

***PIE CHART DATA
INTERPRETATION
QUESTIONS WITH
SOLUTIONS***

***BY
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Pie Chart DI Tricks & Tips

Pie Charts

They derive their name from its shape, like that of a pie divided into various portions. They always represent data in the form of a percentage of the total, with the total percentage being 100. In such a chart, the length of the arc (and therefore the angle each sector subtends at the centre) is proportional to the quantity it represents. Such charts are often used in the corporate world and in newspapers. Since a circle comprises 360 degrees, each percent of a pie-chart is equal to 360 divided by 100, or 3.6 degrees. This fact will be important for the calculations you are expected to perform.

Positives

1. More effective in calculating the percentage share of each element in the total.
2. Questions based on comparisons can be effectively solved using pie charts.
3. One pie chart can represent only one data set. Hence, when a question pertaining to pie chart is asked, in most cases data pertaining to only one or two data sets are asked. Because of this a student need to handle only limited number of data values.

Negatives

1. Less accurate than tables as one may take time to establish values.
2. Trends cannot be established in a pie-chart.

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4 Tips to Solve Pie Chart Questions

1. Start with the heading.

It tells you exactly what you're looking at, yet it's amazing how many students skip the title of the chart and the labels and go straight to the question-stem! Really slow down and examine every tiny piece of writing on and around the pie chart fully before reading the question. What's the biggest slice? The smallest slice? How many slices total? What does each slice represent? What can be readily inferred? Make sure there isn't any additional information printed below the chart that may be required to solve.

2. Don't confuse percents with numbers!

The pie chart may display numbers in each slice (17..19...35, etc.) but these may or may not be percentages. Look for the "%" symbol, or a note somewhere at the bottom of the pie chart that explains what the numbers actually refer to – a percent is always a fraction of 100, while a real-world number is always a fraction of a real-world total.

3. Round numbers up or down to make the math easier.

Just like in other SAT math questions, the answer choices may be far enough apart so that it is somewhat easy to estimate. Rounding to the nearest whole number, percent, or fractional equivalent can sometimes be the simplest way to solve. For example, 47.8% could become 50%, and 69% = 2/3. If you're pressed for time, approximation can help you eliminate four choices faster than doing the math with the most-accurate values.

4. Don't forget your knowledge of circles.

Just like in a Geometry question, we can always set up proportions based on part/whole ratios. You might not need to use Circle properties for these Data Analysis questions, but its good knowledge to have up your sleeve! A sector (or "slice") of a pie chart is always part of the entire area of the pie chart, and an arc of the pie chart is always part of the entire circumference.

Basics:

Total angle at the center of a pie chart = 360

To convert k% percentage into angle = $k \times \frac{360}{100}$

To convert m into percentage = $\frac{m}{360} \times 100$

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Shortcuts to crack DI sets containing Pie Charts

1. Ignore the overall value in comparison based questions and avoid calculating every value.

Here is a CAT set to illustrate the same.

Chart 1

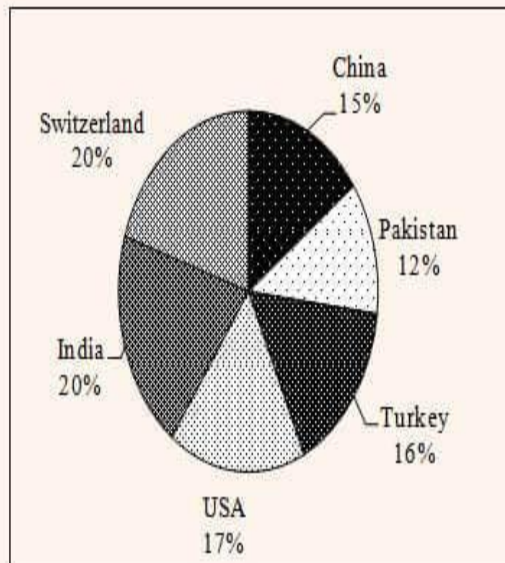


Chart 2

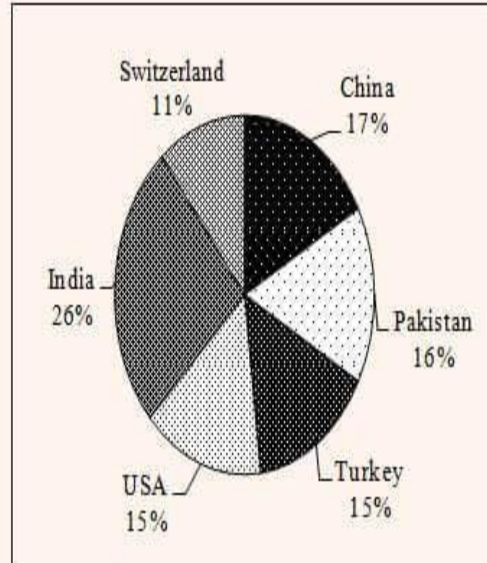


Chart 1 shows the distribution by value of the top 6 suppliers of MFA Textiles in 1995.

Chart 2 shows the distribution by quantity of the top 6 suppliers of MFA Textiles in 1995.

The total value is 5760 million Euro (European Currency).

The total quantity is 1.055 million tonnes.

1. The country, which has the highest average price, is _____.

- (1) USA (2) Switzerland (3) Turkey (4) India

In the above question, a normal tendency would be to calculate the value and quantity for all 6 suppliers and find out for which country is this ratio the highest. However you need not do this! Since the overall values of both the pie-charts are same for all the countries, we need to simply compare the ratio of the respective percentages of the two pie-charts. This ratio is close to 2 for Switzerland (20 / 11). No other country is even close to this.

2. Replace big values by small values for comparison sake.

Consider this CAT set for example.

Consider the information provided in the figure below relating to India's foreign trade in 1997-98 and the first eight months of 1998-99. Total trade with a region is defined as the sum of exports to and imports from that region. Trade deficit is defined as the excess of imports over exports. Trade deficit may be negative.

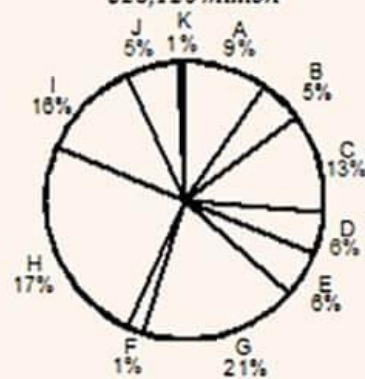
- | | |
|-------------------------|----------------------------------|
| A. U.S.A. | G. Other East European countries |
| B. Germany | H. OPEC |
| C. Other E.U. countries | I. Asia |
| D. U.K. | J. Other L.D.C.s |
| E. Japan | K. Others |
| F. Russia | |

Source of Imports

1997-98
Imports into India \$40,779 million

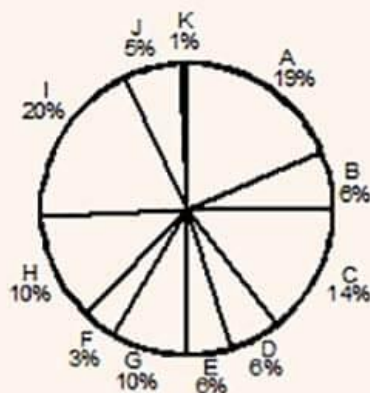


1998-99
Imports into India (April-November) \$28,126 million

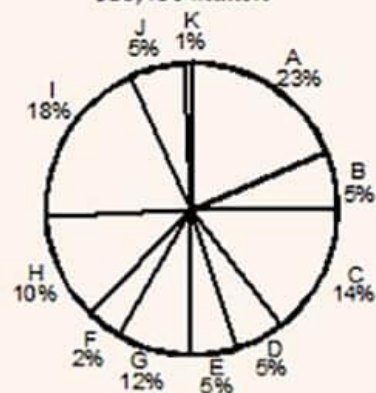


Destination of Exports

1997-98
Exports from India: \$33,979 million



1998-99
Exports from India (April-November) \$21,436 million



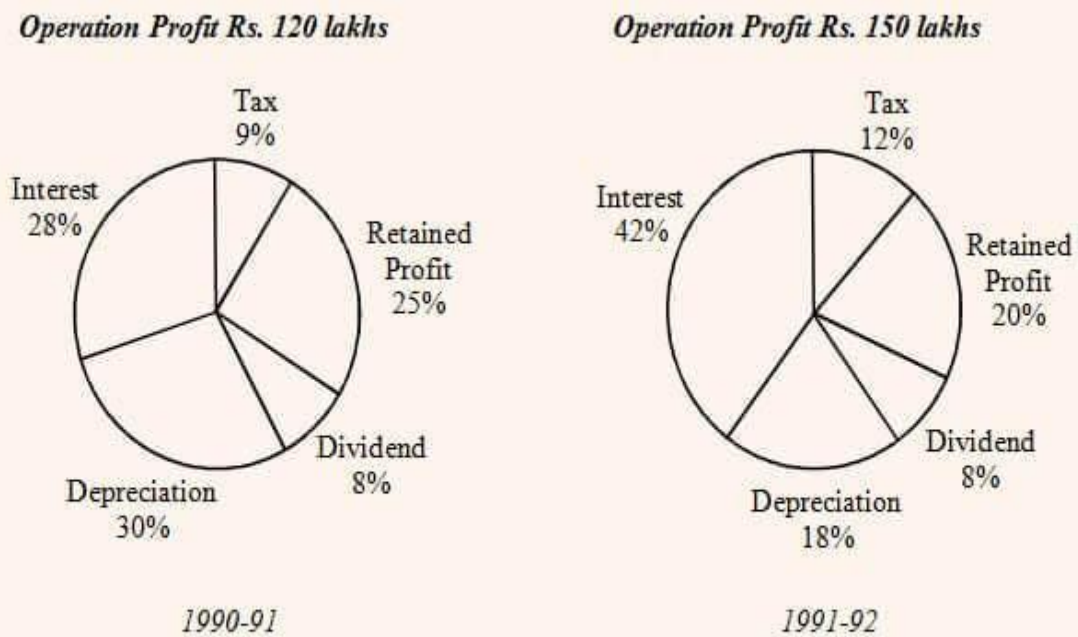
1. What is the region with which India had the highest total trade in 1997-98?

