DATA INTERPRETATION

Data Interpretation is a major part of Quantitative Aptitude section for any banking exam. Now, first and foremost, what does Data Interpretation exactly mean? Interpretation is the process of making sense of numerical data that has been collected, analyzed, and presented. Interpreting data is an important critical thinking skill that helps you comprehend text books, graphs and tables Majority of questions asked in the Data Interpretation Section are based on the following topics of the Arithmetic Section

1. Ratios
2. Averages
3. Percentages

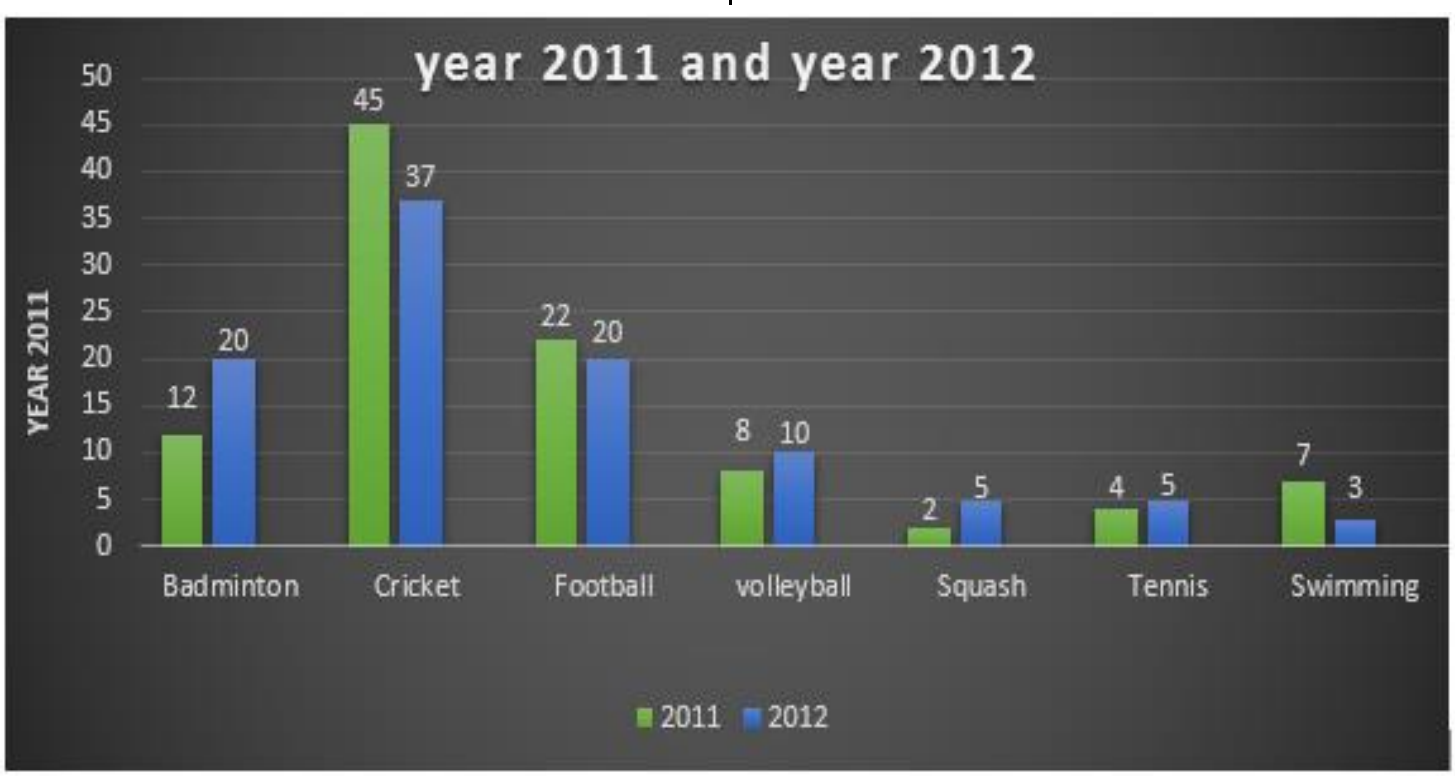
If the basics of these topics are clear, attempting DI in the exams becomes comparatively easy. Now, let us go through the types of DI graphs/charts that you may encounter in the 1. Pie Charts

