) South
 - (c) West
 - (d) None of these
18. What was the total household income in northern region for upper-middle class?
 - (a) Rs. 50 lakh
 - (b) Rs. 500 million
 - (c) Rs. 300 million
 - (d) Cannot be determined
19. What is the percentage increase in total number of households for the northern region (upper-middle) over the given period?
 - (a) 100%
 - (b) 200%
 - (c) 240%
 - (d) Cannot be determined
20. What was the average income of the high-income group in 1987-88?
 - (a) Rs. 75,000
 - (b) Rs. 25,000
 - (c) Rs. 2,25,000
 - (d) Cannot be determined

Additional directions for questions 21 and 22: The numbers of households in each category were equally distributed in all the regions.

21. The ratio of total income for the high-income category to the upper-middle class increased by how much percentage in the given period?
 - (a) 20%
 - (b) 36%
 - (c) 25%
 - (d) Cannot be determined
22. The average income for the northern region in 1987-88 was
 - (a) Rs. 37,727
 - (b) Rs. 37,277
 - (c) Rs. 35,000
 - (d) Cannot be determined

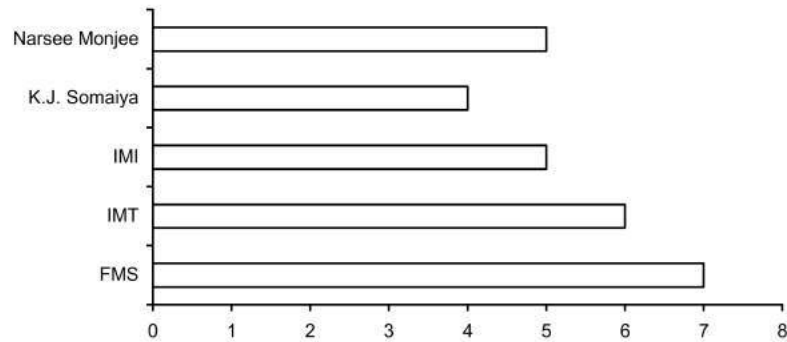
MEMORY BASED QUESTIONS

2014

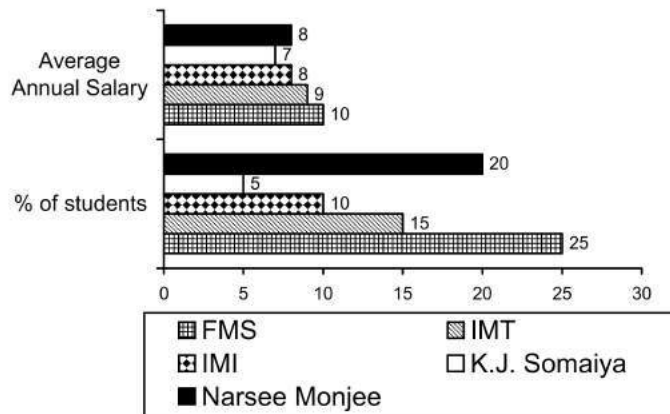
Directions for questions 23 to 25 : Answer the questions on the basis of the information given below.

The average annual salary figures of five leading B-schools have been shown below.

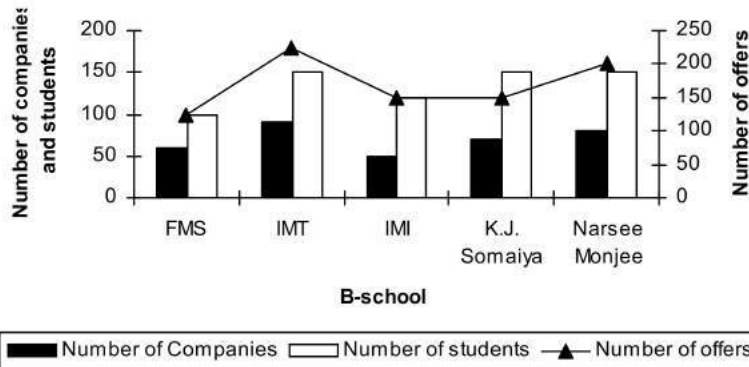
Average Annual Salary (Rs. in lakh)



The percentage of students getting PPOs (Pre-Placement offers) and their average annual salary in lakhs is shown below.