- (1) USA (2) Other EU countries (3) OPEC (4) Asia

In the first question above, though we can shortlist OPEC (H) and Asia (I) by the sheer value of the percentages, it would take a little while to shortlist between the two. What you could have done is instead of taking the values as \$40,779 and \$33,979, we could have approximated it as 41 : 34 or approximately 6 : 5. Now, with these values, we can compare H and I easily. For example, in case of H, the total trade would be $(23 \times 6) + (10 \times 5) = 188$ and in case of I it would be $(14 \times 6) + (20 \times 5) = 184$. Clearly the value is higher for H i.e. OPEC.

3. Deploy smart techniques to do percentage calculations.

Check out this CAT 1995 question.



1. The interest burden in 1991-92 was higher than that in 1990-91 by _____.

- (1) 85% (2) 87.5% (3) 90% (4) 92.5%

The above question can be solved in two ways:

Traditional Method: Interest in 1990-91 = 28% of 120 = 33.6, Interest in 1991-92 = 42% of 150 = 63. Hence Percentage increase = $\frac{29.4}{33.6} = 87.5\%$. Obviously, this would involve some bit of calculation.

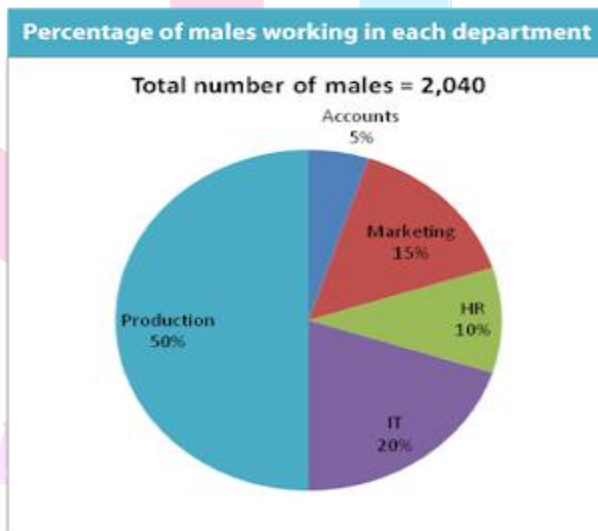
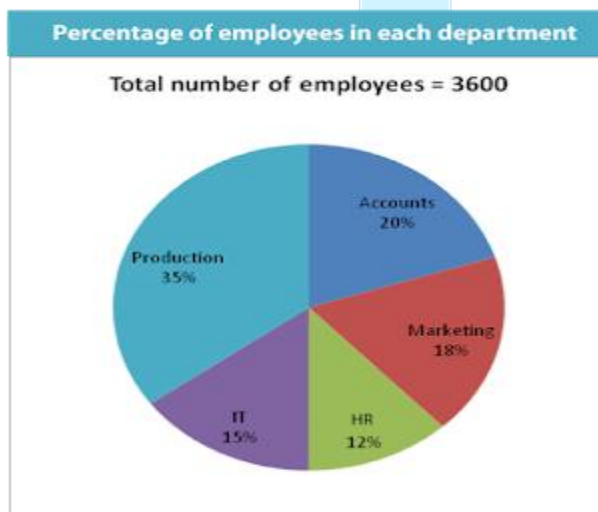
CPLC Method: Overall Operating Profit has increase by 25% i.e. from 120 to 150 (this can be done mentally). The percentage share of interest has increased by 50% i.e. from 28 to 42 (this can be done mentally). Hence, the overall Percentage increase in interest value will be

successive percentage of these two values i.e. $25 + 50 + 12.5 = 87.5\%$ (this can be done mentally as well).

What is also means is that if we were required to find that component which has undergone the highest / lowest percentage change over the two years, you can simply find out that component that has undergone the highest / lowest percentage change in its market shares and get the answer. You need not bring the overall values (120 and 150) into the picture at all!

Example of Pie Chart Questions

Problem 1:





Before going ahead let's look at all the possible questions that can be asked, by taking the accounts department as an example.

- Total number of people in accounts department = 20% of 3600 = 720
- Total number of people who got promoted in accounts department = 8% of 1200 = 96
- Total number of males in account department = 5% of 2040 = 102
- Total number of females in account department = No. of people in accounts department - No. of males in accounts department = 720 - 102 = 618

Question 1: If half of the employees who got promoted from IT department are males, what is the approximate percent of males who got promoted from the IT department?

1)61 2)29 3)54 4) 42 5) 38

Solution:

Step 1:

Half of the employees who got promoted from IT departments are males,

Number of people who got promoted from IT department = 26% of 1200 = 312

Number of males who got promoted from IT department = (1/2) of 312 = 156

Step 2:

We need to find the percentage of the number of males who got promoted from IT department.

x is what percent of $y = \frac{x}{y} \times 100$ [Percentage Formula]

$x =$ Number of males who got promoted from IT department = 156

$y =$ Total number of males in IT department = 20% of 2040 = 408

No. of males in IT department/ No. of males $\times 100$

Step 3:

By substituting the values in the formula

$\frac{156}{408} \times 100$

= 38%

Therefore, the percentage of the number of males who got promoted from the IT department is 38%.

Question 2: What is the total number of females working in the production and marketing department together?

Solution:

Step 1:

We need to find No. of females working in Production and Marketing Department.

No. of female in the Production and Marketing Department = No. of employees in Production and Marketing Dept. - No. of males in Production and Marketing Dept.

Step 2:

We can club departments together instead of finding the number of people working for individual departments.

No. of employee (Production + Marketing) = 3600 (35% + 18%)

= $3600 \times 53\% = 1908$

$$\begin{aligned}\text{No. of males (Production + Marketing)} &= 2040(50\% + 15\%) \\ &= 65\% \text{ of } 2040 = 1326\end{aligned}$$

$$\begin{aligned}\text{No. of females in Production and marketing department} &= 1908 - 1326 \\ &= 582\end{aligned}$$

Therefore, the total number of females in the Production and Marketing Departments are 582.

Question 3: What is the angle made at the centre by the sector showing the number of males in the marketing department?

Solution:

Step 1:

The formula for finding the angle that is made at the centre is,

Percentage of number of males $\times 360^\circ$ (As it makes a complete angle)

$$15\% \text{ of } 360^\circ = 54^\circ$$

Therefore, the angle that will be made by the total number of males working in the marketing department is 54° .

Question 4: What is the percentage of the total number of people who got promoted from all the departments?

- 1) 56 2) 21 3) 45 4) 33 5) 51

Solution:

Step 1:

As we need to find the percentage change

x is what percent of $y = x/y \times 100$ [Formula]

x - Total number of people who got promoted

in all the departments = 1200

y - Total number of employees in all the departments = 3600

Step 2:

Substituting the values in the formula,

$$1200 / 3600 \times 100 = 33.33\%$$

Question 5: What is the ratio of the number of employees who got promoted in HR department to the number of male employees in IT department.

Solution:

Step 1:

We need to find the ratio of,

No. of people promoted in HR department: Number of Males in IT department

Step 2:

By substituting the values in the formulas

$$11\% \text{ of } 1200: 20\% \text{ of } 2040$$

Step 3:

By taking percent as common

$$11 \times 1200 : 20 \times 2040$$

$$11:34$$

Therefore, The ratio of people who got promoted in HR department and the number of males in IT department is 11:34.

Sometimes, in Pie Chart problems in DI and Quant, the total value or difference is asked. For these types of questions, no need to calculate individual values from the given chart. You just need to combine the data given in the graph directly and you will find the answer.

Why This Method?

To sit and calculate each value individually could mean the difference between selection and disqualification in the exam. You will waste precious time. Instead use this simple concept to quickly solve Pie chart problems in DI and Quant. If you can't find the perfect answer, you can even eliminate some options to make an educated guesstimate.

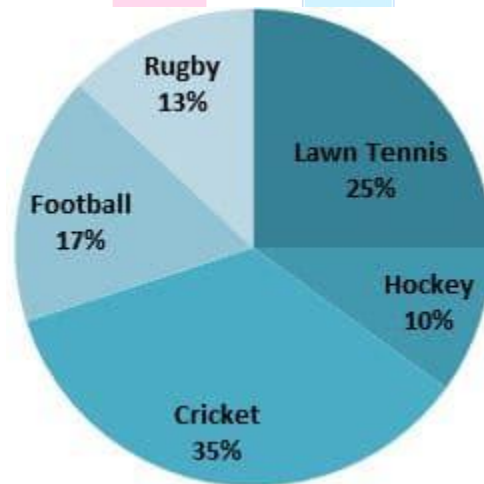
Example of Pie Chart Problems in DI and Quant

Here is an example to understand the basic concept properly.

Directions: Study the following pie-chart carefully to answer these questions.

Percentage-wise Distribution of Players who Play Five Different Sports

Total players = 4200



Ques 1: What is the total number of players who play Football and Rugby together?

- 1) 620
- 2) 357
- 3) 230
- 4) 630
- 5) None of these

Ans: 5) None of these

Solution: Total players = 4200

Percentage of players who play football = 17%

Percentage of players who play rugby = 13%

Percentage of players who play both football and rugby = 17% + 13% = 30%

Total players who play football and rugby = 30% of 4200 = $0.3 \times 4200 = 1260$.

Ques 2: What is the difference between number of players who play Cricket and Lawn Tennis?