2. Line Charts
3. Bar Graphs
4. Tabular Charts
5. Mixed Graphs
6. Missing DI
7. Topic Based DI
8. Radar Graph
9. Network Graph
10. Puzzle Graph

We shall now have a look at the types of questions that are asked under these Data Interpretation Graphs –

Consider the following data presented in the bar graph -

Percentage of Students who like different sports in two different years is provided in the following graph. Total number of Students is 1000 for both the years. Year 2011 and Year 2012



Now the following types of questions may be asked from this data –

1. Sum or Difference based -

These are the most basic questions that may be asked in a DI set. For instance,

What was the sum of total number of students who like Badminton and Cricket in Both the years?

Now for such questions,

First find the number of students who like the two sports in the two years -

2011 - Badminton = (12/100) × 1000 = 120

Cricket = (45/100) × 1000 = 450

Total = 570

2012 - Badminton = (20/100) × 1000 = 200

Cricket = (37/100) × 1000 = 370

Total = 570

Sum = 570 + 570 = 1140

2. Averages based Questions -

Average based questions are very commonly asked in the Data Interpretation sets.as-

What is the average number of students who like badminton, cricket and football in 2011?

Total students who like badminton, cricket and football in 2011 = (12 + 45 + 22) =

79% of 1000

Required average = 790/3

3. Ratio based question -

What is the ratio of the students who like football and tennis in 2011 and those who like volleyball and squash in 2012?

Students who like football and tennis in 2011= (22 + 4) = 26% of 1000

Students who like volleyball and squash in 2012 = (10 + 5) = 15% of 1000

Remember for such questions, you do not need to do the entire calculation,

Because such numbers will eventually cancel out while calculating the ratios.

Required ratio = (26% of 1000) : (15% of 1000) = 26 : 15

4. Percentage based question –

Percentage based questions are very commonly asked in the Data Interpretation sets.

Less than

Number of football students in 2011 is what percent less than number of cricket students in 2012

More than

Number of cricket students in 2011 is what percent more than the number of squash students in 2012

Q.1-5. Read the following information carefully to answer the questions asked-

The table below represents the production of cars of different companies.

Cars production

(in lakhs)

Years	*Maruti*	*Hyundai*	*GM*	*BMW*
2000 – 01	*450*	*159*	*452*	*482*
2001 – 02	*452*	*1523*	*152*	*154*
2002 – 03	*459*	*123*	*228*	*420*
2003 – 04	*456*	*455*	*380*	*460*
2004 - 05	*962*	*260*	*340*	*500*

Q.1. During the period 2000-01 to 2004-05 production of Maruti was approximately what percentage of total production of Maruti?

(1) 29% (2) 31%

(3) 33% (4) 37%

(5) 35%

Q.2. During the year 2004-05, the percentage increase in the production of Maruti cars over the previous year was approxmately how much percent?

(1) 109% (2) 115%

(3) 123% (4) 111%

(5) 113%

Q.3. What was the average production of all the cars in 2003-04?

(1) 432 (2) 438

(3) 441 (4) 429

(5) 417

Q.4. What is total number of cars produced by all four companies from 2001-2005?

(1) 6814 (2) 7184

(3) 7204 (4) 7324

(5) 7528

Q.5. If in year 2003-04 average price of Maruti cars was 4.3 laks and average price of GM cars was 5.5 lakhs then whose revenue was greater and approximately by how much percent?

(1) GM,7% (2) Maruti,7%

(3) GM,6% (4) Maruti,6%

(5) Maruti, 9%

Q.6-10. Read the following information carefully to answer the questions asked-

Given table chart shows the production of computers produced by 5 different companies (A, B, C, D, E) and also shows the export percentage of computer by these companies.

Company	Production of computers	Percentage Export
A	24500	25%
B	35600	30%
C	26700	45%
D	34900	28%
E	37600	39%

Q.6. Find the number of remaining computers in warehouse of company-B if sell the 20% of remaining after export.

(1) 15852 (2) 19936

(3) 21290 (4) 17820

(5) None of these

Q.7. What is the difference of the number of computer exported by company-E and the number of computer not exported by company-C?

(1) 12890 (2) 14685

(3) 15220 (4) 16880

(5) None of these

Q.8. What is the average export of all companies?