The number of students, the number of companies visiting the campus and total offers made (including PPO's) have been shown below for these five leading B-schools.



23. Which school has the highest total number of offers per student?

- (a) IMT (b) Narsee Monjee
(c) IMI (d) FMS

24. The ratio of number of offers to the number of companies visiting the campus is highest for:

- (a) IMT (b) K.J. Somaiya
(c) IMI (d) FMS

25. At FMS, what is the average salary of students, who did not get a PPO?

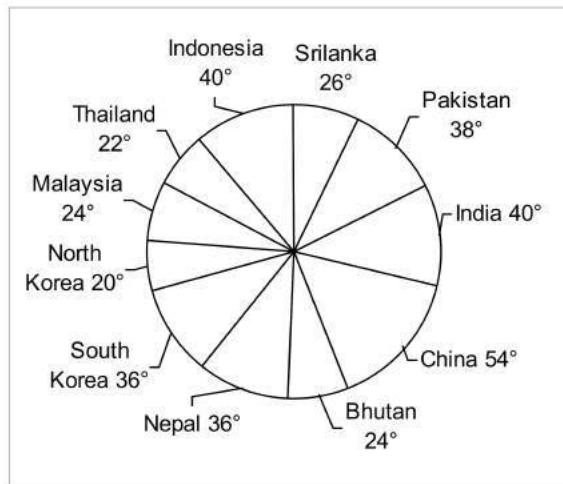
- (a) Rs. 6.5 lakh
(b) Rs. 4.5 lakh
(c) Rs. 8 lakh
(d) Rs. 6 lakh

2015

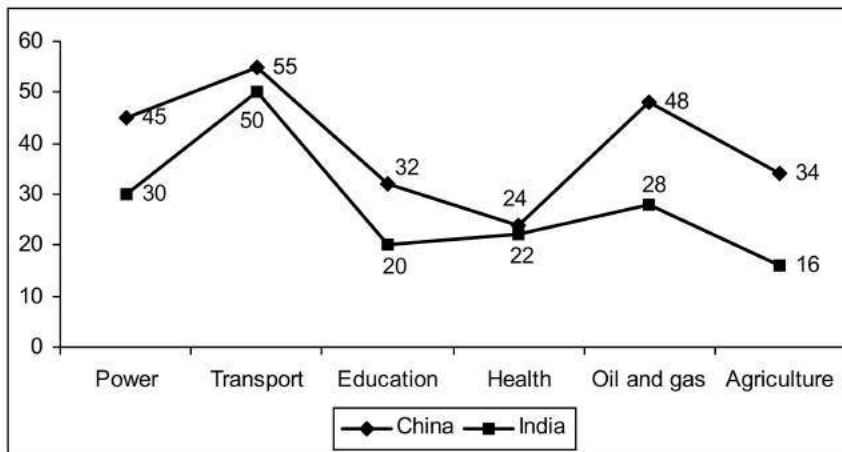
Directions for questions 26 to 29 : Answer the questions on the basis of the information given below.

The following pie chart gives the distribution of the total loans disbursed by ADB in 2012 among eleven Asian countries.

Total amount of loans disbursed = Rs. 7200 Cr



The following line graph gives the percentage contribution of loan from ADB in the total investment made in different sectors in the same year by India and China.



For both China and India, the loan received from ADB was utilized in the given sectors only.