- 1) 360
- 2) 450
- 3) 540

- 4) 420
- 5) None of these

Ans: 4) 420

Solution: Total players = 4200

Percentage of players who play Cricket = 35%

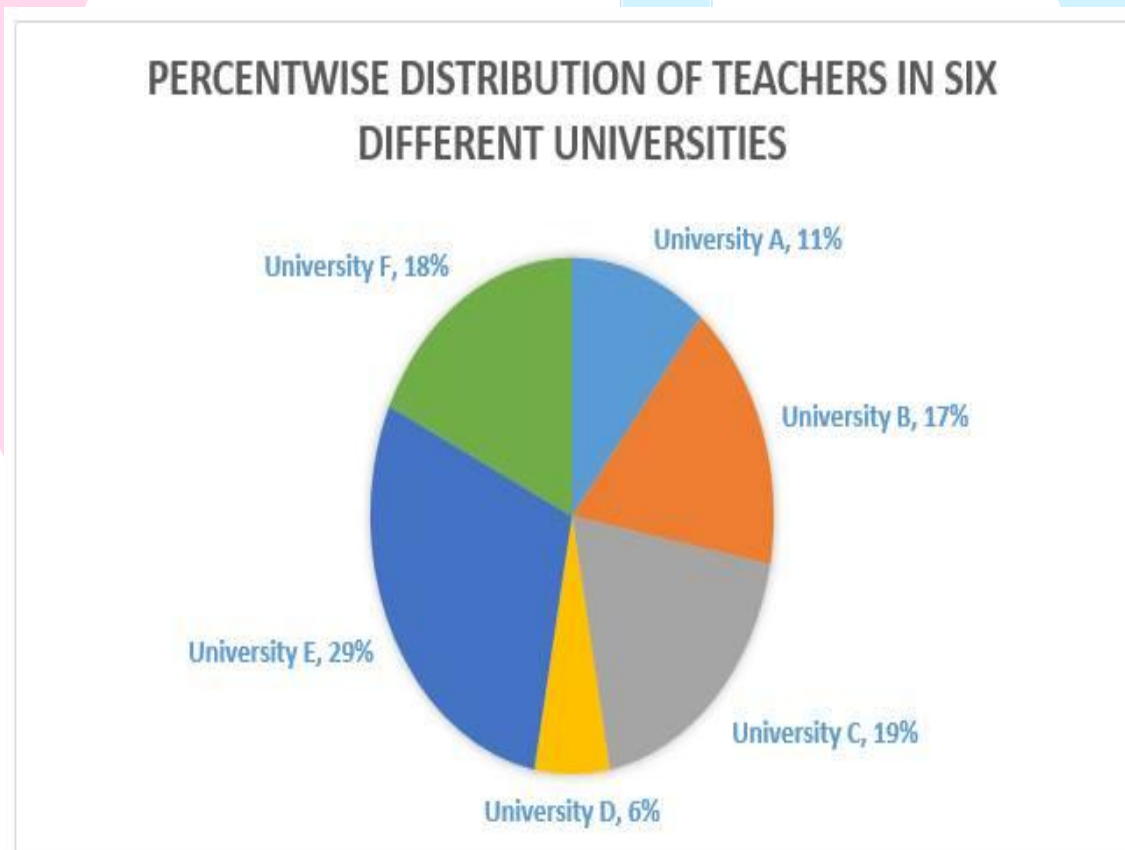
Percentage of players who play Lawn Tennis = 25%

Difference in Percentage of players who play both Cricket and Lawn Tennis = $35\% - 25\% = 10\%$

So, difference in players who play Cricket and Lawn tennis = 10% of 4200 = 420.

Sample Question

Directions: Study the following pie chart and answer the questions that follows:



Total Number of Teachers = 6400

(Uttar Bihar Gramin Bank 2012)

Question 1: If one-thirty sixth of the number of teachers from university F is professors and the salary of each professor is Rs 96000, what will be the total salary of all the professors together from university F?

- [1] Rs 307.2 lakh
- [2] 32.64 lakh
- [3] Rs 3.072 lakh
- [4] 3.264 lakh
- [5] None of these

Number of teachers from university F = 18% of 6400 = 1152

$1/36$ of 1152 = 32

Total salary = $32 \times 96000 = 3072000 = 30.72$ lakh. Answer [5] is correct. (Note the tricky options [1] and [2])

Question 2: Difference between the total number of teachers in university A, B and C together and the total number of teachers in university D, E and F together is exactly equal to the number of teachers in which university?

- [1] A
- [2] B
- [3] C
- [4] D
- [5] F

(You don't even have to calculate the number of teachers. Just presence of mind is needed.)

Number of teachers in university A, B and C = $11+17+19 = 47\%$

Number of teachers in university D, E and F = $6+29+18 = 53\%$

Difference = $6\% =$ University D. Answer [4] is correct.

Question 3: What is the average of teachers in university A, C, D and F together?

- [1] 854
- [2] 3546
- [3] 3456
- [4] 874
- [5] None of these

Again, solving it quickly.

$11+19+6+18 = 54\%$. Average = $54/4\% = [54/400] \times 6400 = 54 \times 16 = 864$. Answer [5] is correct.

Question 4: If twenty five percent of the number of teachers in university C is female, what is the number of male teachers in university C?

- [1] 922
- [2] 911
- [3] 924
- [4] 912
- [5] None of these

Number of teachers in university C = 19% of 6400 = $19 \times 64 = 1216$

25% of this is female. Hence remaining 75% is male.

Number of male teachers = 75% of 1216 = $[\frac{3}{4}] \times 1216 = 912$. Option [4] is correct.

Question 5: Number of teachers in university B is approximately what percent of the total number of teachers in university D and E together?

- [1] 55%
- [2] 59%
- [3] 49%
- [4] 45%
- [5] 65%

Just solve the percentages.

University B = 17%. University D+E = $6+29 = 35\%$

Required percentage = $[\frac{17}{35}] \times 100 = \text{approx. } 49\%$. Answer is [3]

While the pie chart is perhaps the most ubiquitous statistical chart in the business world and the mass media, it is rarely used in scientific or technical publications. It is one of the most widely criticized charts, and many statisticians recommend to avoid its use altogether. Let's first try to put the similar set of data we have used in other charts. Say in CAT07 the number of questions asked from different chapters are

Algebra : 6 Geometry: 9 Number System:12 and Others: 3 and the total number of questions in math section is 30.

So algebra part consist of $\frac{6}{30} \times 100 = 20\%$ of total questions. And similarly

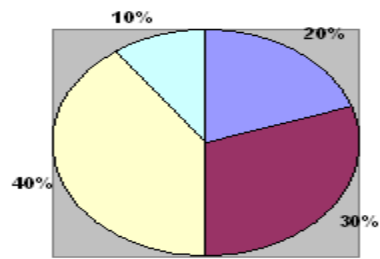
Geometry: 30%

Number System: 40% and

Others: 10%

While representing the above numbers in a pie (circle) we will allocate the area (and thus the angle) to each section in such a way that each section's percentage value corresponds to the equivalent area in the pie. And we will get a chart as shown below.

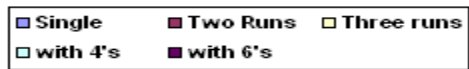
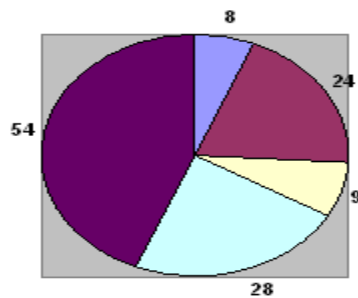
Math Section in CAT 2007



You must be clear about how to make a pie chart. Now we will do the reverse – try to find information from a given pie chart (which is exactly what you will be doing in exam)

The below pie chart shows a typical Dhoni’s ODI innings. The numbers shows how many runs he has scored in single , twos, threes , fours and sixes.

A Typical Dhoni Score Chart



After analyzing the above pie chart, try to answer the following questions:

1. What percentage of runs dhoni scored with threes
2. How many runs he had scored with boundaries (Note : both 6 and 4 are considered as boundaries)
3. What is the angle made by the sector representing runs scored in singles?
4. How many 6s he had hit in that innings

From the graph Dhoni has scored 9 runs with threes i.e 3 threes and the total run he has scored in that particular innings is 123.

So the percentage of runs Dhoni scored in 3s is $9/123 \times 100 = 7.3\%$

Answer 2: Total runs scored in boundaries = $54 + 28 = 82$

Answer 3: Total runs scored in single is 8 and that is $8/123 \times 100 = 6.5\%$ of the total run.

So the angle made is $(6.5/100) \times 360 = 23.41$ degree

Answer 4: Total runs in 6s = 54 so number of sixes is $54/6 = 9$

Chart Comparison

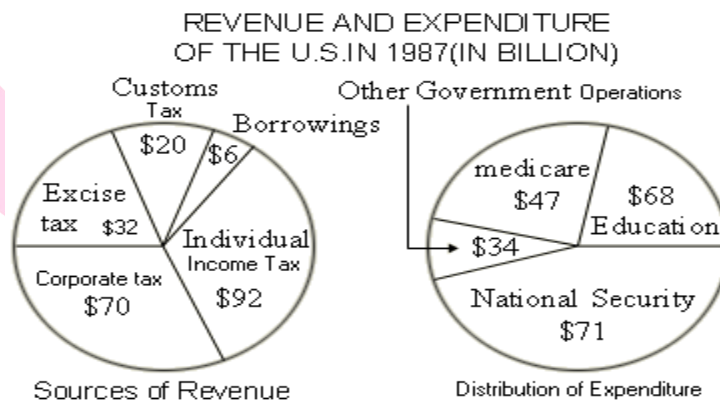
Pie charts are generally not recommended to visualize information instead use bar- or line charts if the quantities are important.

Studies have shown that pie charts are hard to read if you actually have to answer questions about the numbers they represent. They look very pleasing and are used in a lot of places but they do not help to visualize information that well. Analytic thing person will read the percentages or values given on the legend or the chart it and analyze them in their head.

This is mostly because differences in angles are not easy to judge

For the human eye and there are a bunch of cases where you make the pie chart experience even worse. There are still reasons to use pie charts.

Example 1:



Answer the following questions with reference to the above pie chart

Q1. Of every dollar received by the federal government, how much (in cents) is from corporate sources?

A. 32

- B. 70
- C. 30
- D. 35
- E. 29

Answer : 1

Q2. what percentage of the federal revenue is derived from borrowings?

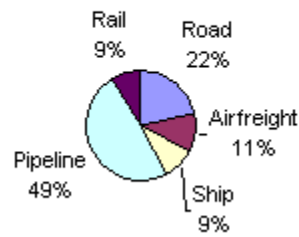
- F. 0.2%
- G. 0.02%
- H. 2.7%
- I. 1.2%
- J. 2.5%

Answer : 3

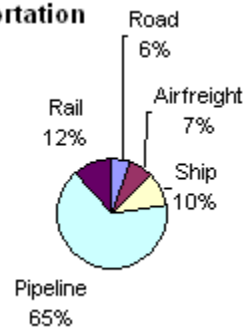
Example 2:

Chart 1 shows the distribution of twelve million tonnes of crude oil transport through different modes over a specific period of time. Chart 2 shows the distribution of the cost of transporting this crude oil. The total cost was Rs. 30 million.

Volume Transported



Cost of Transportation



1. What is the cost of transporting petroleum by rail (in Rs)?

- 1. 2.5
- 2. 3.33
- 3. 6.4
- 4. 8

2. If the cost per tonne of transport by ship, air and road are represented by P, Q and R respectively, which of the following is true?