(1) 9925.75 (2) 8432.5

(3) 13920 (4) 11212.8

(5) 10651.2

Q.9. The export of computers of company-B and company-C is approximately what percent less/more than the number of computers not exported by company-D?(approx)

(1) 2 (2) 7

(3) 12 (4) 9

(5) 4

Q.10. Find the average income of all companies together if the income of company-D is 90 crore?(in crore)

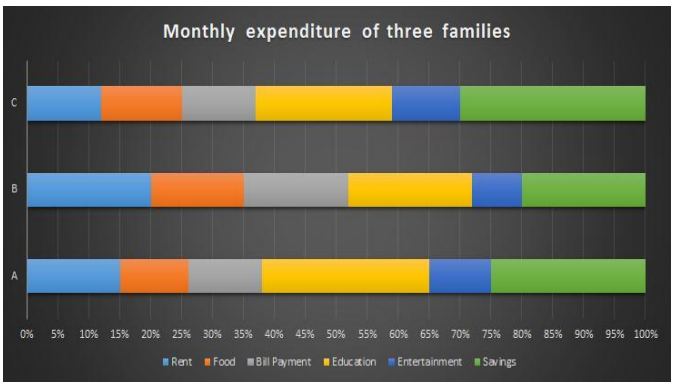
(1) 8420 (2) 9220

(3) 6225 (4) 7120

(5) Can not be determined

Q.11-15.Read the following informations carefully to answer the questions asked-

Following bar graph is showing the monthly expenditure of three families A,B and C.



Q.11. If all three families together saves Rs 37500 together in month then find the total expenditure on education by all three families together.

(1) 34500 Rs (2) 42500 Rs

(3) 39500 Rs (4) 31750 Rs

(5) Can not be determined

Q.12. If the ratio of expenditure of family A and B on entertainment is 3:2 respectively then find the ratio of their expenditure on rent.

(1) Data insufficient (2) 5:8

(3) 7:9 (4) 9:10

(5) None of these

Q.13. If the ratio of income of family A,B and C is 5:8:10 and total expenditure by all companies on food is Rs. 24400 then find the total expenditure by all companies on education.

(1) 16420 Rs (2) 36400 Rs

(3) 41200 Rs (4) Can not be determined

(5) None of these

Q.14. If the expenditure of family B on education is Rs 4500 and income of family B is 37.5% less than income of family C , then find the average expenditure of family C on rent, bill payment and savings.

(1) Can not be determined (2) 6850 Rs

(3) 6480 Rs (4) 5642 Rs

(5) None of these

Q.15. If the expenditure of family A on rent is 2200 Rs more than the expenditure of family C on rent and also expenditure of family A on education is 3100 Rs more than the expenditure of family C on education then find the difference of income of family A and family C.

(1) 12000 Rs (2) 10000 Rs

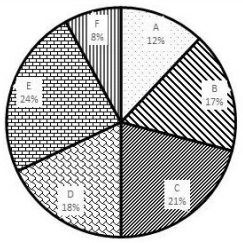
(3) 8000 Rs (4) 15000 Rs

(5) None of these

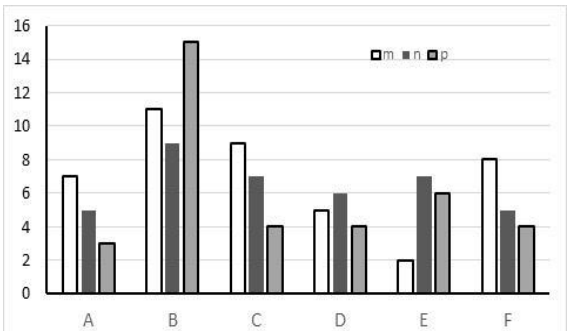
Q.16-20. Study the following pie chart and bar graph carefully and answer the questions given below

Percentage wise distribution of total mobiles sold by Six different shopkeepers in the month of May 2017 and the ratio of three different brans sold by each shopkeeper

Share of total mobiles sold by six different shopkeepers



Ratio of different brands sold



Q.16. If the total number of mobiles sold by all shopkeepers is 420000 then find the number of mobiles sold by shopkeeper B of N mobile brand