26. If the total investment in Education sector in China was 60% higher than that in India, then what is the ratio of A and B, where
 A : The percentage of loan from ADB invested in Education sector by China
 B : The percentage of loan from ADB invested in Education sector by India
 (a) 256 : 135 (b) 256 : 189
 (c) 256 : 225 (d) Cannot be determined
27. The amount of loan invested in Transport sector by China was equal to 60% of the total loan given by ADB to Malaysia. The amount of loan invested in Transport sector by India was equal to 60% of the total loan given by ADB to North Korea. The total investment made in Transport sector by India was approximately what percent of that made by china?
 (a) 75.76
 (b) 91.67
 (c) 80.80
 (d) 81.81
28. If the total investments made in Education, Health and Agriculture sectors in India in 2012 was Rs. 150 cr., Rs. 120 cr and Rs. 400 cr. respectively, then the amount of ADB loan invested by India in these three sectors constitute what percentage of the total loan granted to India by ADB?
 (a) 15.05%
 (b) 18.85%
 (c) 12.33%
 (d) 16.66%
29. The total loan invested in Power, Transport and Education sectors by India was 500 cr. What was the maximum possible investment (in Rs. crore) in these three sectors made by India?
 [The loan amount invested in all of these three sectors is a multiple of 30 cr]
 (a) 2000
 (b) 2100
 (c) 2360
 (d) 2400

ANSWERS

- | | | | | | | | | | |
|---------|---------|---------|---------|---------|----------|---------|---------|---------|---------|
| 1. (c) | 2. (d) | 3. (c) | 4. (d) | 5. (b) | 6. (d) | 7. (c) | 8. (a) | 9. (d) | 10. (c) |
| 11. (b) | 12. (a) | 13. (4) | 14. (c) | 15. (3) | 16. (55) | 17. (b) | 18. (d) | 19. (b) | 20. (a) |
| 21. (b) | 22. (a) | 23. (a) | 24. (c) | 25. (d) | 26. (a) | 27. (b) | 28. (a) | 29. (c) | |

SOLUTIONS

LEVEL - 1

1. c

Year	Number of students employed	Number of students employed from finance	Number of students employed from marketing
1992	800	$0.22 \times 800 = 176$	$0.36 \times 800 = 288$
1993	640	$0.17 \times 650 = 110.5$	$0.48 \times 650 = 312$
1994	1100	$0.23 \times 1100 = 253$	$0.43 \times 1100 = 473$
1995	1200	$0.19 \times 1200 = 228$	$0.37 \times 1200 = 444$
1996	1000	$0.32 \times 1000 = 320$	$0.32 \times 1000 = 320$
		1087.5	1837

∴ Difference in number of students employed from finance and marketing = $1837 - 1087.5 = 749.5 \approx 750$.

2. d Percentage increase in the average salary of finance

$$= \frac{9810 - 5450}{5450} \times 100 = 80\%$$

3. c Average annual rate at which the initial salary offered in software increases

$$= \frac{1}{4} \left[\frac{(8640 - 5290)}{5290} \times 100 \right] = 15.83\% \approx 15.9\%$$

4. d As we don't have any information about the average monthly salary offered to 'Others', we cannot determine the answer.

5. b

Year	Number of candidates employed from finance	Number of candidates employed from software
1994	$0.23 \times 1100 = 253$	$0.21 \times 110 = 231$

Students seeking jobs in finance earned
 $= 253 \times 7550 = \text{Rs. } 16,28,550$

Difference in the amount earned
 $= 1910150 - 1628550$
 $= \text{Rs. } 2.81 \text{ lakh per month}$
 $= \text{Rs. } 33.8 \text{ lakh per annum.}$

For questions 6 to 9:

Operating profit = Profitability \times Operating Income

Operating profits in 2002-03 for:

$$A = \frac{8 \times 180}{100} = 14.4 \text{ crore; } B = \frac{2 \times 220}{100} = 4.4 \text{ crore;}$$

$$C = \frac{15 \times 200}{100} = 30 \text{ crore; } D = \frac{1 \times 290}{100} = 2.9 \text{ crore;}$$

$$E = \frac{17.5 \times 200}{100} = 35 \text{ crore; } F = \frac{9 \times 210}{100} = 18.9 \text{ crore}$$

Looking at the values, two companies B and D are excluded in the third graph.

6. d Companies A, C and E have profitability between 10% and 20% in F.Y. 2001-02. But the operating income of C in F.Y. 2002-03 is greater than 200 crore. Hence, option (d) is the correct option.