- 1. $R > Q > P$
- 2. $P > R > Q$
- 3. $P > Q > R$
- 4. $R > P > Q$

3. The cost in rupees per tonne of oil moved by rails and happens to be roughly

1. 3
2. 1.5
3. 4.5
4. 8

4. From the charts given, it appears that the cheapest mode of transport is:

1. Road
2. Rail
3. Pipeline
4. Ship

5. Which is the most effective way of transportation?

1. Road
2. Ship
3. Pipeline
4. cannot be determined

6. If for some reason ship stop sailing, by what percentage the airfreight have to go up to reach the previous level of volume transported (approximately)?

1. 75%
2. 81%
3. 85%
4. 90%

If the revenue after selling the petroleum was Rs 40 Million and other costs (including oil extraction, marketing etc) is Rs 5 Million, answer the following.

7. What is the Profit percentage?

1. 10%
2. 12.5 %
3. 15%
4. 20%

8. If the cost of transportation rises by 20 % and so does revenue, what is the margin %?

1. 14.08
2. 14.28
3. 14.58
4. 14.78

9. If all costs rise by 10% and revenue remains same, what would be the decrease in percentage profit?

1. 35
2. 50

3.70 4 .80

10. If the pipeline cost increases by 30% ,by what percentage would revenue have to be increased so as to have same amount of profit?

1. 11.5
2. 12.8
3. 13.75
4. 14.6

11. If the govt includes a 15% tax on transportation costs ,what would be the effective cost per tonne of petroleum so as to have the same amount of profit as before?

1. 3.2
2. 3.5
3. 3.7
4. 4.2

1. 2. We get $3.6/1.08=3.33$

2. 3 Calculate the cost by ship, air and road.

$P = 3/1.08 = 2.77$; $Q = 2.10/1.32 = 1.58$; $R = 1.80/2.64 = 0.68$ hence $P > Q > R$

3. 1 $3.60/1.08 = 3.33$

4. 1 Road is the cheapest, from Q 132.

5. 4 cannot be determined as e do not know on what criteria

6. 2. Air freight is 11% .it would have to increase to 20% i.e. increase by 81.81%

7. 2. 12.5 %

8. 3. 14.58 profit of 7 Million on revenue of 48 Million

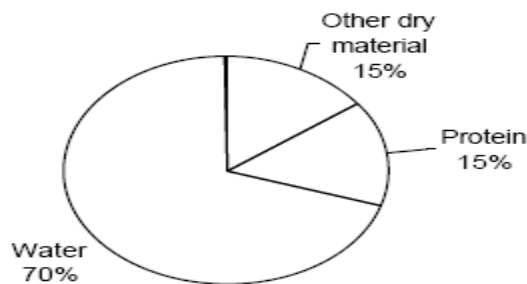
9. 3. 70 %

10.4. Pipeline cost is 65%ie 19.5 Million. If this rises by 30 % , it rises by 5.85 Million .to offset this, Revenue would have to rise by the same amount, so $100 = 14.625\%$

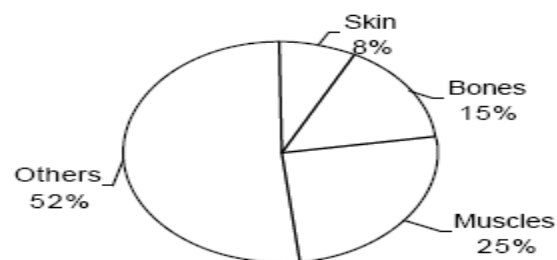
11. 3. 3.7

Example 3:

Distribution of materials in Ghoshbabu's body (as % of total weight)



Occurrence of proteins in difference organs in Ghoshbabu's



Answer the following questions with reference to the above pie chart

Q1. What fraction of Ghosh babu's weight consists of muscular and skin proteins?

- (a) $1/13$
- (b) $1/30$
- (c) $1/20$
- (d) Cannot be determined

Q2. Ratio of distribution of protein in muscle to the distribution of protein in skin is:

- (a) 3 : 1
- (b) 3 : 10
- (c) 1 : 3
- (d) $3(1/2) : 1$

Q3. What percent of Ghosh babu's body weight is made up of skin?

- (a) 0.15
- (b) 10
- (c) 1.2
- (d) Cannot be determined

Q4. In terms of total body weight, the portion of material other than water and protein is closest to:

- (a) $3/20$
- (b) $1/15$
- (c) $85/100$
- (d) $1/20$

ANSWERS 1.(c) 2.(a) 3.(d) 4.(a)

Example 4:

The following pie charts give the percentage distribution of different types of employees in different departments, A, B, C, D and E.

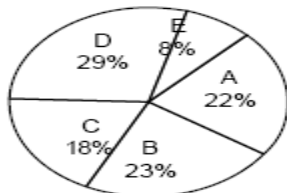


Chart A: Percentage of employees in X Corporation in the year 1999 (Total number of employees: 18,000)

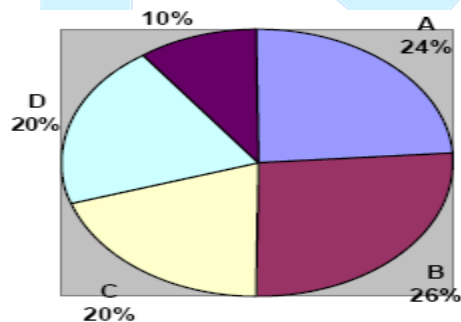


Chart B: Percentage of employees in X Corporation in the year 2000 (Total number of employees: 20,000)

1. What was the difference in total number of people in department A in 1999 and 2000?

- (1) 840
- (2) 400
- (3) 440
- (4) 240

2. In the case of which department was there a maximum variation between 1999 and 2000?

- (1) E
- (2) B
- (3) D
- (4) A

3. If 300 employees left in department B at the end of 1999, how many people joined in this department in 2000?

- (1) 340
- (2) 460 (3) 980
- (4) 1360

4. The number of employees in department D in 2000 is how many times the number of employees in department E in 1999?

- (1) 3.5
- (2) 2.8
- (3) 2.33
- (4) 1.77

5. What is the percentage increase in the number of employees in department C in 1999- 2000?

- (1) 2%
- (2) 2.34%
- (3) 23.45%
- (4) None of these

6. If the average monthly salary of employees in department A in 1999 was Rs 4,000, what was the annual salary bill for department A in 1999?

- (1) Rs 19 lakh
- (2) Rs 19 crore
- (3) Rs 22 crore
- (4) Rs 22 lakh

7. If the average salary for the whole company remained same in 1999 and 2000 at the level of Rs.5,000 per month, what was the percentage increase in the salary bill for the company in the two years?

- (1) 4%
- (2) 8%

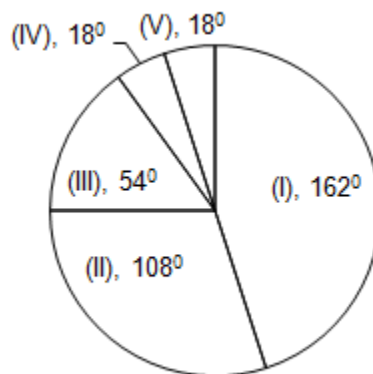
- (3) 9%
(4) 11%

ANSWERS:

1. 1 22% (18000) - 24% (20,000)
2. 3 Visually, we see D has the maximum variation.
3. 4 $26\% (20,000) = 23\% (18,000) + 300$
4. 2 $20\% (20,000)/8\% (18,000)$
5. 3 $18\% (18,000) \text{ to } 20\% (20,000) = 23.45\%$
6. 2 $22\% (18,000) \text{ i€}€\text{i€} 4000.$
7. 4 $(20 - 18)/18 = 11\%$

Set 1 : The various sections of the population are indicated below in the pie-chart. Study the pie-chart and answer the following questions:

The total population of a city is 5000



- I. Employees of the Public Sector II. Employees of the Private Sector
III. Employees of the Corporate Sector IV. Self-Employed V. Unemployed.

1. What percentage of the employed persons is self employed?

- a. 5% b. $5\frac{5}{19}\%$ c. 19% d. 20%

Solution: Total Employed = Total population - Unemployed = $3600 - 180 = 3420$
 Now self employed are 180. So self employed as a percentage of employed
 = $\frac{180}{3420} \times 100 = 5.26\%$

2. Number of persons employed in the Corporate Sector is

- a. 250 b. 500 c. 750 d. 1500

Solution: We have to convert degrees into numbers. So $54 \times 360 \times 5000 = 750$

3. The number of Unemployed persons is

- a. 250 b. 150 c. 100 d. 50

Solution: We have to convert degrees into numbers. So $18 \times 360 \times 5000 = 250$

Shortcut: We calculated corporate sector employees as 750. But from pie chart Corporate sector employees are 3 times of unemployed. So $1/3$ rd of 750 = 250

4. The number of persons employed in both the Public Sector and Corporate Sector is

- a. 3750 b. 3000 c. 2500 d. 2200

Solution: Number of persons employed in public sector and corporate sector together = $54 + 162 = 216$.

$54 + 162 \times 360 \times 5000 = 216 \times 360 \times 5000 = 3000$

5. What percentage of the employed persons is employed in Private Sector ?

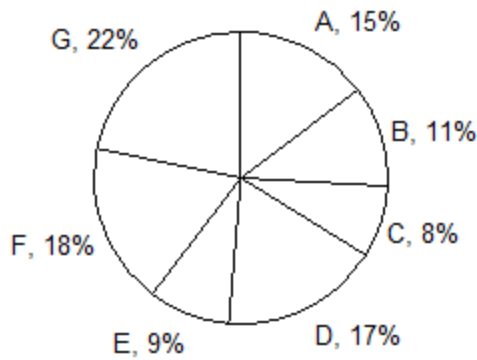
- a. 29% b. $31 \frac{11}{19}\%$ c. 34% d. 31%

*From the 1st question, employed are 342. and From pie chart private sector employees are 108.
 $108 \times 342 \times 100 = 60019 = 31 \frac{11}{19}\%$*

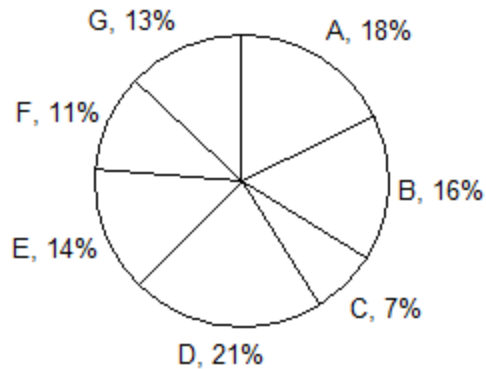
Set 2: These questions are based on following graphs Classification of appeared candidates in a competitive test from different states and qualified candidates from those states.