(1) 12480 (2) 15675

(3) 17500 (4) 18360

(5) None of these

Q.17. Total number of mobiles sold by shopkeeper C are how much percent more than the number of brand P mobiles sold by same company

(1) 300% (2) 400%

(3) 500% (4) 350%

(5) None of these

Q.18. Find the average of sale of P brand of mobiles by shopkeeper A, C and E? (If total number of sale mobiles = 420000)

(1) 15960 (2) 12500

(3) 14780 (4) 19500

(5) None of these

Q.19. Find the central angle of number of mobiles sold by company A? (In radian)

(1) 36.6 (2) 39.6

(3) 45 (4) 42.5

(5) None of these

Q.20. If the number of mobiles sold by shopkeeper D becomes double and selling of other shopkeepers remains unchanged find the new contribution (In percentage) of company A in all mobiles sold in the same month (Approx)

(1) will remain unchanged

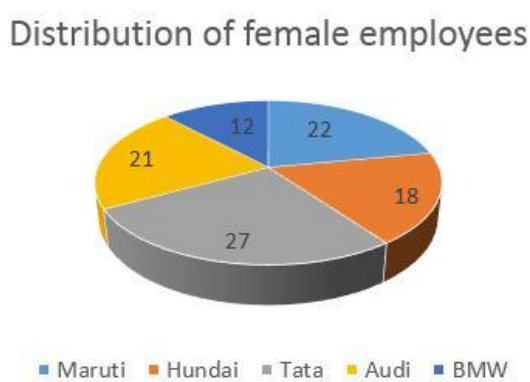
(2) 9.25%

(3) 10.16%

(4) 8.72%

(5) Can not be determined

Q.21-25. Read the following information carefully to answer the questions asked-following pie chart and table gives information about distribution of females and ratio of males to females.



Company	Male	Female
Maruti	5	4
Hyundai	3	2
Tata	4	5
Audi	8	5
BMW	5	3

Q.21. If total number of female employees in all five companies is 6000 then find total number of male employees working in Maruti and Tata.

(1) 3096 (2) 3144

(3) 2946 (4) 3219

(5) None of these

Q.22. If total number of males in Audi and BMW is 1800 find total number of females working in Hyundai company.

(1) 940 (2) 832

(3) 696 (4) 735

(5) Can not be determined

Q.23. 840 females work in Hyundai. Find total number of males working in Audi company.

(1) 1930 (2) 1612

(3) 1484 (4) 1568

(5) None of these

Q.24. Find the ratio of male employees working in Maruti and BMW.

(1) Can not be determined

(2) 11:8

(3) 8:11

(4) 17:9

(5) None of these

Q.25. If total number of male employees in Maruti, Tata and BMW is 18657 then find total number of females working in all five companies together.

(1) Can not be determined

(2) 15000

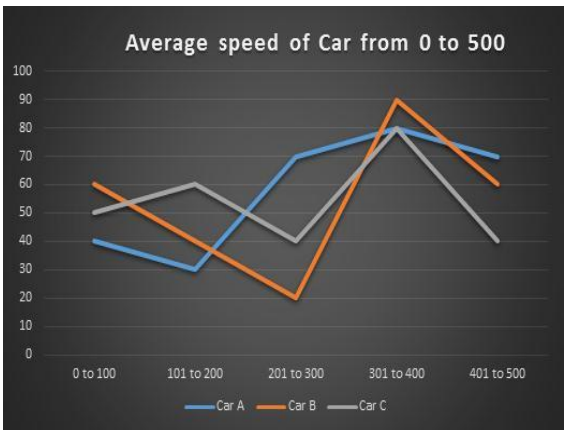
(3) 24000

(4) 27000

(5) 30000

Q.26-30. Read the following information carefully to answer the questions asked-

Following line graph shows the average speed of three cars during a journey.



Q.26. Find The average speed of car C for whole journey.(Approx)

(1) 38 Km/h (2) 50 Km/h

(3) 56 Km/h (4) 29 Km/h

(5) 35 Km/h

Q.27. If the average speed of Car-B is increased by 50% after 200 km. find the total time to complete 300 km by Car B.

(1) 6 hours (2) 8.2 hours

(3) 7.2 hours (4) 7.5 hours

(5) None of these

Q.28. If car C want to complete whole journey in 9 hour 25 minutes then from 401 to 500 km by how much percent its speed should be increased?