7. c E has the highest operating profit of Rs.35 crore in F.Y. 2002-03.

8. a Operating profit of B in F.Y. 2001-02

$$= \frac{(-4) \times 250}{100} = -10 \text{ crore}$$

and operating profit of D in F.Y. 2001-02

$$= \frac{(-2) \times 250}{100} = -5 \text{ crore}$$

Therefore, average operating profit for B and D in

$$\text{F.Y. 2001-02} = \frac{(-5) + (-10)}{2} \text{ crore} = -7.5 \text{ crore}$$

9. d Two companies C and E have profitability exceeding 10% in F.Y. 2002-03.

∴ Their average operating profit in F.Y. 2002-03

$$= \frac{30 + 35}{2} \text{ crore} = 32.5 \text{ crore.}$$

10. c Sum of all the entries corresponding to the year 2009 = Rs. 3408 cr.

11. b Compare the values of

$$\frac{\text{Sales}_{09}}{\text{Sales}_{08}} \times \frac{(\text{Market Share})_{08}}{(\text{Market Share})_{09}}$$

for

$$A = 1.168$$

$$B = 1.264$$

$$C = 0.925$$

$$D = 0.982$$

$$E = 1.211$$

12. a Let a total of 100N units be sold in both the years 2008 and 2009.

Statement 1:

A could not register growth in South and C could not register growth in both South and East.

Statement 1 is true.

Statement 2:

Number of units sold by B in 2009 in South

$$= \left(\frac{12}{100} \times 100N \right) \frac{77}{314} = 2.94N$$

Number of units sold by B in 2008 in South

$$= \left(\frac{10}{100} \times 100N \right) \frac{17}{214} = 0.79N$$

Percentage increase

$$= \left(\frac{2.94 - 0.79}{0.79} \right) \times 100 = 272\%$$

Statement 2 is false.

Statement 3:

Number of units sold by C in 2009 (23N) is greater than the number of units sold by C in 2008 (22N).

Statement 3 is false.

For questions 13 to 16 :

Product	Total cost of production (In Rs. Crore)		Total profit (In Rs. Lakh)	
	Type P	Type Q	Type P	Type Q
A	13.64	11.36	204.6	340.8
B	38.71	36.29	967.8	725.8
C	15	22.5	225	450
D	16.67	20.83	250.1	208.3
E	14.3	10.7	357.5	214
F	25	25	500	375

13. 4 The profit made on items of Type Q is not more than the profit made on items of Type P for products B, D, E and F.

14. c For D, the desired ratio is lowest among all the products.

15. 3 For A, B and E, the overall profit percentage is more than 20%.

16. 55 Total Cost = 13.64 + 16.67 + 25
= Rs. 55.31 crore.

LEVEL - 2

17. b It can be seen from the graph that the southern region showed the highest growth in number of households in all the income categories for the period.

18. d We only know the total number of households for all four regions combined. Nowhere have they given the region-wise break-up of this value. In the light of this, the given question cannot be answered.

19. b It is very clear from the graph that the percentage increase in total number of households for the northern region for upper middle income category is 200%.

20. a As seen from the table, the average income of high-income group in 1987-88 is Rs. 75,000.

21. b The total income of high income category in 1987-88 is Rs. (5000 × 75000).

The total income of upper-middle class category in 1987-88 is Rs. (10000 × 50000).

Hence, the current ratio of their total incomes = 3 : 4 = 0.75

Since the number of households in each category were equally distributed in all regions, we can have the following table for high income category.

Region	Households in 1987-88	Percentage increase	Households in 1994-95
North	1250	240%	4250
South	1250	425%	6562.5
East	1250	175%	3437.5
West	1250	150%	3125
Total	5000		17375

The average household income for high-income category increased by 90%. Hence, average household income for this category in 1994-95

$$= (75000 \times 1.9) = \text{Rs. } 1,42,500$$

Hence, the total income for high-income category in 1994-95 = (17375 × 142500) = Rs. 2,476 million

The same table can be drawn for upper-middle class category as follows:

Region	Households in 1987-88	Percentage increase	Households in 1994-95
North	2500	200%	7500
South	2500	340%	11000
East	2500	125%	5625
West	2500	140%	6000
Total	10000		30125

The average household income for upper-middle class category increased by 60%. Hence, the average household income for this category in 1994-95 = (50000 × 1.6) = Rs. 80,000

Hence, the total income for high-income category in 1994-95 = (30125 × 80000) = Rs. 2,410 million

Hence, the ratio of total income for these two categories in 1994-95 = $\frac{2476}{2410} = 1.02$.