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Total Appeared Candidates = 45000



Total Qualified Candidates = 9000



1. What is the ratio between the number of appeared candidates from states C and E together and the appeared candidates from states A and F together ?

- a. 17 : 33
- b. 11 : 13
- c. 13 : 27
- d. 17 : 27

Solution: There is not need to calculate values. This is simply a ratio. So we can compare the ratio of their percentages. $C + E = 8 + 9 = 17$; $A + F = 15 + 18 = 33$.

So ratio = 17 : 33

2. In which State the percentage of qualified candidates to that of appeared candidates is minimum ?

- a. C
- b. F
- c. D
- d. E

Solution: This is a lengthy question. But we will use simple technique to solve this question. We have to calculate the ratio of Qualified to appeared for each state. So Qualified candidates from A Selected candidates from A $\times 100 = 18\% \times 9000 \div 15\% \times 45000 \times 100$

Qualified candidates from A Selected candidates from A $\times 100 = 18\% \times 9000 = 15\% \times 45000 \times 100$
 But If you observe in the above equation, only 18% / 15% changes for each state. Remaining values are constant. Minimum percentage we get if numerator is small and denominator is big. For C it is $7/8 = 1/1.14$ and for E it is $9/14 = 1/1.5$ So for E denominator is big. So it has the ratio Minimum.

So Option D is correct. 3. What is the difference between the number of qualified candidates of states D and G

- a. 690 b. 670 c. 780 d. 720

Solution: Instead of calculating qualified candidates for D and G separately, we take the difference in their percentages. i.e., $8\% (9000) = 720$.

4. What is the percentage of qualified candidates to that of appeared candidates from states B and C taken together ?

- a. 23.11 b. 24.21 c. 21.24 d. 23

Qualified candidates from B and C = $(16 + 7)\% = 23\% (9000)$
 Appeared candidates from B and C = $(11 + 8)\% = 19\% (45000)$
 So required percentage = $23\%(9000)19\%(45000) \times 100 = 2319 \times 5 \times 100$
 $= 24.21$
 $23\%(9000)19\%(45000) \times 100 = 2319 \times 5 \times 100 = 24.21$

5. What is the ratio between number of candidates qualified from states B and D together and the number of candidates appeared from state C respectively ?

- a. 8 : 37 b. 11 : 12 c. 37 : 48 d. 7 : 37

Solution: The required ration = $(16 + 21)\% (9000) : 8\% (45000)$

$\Rightarrow \Rightarrow 37 : 8 \times 5$

$\Rightarrow \Rightarrow 37 : 40$

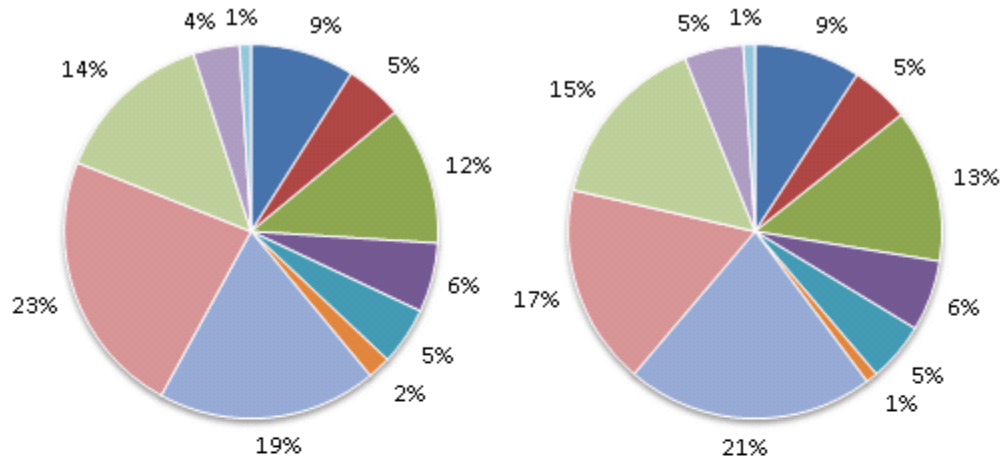
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Example 1

Consider the information provided in the pie chart below relating to India's foreign trade in 1997-98 and the first eight months of 1998-99. Total trade with a region is defined as the sum of exports to and imports from that region.

Trade deficit is defined as the excess of imports over exports. Trade deficit may be negative.

Source of Imports

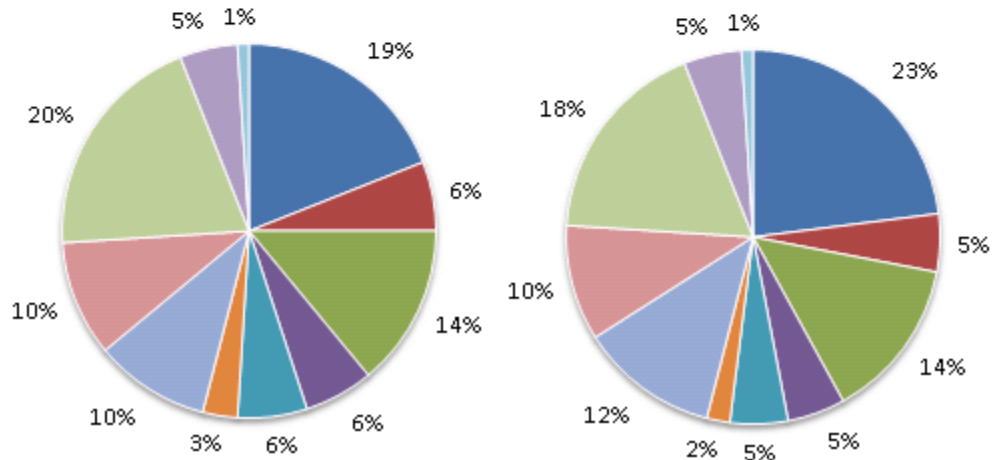


1997-98 Imports into India:
\$ 40,779 million

**1998-99 Imports into India (April-
November) \$ 28,126 million**

- USA
- Germany
- Other E.U.
- UK
- JAPAN
- RUSSIA
- Other East Europe
- OPEC
- ASIA
- Other LDCs
- Others

Destination of Exports



Example 1.A

What is the region with which India had highest total trade in 1997-98?

(A) USA (B) Other E.U. (C) OPEC (D) Others

Answer - (C)

Solution:

Trade with a region is the aggregate of imports from and exports to that region. The question is about a relative position and not an absolute position and thus should involve nothing more than glancing the pie charts and at the very most some small additions that can eminently be done orally. Whatever be the figures of total exports and total imports, these will not be necessary since what is asked is a relative position.

If we assume that the total exports is E and total imports is I , then in the case of USA, the imports will be $\frac{9I}{100}$ and exports will be $\frac{19E}{100}$ and in the case of Other E.U. imports will be $\frac{12I}{100}$ and exports will be $\frac{14E}{100}$. So when you are comparing $\frac{9I}{100} + \frac{19E}{100}$ with $\frac{12I}{100} + \frac{14E}{100}$, you can safely multiply both sides so as to get whole numbers such that now we shall be comparing $(9I+19E)$ with $(12I+14E)$.

In the present case, imports into India are USD 40779 million and we may safely take I as 4 (rounding off 40779 to the nearest ten thousand) and exports from India are USD 33979 million we may safely take E as 3 (rounding off 33979 to the nearest ten thousand).

Comparing $(9I+19E)$ with $(12I+14E)$ will mean comparing $(9 \times 4 + 19 \times 3)$ with $(12 \times 4 + 14 \times 3)$ and hence 93 with 90 and so India's total trade with USA is more than the total trade with Other EUs. In evaluating the options, all that one has to do is to put the percentage of imports and if it is say 21% then write it as 21 and write the imports as 4 and so on. Now see the Options.

Option A: USA $(9 \times 4 + 19 \times 3) = 93$

Option B: Other EU $(12 \times 4 + 14 \times 3) = 90$

Option C: OPEC $(23 \times 4 + 10 \times 3) = 122$

Option D: Others $(1 \times 4 + 1 \times 3) = 7$

Option C is the clear choice. It would be stupid to merely add the percentages alone. A percentage is after all so much out of the whole. If you are comparing percentages of the same whole, you can tell which is higher. But comparing differing percentages of two different wholes is logical only when you take their absolute values. For Example 9% of 200 (we shall call 200 as A) is far higher than 36% of 40 (we shall call 40 as B) and rushing to the conclusion that 36% of B is higher than 9% of A would be stupid.

Assuming 40779 as 4 and 33979 as 3 would:

- (A) Save a lot of time.
- (B) Save a lot of effort..
- (C) Ensure that we are comparing equals on both sides, and
- (D) Ensure that you get the correct answer in a jiffy.

Example 1.B

In 1997-98 the amount of Indian exports, in millions US \$, to the region with which India had the lowest total trade, is approximately:

- (A) 750 (B) 340 (C) 220 (D) 440

Answer - (B)

Solution

Others occupy 1% of the pie in both imports and exports and is the area with the lowest total trade. Indian exports aggregate roughly 34000 million and 1% of this is two zeroes off from 34000 and would mean 340. Thus **Option B.**

Example 1.C

In 1997-98, the trade deficit with respect to India, in billions of US \$, for the region with the highest trade deficit with respect to India, is approximately equal to:

- (A) 6.0 (B) 3.0 (C) 4.5 (D) 7.5

Answer - (A)

Solution:

Let us assume that total imports are 100I and total exports are 100E. In case of one region - Region 1 - the imports are A% and exports are B% and in region 2 imports are C% and exports are D%. Trade deficit in Region 1 is $(AI - BE)$ and in Region 2 it is $(CI - DE)$.

If Trade deficit in Region 1 is higher than in Region 2, then $(AI-BE)-(CI-DE)$ should yield a positive difference and this means that $(AI-BE) > (CI-DE)$. If you subtract CI to both sides and add BE to both sides, you would get:

$$(AI-CI) > (BE-DE) \text{ or } I(A-C) > E(B-D)$$

We know that I is greater than E in any case.