(1) 20% (2) 16.67%

(3) 25% (4) 30%

(5) None of these

Q.29. If the engine of Car B is damaged due to small accident after 400 km due to this the car is stopped for 12 minutes after every 45 min. Find the time to complete whole journey by Car B.(Approx)

(1) 12 hours 20 min (2) 13 hours 20 min

(3) 13 hours 45 min (4) 12 hours 40 min

(5) 13 hours 12 min

Q.30. When Car C completed 200 Kms, Car A was how many Kms behind than Car C?

(1) 30 Kms (2) 35 Kms

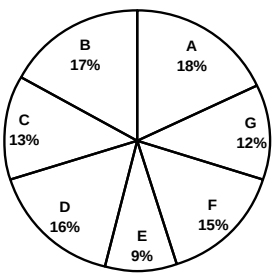
(3) 25 Kms (4) 40 Kms

(5) Can not be determined

Q.31-35. Read the following pie-chart carefully and answer the questions given below.

Percentage of passed students in different colleges in an examination

Total number of passed students = 5700



Q.31. The number of students in college G is **approximately** what percentage of the number of students in college B ?

(1) 74 (2) 78

(3) 68 (4) 65

(5) 70

Q.32. What is the total number of students in college E and F together ?

(1) 1370 (2) 1368

(3) 1365 (4) 1360

(5) None of these

Q.33. The number of students in college D is **approximately** what percent more than the number of students in college E ?

(1) 67 (2) 84

(3) 80 (4) 77

(5) 72

Q.34. What is the average number of students in college B and C together ?

(1) 855 (2) 852

(3) 850 (4) 854

(5) None of these

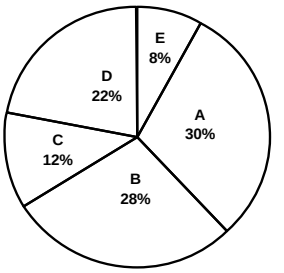
Q.35. What is the number of students in college G ?

(1) 682 (2) 695

(3) 684 (4) 680

(5) None of these

Q.36-40. Following pie chart shows the vote percent got by different parties in a local election in Lucknow. Total votes are 5,00000



Q.36. How many votes the party D got?

(1) 1,20,000 (2) 1,10,000

(3) 1,50,000 (4) 1,30,000

(5) None of these

Q.37. How many more votes D needs to get 50% the total votes?

(1) 1,30,000 (2) 1,45,000

(3) 1,35,000 (4) 1,50,000

(5) None of these

Q.38. How many votes B and C got together?

(1) 2,80,000 (2) 2,20,000

(3) 2,50,000 (4) 2,00,000

(5) None of these

Q.39. Votes got by four parties excluding party D?

(1) 3,96,000 (2) 3,85,000

(3) 3,80,000 (4) 3,45,000

(5) None of these

Q.40. If C gets 7500 more votes then what is the C's percemtage to total numbers of voter?

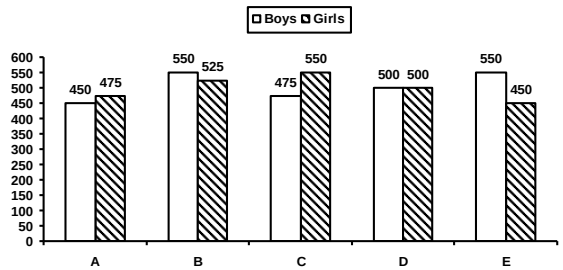
(1) 13.5% (2) 15.5%

(3) 18% (4) 17.57

(5) None of these

Q.41-45. Read the following graph carefully and answer the questions given below.

Number of boys and girls participating in a rally from 5 different schools.