Hence, percentage increase in ratio

$$= \frac{(1.02 - 0.75)}{0.75} = 36\%$$

22. a For northern region, we can draw the following table for 1987-88.

Category	Households in 1987-88	Average household income	Total income (Rs. in millions)
Middle income	10000	Rs. 30,000	300
Upper-middle	2500	Rs. 50,000	125
High income	1250	Rs. 75,000	93.75
Total	13750		518.75

Hence, the average income for northern region

$$= \frac{518.75}{13750} \times 10^6 = \text{Rs. } 37,727$$

For questions 23 to 25: The following table can be drawn.

B-school	No. of companies	No. of students	No. of offers	Offers per company	Offers per student
FMS	60	100	125	2.08	1.25
IMT	90	150	225	2.5	1.5
IMI	50	120	150	3	1.25
K.J.Somai	70	150	150	2.14	1
Narsee Monjee	80	150	200	2.5	1.33

23. a IMT has the highest number of offers per student.
 24. c IMI has the highest ratio of offers per company.
 25. d Total salary for FMS = 100×7

$$= ₹ 700 \text{ lakh.}$$

$$\text{Total salary of PPO holders} = (25\% \text{ of } 100) \times 10$$

$$= ₹ 250 \text{ lakh.}$$

∴ Average annual salary of people not getting

$$\text{PPOs} = \frac{700 - 250}{75} = 6 \text{ lakhs.}$$

26. a Let the total investment in education sector by India be Rs. 'P' crore the same in China will be Rs. 1.6 P crore.

For china, 32% of 1.6 P was from ADB loans which will constitute

$$A = \frac{0.32 \times 1.6P}{\left(\frac{54}{360} \times 7200\right)} \times 100\%$$

$$\text{For India, } B = \frac{0.2 \times P}{\left(\frac{40}{360} \times 7200\right)} \times 100\%$$

$$A : B = 256 : 135.$$

27. b Amount of loan invested in transport sector by

$$\text{China} = \frac{60}{100} \times \frac{24}{360} \times 7200 \text{ cr}$$

Total investment in transport by china

$$= \frac{60}{100} \times \frac{24}{360} \times 7200 \times \frac{100}{55} = 523.63 \text{ cr}$$

Amount of loan invested in transport sector by India

$$= \frac{60}{100} \times \frac{24}{100} \times 7200 \text{ cr}$$

Total investment in transport by India

$$= \frac{60}{100} \times \frac{24}{360} \times 7200 \times \frac{100}{50} = 480 \text{ cr}$$

$$\text{Required percentage} = \frac{480}{523.63} \times 100 = 91.67\%.$$

28. a Loan amount invested in education

$$= 20\% \text{ of } 150 = \text{Rs } 30 \text{ cr}$$

Loan amount invested in Health

$$= 22\% \text{ of } 120 = \text{Rs } 26.4 \text{ cr}$$

Loan amount invested in Agriculture

$$= 16\% \text{ of } 400 = \text{Rs } 64 \text{ cr}$$

$$\text{The required percentage} = \frac{30 + 26.4 + 64}{\left(\frac{40}{360} \times 7200\right)} \times 100 = 15.05.$$

29. c Total investment will be maximum when maximum loan amount is invested in education i.e. Rs. 440 cr. And Rs. 30 cr each is invested in other two sectors.

Total investment in the 3 sectors will be

$$= 440 \times \frac{100}{20} + 30 \times \frac{100}{30} + 30 \times \frac{100}{50}$$

$$= \text{Rs. } 2360 \text{ cr}$$