If $(A-C)$ is greater than $(B-D)$ the matter is clinched because then $I(A-C)$ is indeed $> E(B-D)$ and thus Trade deficit in Region 1 $>$ Trade deficit in Region 2.'

After all, $(A-C)$ is some number and $(B-D)$ is some other number. So $(A-C)\%$ of a higher base is bound to be higher than $(B-D)\%$ of a lower base so long as $(A-C) > (B-D)$. This is utter logic. This logic is what is at test here.

In the present case, in all regions except OPEC and other East Europe, exports percentages are either more than or equal to imports percentages. We have to thus compare only OPEC and other East Europe and see whether $(\text{Difference in percentages of imports}) > (\text{Difference in percentages of exports})$.

In the case of OPEC and other East Europe $(\text{Difference in percentages of imports}) = (23-19)$ and $(\text{Difference in percentages of exports}) = (10-10)$ and hence $(\text{Difference in percentages of imports}) > (\text{Difference in percentages of exports})$ and thus trade deficit in OPEC is highest.

The trade deficit in this case works out to $(0.23 * 41 - 0.1 * 34) = 9.2 - 3.4 = 5.8$ roughly.

Thus **Option A**: 6 billion.

Example 1.D

What is the region with the lowest trade deficit with India in 1997 - 98?

(A) USA (B) Asia (C) Others (D) Other E.U.

Answer - (A)

Solution:

The lowest trade deficit can also mean a negative trade deficit or trade surplus. In case of the earlier question we have seen that Other EU has the second highest trade deficit and thus it is not a likely candidate for the least trade deficit. Hence we cross out Option D.

In USA and Asia we have trade surplus. In case of others there is a deficit. When we have trade surpluses, then we are to ignore trade deficits because a trade surplus is a negative trade deficit. So Option C is to be crossed out as well. We are now left with Options 1 and 2.

As we have seen in the earlier question, if (Difference in percentages of imports) is greater than (Difference in percentages of exports) than Trade deficit in Region 1 > Trade deficit in Region 2. Now if we are to compare USA with Asia,

(Difference in percentages of imports) = $(9-14) = -5 = (9-14) = -5$ and

(Difference in percentages of exports) = $(19-20) = -1 = (19-20) = -1$.

Since -5 is not higher than -1, the trade deficit in USA is lower than the trade deficit in the case of Asia and hence **Option A**.

ADDITIONAL DIRECTIONS for Examples 1.E and 1.F: Those questions are based on the situation below:

Assume that the average monthly exports from India and imports to India during the remaining four months of 1998-99 would be the same as that for the first eight months of the year.

Example 1.E

What is the region to which Indian imports registered the highest percentage growth between 1997-98 and 1998-99?

(A) Other East Europe (B) USA (C) Asia (D) Exports have declined, no growth

Answer - **(B)**

Solution:

Look at the pie chart for exports in 1997-98, which is for a full year and for 1998 99, which is for eight months only.

As per the additional information, we are to assume that the average monthly exports from India and imports to India during the remaining four months of 1998-99 would be the same as that for the first eight months of the year.

If for eight months, the total exports have been 21436 million, the remaining four months (which is half of eight months) would have brought about an additional export equal to half of 21436 million, which is 10718 and the total exports would then have been 32154 million.

Since we are to state a comparative position - growth rate in exports in 1997-98 and exports in 1998-99, we can safely ignore the millions.

11% of 100 is less than 9% of 200 and so also 11% of 100 Billion is less than 9% of 200 Billion. What is the need for these millions while stating which is greater?

Secondly, if you are to compare between growth in exports over base year then you must appreciate that exports in 1998-99 = exports in 1997-98 + growth in between/exports in 1997-98 = 1 + growth in between/exports in 1997-98 and thus when you compare the exports of two different regions, you can safely take the exports in the next year as a fraction of the base year instead of finding the difference between the exports in an year and the exports in the base year because when you compare the exports figures of Region 1 with that of Region 2 instead of incremental exports, you will get 1 on both sides of the comparison like this:

[1 + growth in between of exports in Region 1/exports in 1997-98] compared with [1 + growth in between of exports in Region 2/exports in 1997-98], and if you strike off the 1 on both sides what you are really comparing is:

[Growth in between of exports in Region 1/exports in 1997-98] with [Growth in between of exports in Region 2/exports in 1997-98] which is what you want.

Let us see the options.

Option A:

Other East Europe. 10% of 33979 has grown to 12% of 32154. Let 1% of 33979 be A and 1% of 32154 be B. So in the case of Other East Europe, exports in 1998-99/exports in 1997-98 = $12B/10A$.

Option B:

USA, 19% of 33979 has grown to 23% of 32154. Let 1% of 33979 be A and 1% of 32154 be B. So in the case of USA, exports in 1998-99/exports in 1997-98 = $23B/19A$.

Option C:

Asia, 20% of 33979 has grown to 19% of 32154. Let 1% of 33979 be A and 1% of 32154 be B. So in the case of Asia, exports in 1998-99/exports in 1997-98 = $18B/20A$.

Now what we are required to do is to compare among $12B/10A$, $23B/19A$ and $18B/20A$ and say which is largest. In that case, neither B nor A in the numerator and denominator respectively are necessary because if you multiply all three fractions by A/B then you get $12/10$, $23/19$ and $18/20$ and yet the relative values of the three fractions will remain unchanged.

If you were to multiply three fractions - say - $1/2$, $2/3$, and $3/4$ by one million in the numerator and five million in the denominator, will it alter the fact that $3/4$ (as it will seem after all the multiplications) will remain the largest and $1/2$ the smallest of these three fractions? See for yourself. The three fractions will respectively seem like this: 1 million/10 million, 2 million/15 million and 3 million/20 million and yet the last will be the highest and the first will be the lowest.

So what you are then comparing is $12/10$, $23/19$ and $18/20$ in which $18/20$ will have to be booted out since it is less than 1 and then we are left with $12/10$ and $23/19$. If we divide 12 by 10, we get 1.2.

If we divide $23/19$ we get 1.2 till the first decimal and have to carry on to the next decimal and hence we get 1.21. We stop here and declare that USA has highest growth among the three options and thus **Option B** is correct.

But there is a small googly here. Option D says that exports have declined or there has been no growth in any region. This has to be checked. We know that the highest percentage growth is in the case of USA. But percentage growth is about relative growth whereas the Option D talks about absolute growth. Whether there has been no growth or decline in absolute terms can be ascertained from only absolute figures.

Now see the utter logic in this. If this logic goes home, you will be saved a huge lot of calculations. Logic is the name of the game and even if it takes some time for this simple logic to register, it is recommended that you should absorb the fundamentals.

Since we know that in case of USA the percentage growth rate has been highest, we may just see whether there has been actual growth in this case (we shall choose the highest percentage growth rate to check because if there has not been absolute growth where the percentage growth is highest, then in cases of lower percentage growth, the likelihood of an absolute growth is zero).

In case of USA, export percentage grew from 19% of 33979 million to 23% of 32154 million. For determining whether there was growth, the millions are unnecessary once again. They would be needed if you were asked how much was the growth.

But even then, if the answer is to be given in millions, the millions become redundant once again. Give these millions a well-earned rest. Round off 33979 to 34 (forget the thousands as well) and round off 32154 to 32 (forget the thousands here as well) and see whether 19% of 34 is less than 23% of 32. You will find that so exports have indeed grown in the case of USA at least and hence Option D (which if true would mean that there has not been any growth in exports in any region) does not hold water.

So **Option B**.

Example 1.F

What is the percentage growth rate in India's total trade deficit between 1997-98 and 1998-99?

(A) 43% (B) 47% (C) 50% (D) 40%

Answer - (B)

Solution:

India's trade deficit in 1997-98 in USD billions is:

$$40.7 - 33.9 = 6.8$$

In 1998-99, it

$$\text{is } (28.1 * 1.5) - (21.4 * 1.5) = 42.15 - 32.1 = 10.05$$

The trade deficit has gone up from 6.8 billion USD by 3.25 billion USD to 10.05.

This increase of 3.25 as a percentage of 6.8 is:

$$3.25 * 100 / 6.8 = 47.79$$

$$= 47.79 \approx 48$$

Now $34 * 50 = 1700$, $34 * 50 = 1700$. 1625 is 75 less than 1700.

So $1625 / 34 = 47.79$.

But 47.79 is more than 47 and thus 47.79 is likely to be more than 47 and less than 48.

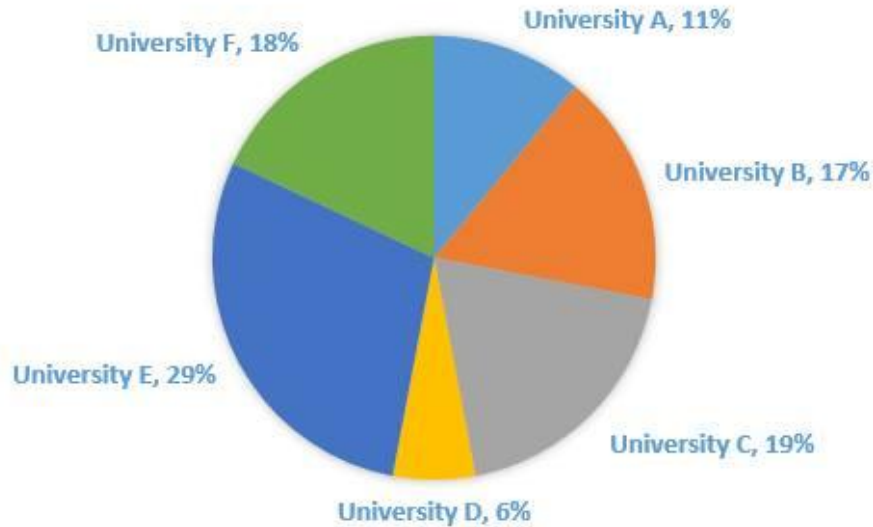
From among the options 47% seems to be the answer. So **Option B: 47%**.

Directions: Study the following pie chart and answer the questions that follows:

Total Number of Teachers = 6400

(Uttar Bihar Gramin Bank 2012)

PERCENTWISE DISTRIBUTION OF TEACHERS IN SIX DIFFERENT UNIVERSITIES



Question 1: If one-thirty sixth of the number of teachers from university F is professors and the salary of each professor is Rs 96000, what will be the total salary of all the professors together from university F?