Q.41. What is the total number of girls participating in rally from school A and C together?
(1) 875 (2) 925
(3) 950 (4) 1025
(5) None of these

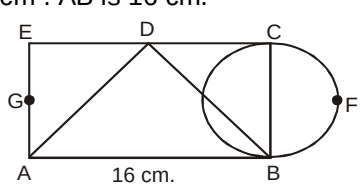
Q.42. What is the difference between the total number of boys and girls in all the schools together?
(1) 30 (2) 25
(3) 35 (4) 20
(5) None of these

Q.43. The number of girls participating in rally from school B is **approximately** what percentage of number of boys participating in rally from the same school?
(1) 95 (2) 90
(3) 87 (4) 82
(5) 78

Q.44. What is the average number of boys in all the schools together?
(1) 502 (2) 500
(3) 505 (4) 512
(5) None of these

Q.45. The number of girls in school B is **approximately** what percent more than the number of girls in school E?
(1) 21 (2) 14
(3) 25 (4) 28
(5) 17

Q.46-50. Study the following diagram to answer the given questions.
(ABCE is a rectangle, ABD is a triangle and CB is the diameter of the circle) Area of the circle is 154 cm^2. AB is 16 cm.



Q.46. If AB is the base of the triangle ABD. How much is its height?
(1) 14 cm. (2) 22 cm.
(3) 19 cm. (4) 18 cm.
(5) None of these

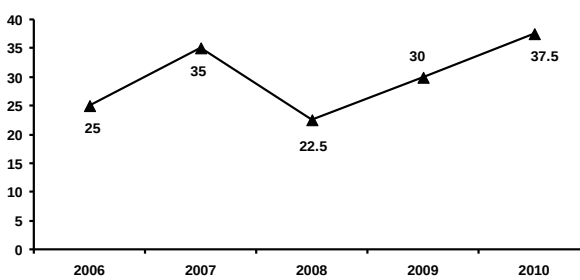
Q.47. How much is the circumference of arc CFB?
(1) 28 cm. (2) 22 cm.
(3) 26 cm. (4) 18 cm.
(5) None of these

Q.48. If line FG passes through the centre of the circle, what is the length of the line?
(1) 22 cm. (2) 25 cm.
(3) 28 cm. (4) 23 cm.
(5) None of these

Q.49. How much is the area of the rectangle ABCE?
(1) 324 cm^2. (2) 384 cm^2.
(3) 224 cm^2. (4) 230 cm^2.
(5) None of these

Q.50. How much is the length of DC?
(1) 9 cm.
(2) 7 cm.
(3) 10 cm.
(4) Cannot be determined
(5) None of these

Q.51-55. Study the following graph carefully and answer the questions given below it.
Profit earned by a company during various years.
(Profit earned in lakh) Profit = Income – Expenditure



Q.51. What is the averge profit earned by the company over the years? (in lakh)
(1) Rs. 25 (2) Rs. 30
(3) Rs. 20 (4) Rs. 40
(5) None of these

Q.52. The expenditure of the company in the year 2010 was Rs. 28 lakh, what was the income of the company in that year?

(1) Rs. 65.5 lakh (2) Rs. 61.5 lakh

(3) Rs. 58.5 lakh (4) Rs. 52.5 lakh

(5) None of these

Q.53. What is the **approximate** percent increase in the profit of the company in the year 2009 from the previous year?

(1) 40% (2) 35%

(3) 50% (4) 30%

(5) 60%

Q.54. What is the ratio of the profit earned by the company in the year 2006 to the profit earned by the company in the year 2010?

(1) 1:2 (2) 3:3

(3) 4:3 (4) 2:5

(5) None of these

Q.55. If the income of the company in the year 2008 was Rs. 45 lakhs what was the expenditure of the company in that year?

(1) Rs. 20.52 lakh (2) Rs. 17.85 lakh

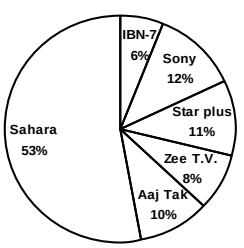
(3) Rs. 22.5 lakh (4) Rs. 16.65 lakh

(5) None of these

Q.56-60. Read the following pie-chart carefully and answer the questions given below.

Number of viewers watching different channels in a town

Total number of viewers = 38000



Q.56. What is the number of viewers watching Sony channel?

(1) 4180 (2) 2280

(3) 4620 (4) 4560

(5) None of these

Q.57. What is the difference between the number of viewers watching Sahara and IBN-7 channel?

(1) 17860 (2) 18240

(3) 16120 (4) 19480

(5) None of these

Q.58. What is the average number of viewers watching Star plus and Zee T.V. ?

(1) 3020 (2) 3280

(3) 3610 (4) 3980

(5) None of these

Q.59. The number of viewers watching Aaj Tak is what percent more than the number of viewers watching Zee T.V. channels?

(1) 22 (2) 24

(3) 20 (4) 28

(5) None of these

Q.60. What is the total number of viewers watching Star plus and IBN-7?

(1) 6380 (2) 6460

(3) 6210 (4) 6550

(5) None of these

Q.61-65. The following graph gives sales, expense and capital of a company for a period of five years 2004 to 2008

Q.61. What is the average capital in the given years?

(1) 100 (2) 120

(3) 140 (4) 130

(5) None of these**Q.62.** In which year was the salse-to-expenses ratio the lowest?

(1) 2008 (2) 2006

(3) 2007 (4) 2004

(5) None of these

Q.63. Sale in year 2004 is what percent of the sale in year 2008?

(1) 10% (2) $9\frac{1}{9}\%$

(3) $11\frac{1}{9}\%$ (4) 20%

(5) None of these

Q.64. In which year was the ratio of profit to capital the highest?

(1) 2006 (2) 2008

(3) 2004 (4) 2005

(5) None of these

Q.65. In which year was the ratio of sales to capital the lowest?

(1) 2004 (2) 2005

(3) 2006 (4) 2007

(5) None of these

EXPLANATION

Q.1.(2)

$$\frac{2779}{8867}\times 100\% = 31.34\%$$

Q.2.(4)

$$\frac{962-456}{456}\times 100\% = 110.96\%$$

Q.3.(2)

$$\frac{456+455+380+460}{4} = \frac{1751}{4} = 437.7$$

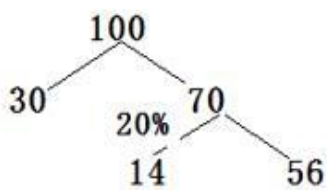
Q.4.(4) 7324

Q.5.(1)

$$\frac{20900-19608}{19608}\times 100\% = 6.59 \approx 7\%$$

GM

Q.6.(2)



$$\text{Required Number} = \frac{35600\times 56}{100} = 19936$$

Q.7.(2) $267\times 55 - 376\times 39 = 14685$

Q.8.(5) Total number of computer = 245 × 25 + 356 × 30 + 267 × 45 + 349 × 28 + 376 × 39= 53256

Average = 53256 / 5 = 10651.2

Q.9.(5) Export of computers of company-B and company-C= 356 × 30 + 267 × 45

=22695

Number of computers not exported by company-D = 329×72 = 23688

Required % =

$$\frac{23688-22695}{23688}\times 100\% = 4.1\%$$

Q.10.(5) CND

Q.11.(5) Given data is not sufficient to answer the given question

Q.12.(4)

$$\frac{10\%ofA}{8\%ofB}=\frac{3}{2}$$
$$A:B=6:5$$
$$\frac{15\%of6}{20\%of5}=\frac{9}{10}$$

Q.13.(3) Let income of A,B and C is 100,160 and 200 respectively

Now food=11+25+26=24400

1=400

Q.14.(3) 20%=4500

100%=4500×5

Again income of C

$$4500\times 5\times\frac{8}{5}=36000$$

Required answer=18%of36000=6480 Rs.

Q.15.(5) 15%ofA-12%ofC=2200

27%ofA-22%ofC=3100

after solving A=45000 C=35000

required answer=40000-350000=5000

Q.16.(4) $$420000\times\frac{17}{100}\times\frac{9}{35}=18360$$

Q.17.(2) $$\frac{20-4}{4}\times 100=400\%$$

Q.18.(1)

$$\frac{420000\left[\frac{12}{100}\times\frac{3}{15}+\frac{21}{100}\times\frac{4}{20}+\frac{24}{100}\times\frac{6}{15}\right]}{3}=15960$$