- [1] Rs 307.2 lakh
- [2] 32.64 lakh
- [3] Rs 3.072 lakh
- [4] 3.264 lakh
- [5] None of these

Number of teachers from university F = 18% of 6400 = 1152

$\frac{1}{36}$ of 1152 = 32

Total salary = $32 \times 96000 = 3072000 = 30.72$ lakh. Answer [5] is correct. (Note the tricky options [1] and [2])

Question 2: Difference between the total number of teachers in university A, B and C together and the total number of teachers in university D, E and F together is exactly equal to the number of teachers in which university?

- [1] A
- [2] B
- [3] C
- [4] D
- [5] F

(You don't even have to calculate the number of teachers. Just presence of mind is needed.)

Number of teachers in university A, B and C = $11+17+19 = 47\%$

Number of teachers in university D, E and F = $6+29+18 = 53\%$

Difference = $6\% =$ University D. Answer [4] is correct.

Question 3: What is the average of teachers in university A, C, D and F together?

[1] 854

[2] 3546

[3] 3456

[4] 874

[5] None of these

Again, solving it quickly.

$11+19+6+18 = 54\%$. Average = $54/4\% = [54/400]*6400 = 54*16 = 864$. Answer [5] is correct.

Question 4: If twenty five percent of the number of teachers in university C is female, what is the number of male teachers in university C?

[1] 922

[2] 911

[3] 924

[4] 912

[5] None of these

Number of teachers in university C = 19% of $6400 = 19*64 = 1216$

25% of this is female. Hence remaining 75% is male.

Number of male teachers = 75% of $1216 = [3/4]*1216 = 912$. Option [4] is correct.

Question 5: Number of teachers in university B is approximately what percent of the total number of teachers in university D and E together?

[1] 55%

[2] 59%

[3] 49%

[4] 45%

[5] 65%

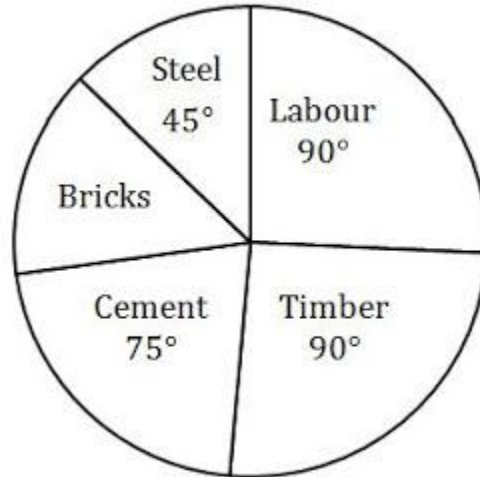
Just solve the percentages.

University B = 17% . University D+E = $6+29 = 35\%$

Required percentage = $[17/35]*100 =$ approx. 49% . Answer is [3]

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Directions (Q.1-5): The following pie chart represents a total expenditure of Rs. 420000 on different items in constructing a flat in a town. Study the pie chart and answer the questions.



1. The expenditure (in Rs.) on bricks is

- (1) 75000
- (2) 67500
- (3) 150000
- (4) 70000
- (5) None of these

1. (4) Angle made by the expenditure on bricks

$$\begin{aligned} &= 360^\circ - (45^\circ + 90^\circ + 90^\circ + 75^\circ) \\ &= 360^\circ - 300^\circ = 60^\circ \\ \text{Thus, expenditure on bricks} \\ &= \frac{60^\circ}{360^\circ} \times 420000 = \text{Rs. } 70000 \end{aligned}$$

2. The expenditure on bricks is less than the expenditure on timber (in Rs.) by

- (1) 10000
- (2) 12500
- (3) 35000
- (4) 65000
- (5) None of these

2. (3) Required value

$$\frac{(90^\circ - 60^\circ)}{360^\circ} \times 420000 = \text{Rs. } 35000$$

3. The percentage of the total expenditure spent on steel and cement is

- (1) 33.23%
 (2) 25%
 (3) $33\frac{1}{3}\%$
 (4) 30%
 (5) None of these



3. (3) Expenditure on steel and cement
 $= 75^\circ + 45^\circ = 120^\circ$
 \therefore Required percentage
 $= \frac{120^\circ}{360^\circ} \times 100\% = \frac{100}{3}\% = 33\frac{1}{3}\%$

4. Which is the item of maximum expenditure?

- (1) Cement
 (2) Steel
 (3) Timber
 (4) Labour and Timber both
 (5) None of these



4. (4) From the given pie chart, it is clear that 'Labour' and 'Timber' has maximum expenditure.

5. The expenditure (in Rs.) on cement is

- (1) 75000
 (2) 90000
 (3) 135000
 (4) 87500
 (5) None of these

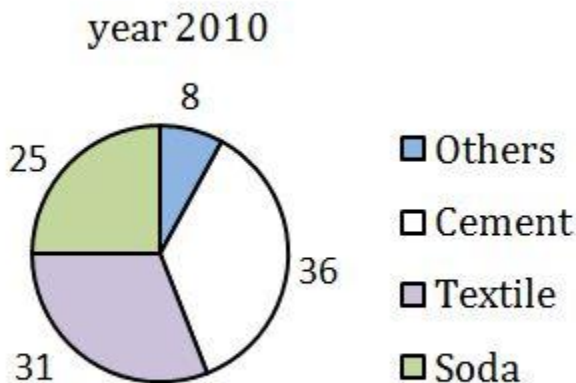
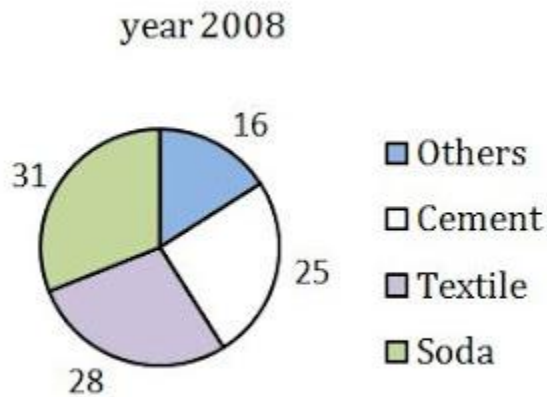


5. (4) Expenditure on cement

$$= \frac{75^\circ}{360^\circ} \times 420000 = \text{Rs. } 87500$$

Directions for 6 to 10: The percentage of revenue that come from the four different product segments for a diversified manufacturing company are shown in the following pie-chart

Figures pertaining to the year 2008 and 2010 are given on the right hand side. The total sales in the year 2008 were Rs. 120 crores. It was Rs. 195 crores in 2010.



6. Which product segment has registered the maximum percentage growth in revenue during the two year period?

- (1) Textile
- (2) Cement
- (3) Soda
- (4) Others
- (5) Cannot be determined

6. (2) Visual question Cement has increased from 25% to 36% which is the maximum even if we don't take the increase in sales into account.

7. Which of the following statements is correct about the company?

- (1) The company is putting less focus on the 'other' segment.

- (2) Cement segment has registered more percentage growth than the textile segment.
 (3) The soda segment has registered a 7% growth per annum during the above two year period.
 (4) Both (2) and (3)
 (5) None of these

7. (4) Checking statement (2) is clearly true as cement increases from 25% to 36% Growth in Soda

$$\begin{aligned} & \text{segment.} \\ & = \frac{\frac{25}{100} \times 195 - \frac{31}{100} \times 120}{\frac{31}{100} \times 120} \times 100 = 31\% \text{ for 2 years} \\ & = 15.5\% \text{ per annum} \end{aligned}$$

8. What is the annualized percentage growth in revenue for the 'Others' segment?

- (1) -9.86%
 (2) -9.37%
 (3) 12.34%
 (4) -18.75%
 (5) None of these

8. (2) Revenue of others in 2008

$$\frac{16}{100} \times 120 = 19.2$$

Revenue of others in 2010

$$= \frac{8}{100} \times 195 = 15.6$$

$$\text{Percent Growth} = \frac{15.6 - 19.2}{19.2} \times 100 = -18.75\%$$

$$\text{Annual percentage growth} = \frac{-18.75}{2} = -9.375\%$$

9. If the textile segment continues the current trend in growth rate, then how much sales will company generate from textile segment in the year 2012? Choose the answer that is closest to the correct answer.

- (1) Rs. 139 Crores
 (2) Rs. 126 Crores
 (3) Rs. 146 Crores
 (4) Rs. 109 Crores
 (5) None of these

9. (4) Growth in Textile from 2008 to 2010

$$= \frac{\frac{31}{100} \times 195 - \frac{28}{100} \times 120}{\frac{28}{100} \times 120} \times 100 = 80\% \text{ For 2 years}$$

$$\text{Revenue in 2010} = \frac{31}{100} \times 195 = 60.45$$

$$\therefore \text{Revenue in 2012} = 60.45 \left(1 + \frac{80}{100}\right) = 108.81$$

$$= 109 \text{ crore.}$$

10. What is the annualized percentage growth of revenue that the cement segment has registered for the company?

- (1) 134%
 (2) 34%
 (3) 52.9%
 (4) 67%
 (5) None of these



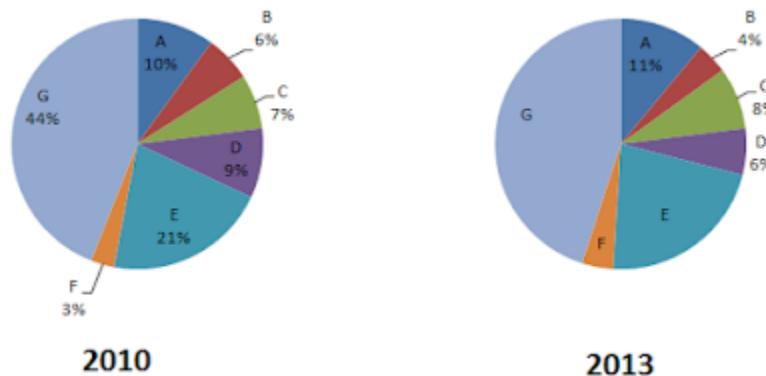
10. (4) Percent growth in cement from 2008 to 2010

$$= \frac{\frac{36}{100} \times 195 - \frac{25}{100} \times 120}{\frac{25}{100} \times 120} \times 100 = 134\% \text{ for 2 years}$$

So, 67% per annum.

Directions (6 – 10): Study the following pie chart and answer the following questions.