Q.19.(5) $$12\times\frac{18}{5}=43.2^0$$

Q.20.(3)

$$\frac{12}{118}\times 100=10.169\%$$

Q.21.(3)

$$\frac{5\times 22\times 60}{4}+\frac{4\times 27\times 60}{5}=2946$$

Q.22.(5) Given data is not sufficient

Q.23.(4)

$$\frac{840}{18}\times 21\times\frac{8}{5}$$

Q.24.(2)

$$22\times\frac{5}{4}:12\times\frac{5}{3}=11:8$$

Q.25.(4)

$$\frac{X}{100}\left[22\times\frac{5}{4}+27\times\frac{4}{5}+12\times\frac{5}{3}\right]=18657$$

$$X=27000$$

Q.26.(2)

$$A_2=\frac{500}{2+\frac{5}{3}+\frac{5}{2}+\frac{5}{4}+\frac{5}{2}}\approx 50$$

Q.27.(4)

$$T=\frac{100}{60}+\frac{100}{40}+\frac{100}{150 of 20}=7.5$$

Q.28.(3) To complete journey its speed should be 50km/h

hence answer should be 25%

Q.29.(4)

$$T=\frac{100}{60}+\frac{100}{40}+\frac{100}{20}+\frac{100}{90}+\frac{100}{60}+2(12)\approx 13h20m$$

Q.30.(2) Time taken by car C to cover 200 kms

= 2h+1h 40m=3h 40m

In this time car A will cover 35 kms less

Q.31.(5) Percent = $\frac{684}{969}\times 100$ = 70 (approx)

Q.32.(2) Total number = 513 + 855 = 1368

Q.33.(4) Percentage increase = $\frac{399}{513}\times 100$

= 77 (approx)

Q.34.(1) Average number = $\frac{1710}{2}$ = 855

Q.35.(3) Number = 684

Q.36.(2) Requireds votes = $\frac{500000\times 22}{100}$

= 1,10,000

Q.37.(5) Extra votes (50 - 22) = $\frac{28\times 500000}{100}$

= 1,40,000

Q.38.(4) Total votes (B+C) = $\frac{40\times 500000}{100}$ = 2,00,000

Q.39.(5) Total votes = $\frac{500000\times 78}{100}$ = 3,90,000

Q.40.(1) Current votes = $\frac{500000\times 12}{100}$ = 60000

After getting = 60000 + 7500 = 67500

Required % = $\frac{67500\times 100}{500000}$ = 13.5%

Q.41.(4) Total number = 475 + 550

= 1025

Q.42.(2) Difference = 2525 – 2500

= 25

Q.43.(1) Percent = $\frac{525}{550}\times 100$

= 95 (approx)

Q.44.(3) Average number = $\frac{2525}{5}$

= 505

Q.45.(5) Increase percent = $\frac{75}{450}\times 100$

= 17 (approx)

Q.46.(1) DP = BC

AB = EC

AE = BC

Area of Circle = 154 cm^2.

$\pi r^2 = 154$

$\frac{22}{7}\times r^2 = 154$

$r^2 = \frac{154\times 7}{22}$

r = 7 cm.

DP = BC

= r+r = 7+7 = 14 cm.

Q.47.(2) Cricumference of arc CFB = $\pi r = \frac{22\times 7}{7}$

= 22 cm.

Q.48.(4) GQ = AB

GF = AB+r = 16+7 = 23 cm.

Q.49.(3) Area of rectangle = l×b = 16×14

= 224 cm^2.

Q.50.(4) Cannot be determined

Q.51.(2) Total profit = (25+35+22.5+30+37.5)

= Rs. 150 lakh

Average = $\frac{150}{5}$ = Rs. 30 lakh

Q.52.(1) Income of company in 2010

= 28+37.5= Rs. 65.5 lakhs

Q.53.(4) Increase % = $\left(\frac{30-23}{23}\right)\times 100$

= 30%

Q.54.(5) Required ratio = 25 : 37.5 = 2:3

Q.55.(3) Expenditure of company in 2008

= Rs. (45 – 22.5) lakhs

= Rs. 22.5 lakhs

Q.56.(4) Number = 4560

Q.57.(1) Difference = 38000× $\frac{47}{100}$ = 17860

Q.58.(3) Average = $\frac{4180+3040}{2}$ = 3610

Q.59.(5) Increase percent = $\frac{760}{3040}\times 100 = 25\%$

Q.60.(2) Total number = 38000× $\frac{17}{100}$

= 6460

Q.61.(3) Req. average capital = $\frac{700}{5} = 140$

Q.62.(3) 2007

Q.63.(3) Req. % = $\frac{100\times 100}{900}$

= $11\frac{1}{9}\%$

Q.64.(4) 2005

Q.65.(4) 2007