Percentage distribution of Income of 7 firms in year 2010 and 2013 is given below in pie chart. Percentage distribution of some firms is not given. You have to calculate these values if required to answer the questions.



Note: Ratio of total Income of all 7 firms in 2010 to 2013 is 5 : 7.

Q6. If expenditure of B in 2010 is 80% of its income and expenditure of E in 2013 is 60% of its income and income of E in 2013 is 100/3% more than the income of E in 2010 then saving of B in 2010 is what percent of saving of E in 2013.

- (a) 75/7%
 (b) 38/9%
 (c) 100/3%
 (d) 50/3%
 (e) None of these

Q7. If difference between the total income of all firms in 2010 and total income of all firms in 2013 is 'D', then what is the ratio of average income of firm A, B and E together in 2010 to the average of income of firm B, C and D together in 2013.

- (a) 203 : 201
- (b) 133 : 123
- (c) 185 : 126
- (d) 119 : 143
- (e) None of these

Q8. If income of firm E in 2013 is 400/7% of income of E in 2010 and ratio between percentage distribution of income of firm F and G is 11 : 8 in 2013 then what is the percentage distribution of income of firm F in 2013?

- (a) 45/23%
- (b) 133/7%
- (c) 253/7%
- (d) 255/103%
- (e) 253/133%

Q9. Income of firm A, B and E together in 2010 is what % more or less than income of firm C, D and E together if the income of firm E in 2013 is 50% more than income of firm A in 2010? (approximately)

- (a) 7%
- (b) 5%
- (c) 5.1%
- (d) 8%
- (e) 48%

Q10. If income of firm A and B together in 2013 is 120% of income of firm A and B together in 2012 then income of firm A and B together increase/decrease by what percent in 2012 with respect to 2010.

- (a) 30%
- (b) 23%
- (c) 20%
- (d) 9%
- (e) 12%

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S5. Ans.(b)

Sol.

$$\text{Required ratio} = \frac{\frac{36}{100} \times 2250 + \frac{70}{100} \times 1700}{\frac{40}{100} \times 1250} = \frac{2000}{500} = 4 : 1$$

S6. Ans.(a)

Sol.

Let total income in 2010 and 2013 is $5x$ and $7x$

$$\text{Saving of B in 2010} = \frac{20}{100} \times \frac{5x}{100} \times 6 = \frac{6x}{100}$$

$$\text{Income of E in 2013} = \frac{4}{3} \times \frac{5x}{100} \times 21 = \frac{7x}{5}$$

$$\text{Saving of E in 2013} = \frac{2}{5} \times \frac{7x}{5} = \frac{14x}{25}$$

$$\text{Required \%} = \frac{\frac{6x}{100} + \frac{14x}{25}}{\frac{7x}{5}} \times 100 = \frac{75}{7} \%$$

S7. Ans.(c)

Sol.

Given $7 - 5 \rightarrow D$

$$\therefore 1 \rightarrow \frac{D}{2}$$

$$\text{Total income of all firm in 2010} = \frac{5}{2} D$$

$$\text{Total income of all firm in 2013} = \frac{7}{2} D$$

$$\text{Average of income of firm A, B and E in 2010} = \frac{5D \times 37}{2 \times 100 \times 3}$$

$$\text{Average of income of firm B, C and D together in 2013} = \frac{7D \times 18}{2 \times 100 \times 3}$$

$$\text{Required ratio} = 185 : 126$$

S8. Ans.(c)

Sol.

$$\text{Income of firm E in 2013} = \frac{4}{7} \times \frac{5x}{100} \times 21 = \frac{3x}{5}$$

$$\% \text{ income of E in 2013} = \frac{3x}{7x} \times 100 = \frac{60}{7} \%$$

$$\% \text{ income of firm F and G together} = \left[100 - \left(11 + 4 + 8 + 6 + \frac{60}{7} \right) \right] = \frac{437}{7} \%$$

$$\% \text{ income of firm F in 2013} = \frac{437}{7} \times \frac{11}{19}$$

$$= \frac{253}{7} \%$$

S9. Ans. (a)

Sol.

$$\text{Income of A, B and E together in 2010} = 37 \times \frac{5x}{100} = \frac{185}{100}x$$

$$\text{Income of E in 2013} = \frac{3}{2} \times \frac{5x}{100} \times 10$$

$$= \frac{3}{4}x$$

$$\text{Income of C, D and E together in 2013} = \frac{7x}{100} \times 14 + \frac{3}{4}x$$

$$= \frac{173}{100}x$$

$$\text{Required \%} = \left(\frac{\frac{185}{100}x - \frac{173}{100}x}{\frac{173}{100}x} \right) \times 100$$

$$= \frac{12}{173} \times 100$$

 $\approx 7\%$

S10. Ans. (d)

Sol.

$$\text{Income of firm A and B in 2013} = \frac{7x}{100} \times 15$$

$$= \frac{105}{100}x$$

$$\text{Income of firm A and B in 2012} = \frac{105}{100} \times \frac{100}{120}x$$

$$= \frac{7x}{8}$$

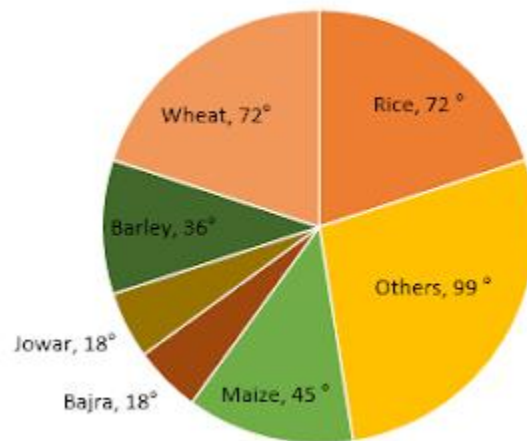
$$\text{Income of firm A and B in 2010} = \frac{5x}{100} \times 14$$

$$= \frac{70}{100}x$$

$$= \frac{7}{10}x$$

$$\text{Required \%} = \frac{\frac{7}{10}x - \frac{7}{10}x}{\frac{7}{10}x} \times 100 = 25\% \text{ increase}$$

Directions (11-15): The pie-chart provided below gives the distribution of land (in a village) under various food crops. Study the pie-chart carefully and answer the questions that follow:



Q11. If the total area under bajra was three hundred acres, then the total area (in hundred acres) under rice and barely together is:

- (a) 18
- (b) 12
- (c) 15
- (d) 20
- (e) None of these

S11. Ans.(a)

Sol. Corresponding angle for rice and barley

$$= 72^\circ + 36^\circ = 108^\circ$$

$$\therefore 18^\circ = 300 \text{ acres}$$

$$\therefore 108^\circ = \frac{300}{18} \times 108 = 1800 \text{ acres}$$

Q12. The combination of three crops which contribute to more than 50% of the total area under the food crops is:

- (a) Wheat, rice and maize
- (b) Wheat, rice and jowar
- (c) Wheat, rice and bajra
- (d) Rice, barley and maize
- (e) None of these

S12. Ans.(a)

Sol. $\therefore 100\% = 360^\circ$

$$\therefore 50\% = 180^\circ$$

$$\therefore \text{Wheat} + \text{rice} + \text{maize} = 72^\circ + 72^\circ + 45^\circ = 189^\circ > 180^\circ$$

Q13. The ratio of the land used for rice and barley is:

- (a) 3 : 1
- (b) 1 : 2
- (c) 2 : 1
- (d) 3 : 2
- (e) None of these

S13. Ans.(c)

Sol. Required ratio = $72^\circ : 36^\circ = 2 : 1$

Q14. If 10% of the land reserved for rice be distributed to wheat and barley in the ratio 2 : 1, then the angle corresponding to wheat in the new pie-chart will be:

- (a) 38.4°
- (b) 76.8°
- (c) 75.6°
- (d) 45.5°

(e) None of these

S14. Ans.(b)

Sol. 10% of $72^\circ = 7.2^\circ$

\therefore Increase in the corresponding angle of wheat

$$= \frac{2}{3} \times 7.2 = 4.8^\circ$$

\therefore New corresponding angle for wheat = $72^\circ + 4.8^\circ = 76.8^\circ$

Q15. If the production of rice is 5 times that of jowar and the production of jowar is 2 times that of bajra, then the ratio between the yield per acre of rice and bajra is:

(a) 5 : 2

(b) 3 : 1

(c) 4 : 1

(d) 6 : 1

(e) None of these

S15. Ans.(a)

Sol. Let, the production of bajra be x tones.

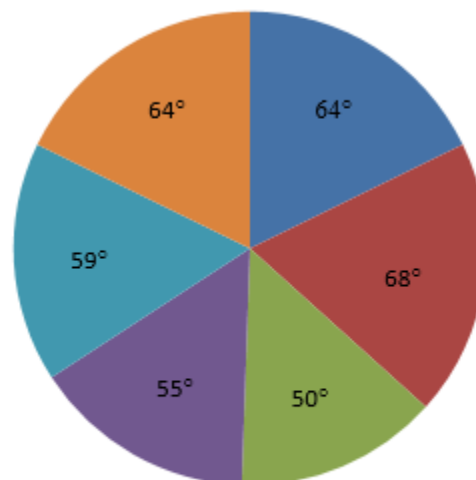
\therefore Production of rice = 10x tones

$$\Rightarrow \text{required ratio} = \frac{10x}{72} : \frac{x}{18} = 5 : 2$$

Direction (1-5): Study the following pie-chart carefully & answer the questions given below:

Pie-chart shows the marks obtained by a student in different subjects in an examination. (In degree)

Total marks obtained in examination were = 648



■ Sanskrit ■ Maths ■ Hindi ■ English ■ Science ■ Computer

Q1. The Marks obtained in maths is what percent of total marks?

- (a) 18.20
- (b) 18.89
- (c) 19.25
- (d) 18.50
- (e) 19.50

Q2. What is the percentage difference between marks obtained in English and computer?

- (a) 3.5%
- (b) 2%
- (c) 2.25%
- (d) 2.5%
- (e) 3.3%

Q3. What is ratio between marks obtained in Science and Sanskrit together to the marks obtained in English and hindi together?

- (a) 41 : 35
- (b) 35 : 41
- (c) 36 : 37
- (d) 42 : 37
- (e) 37 : 42

Q4. What is average marks obtained in Maths, English and Computer together?

- (a) 110.50
- (b) 110
- (c) 112.20
- (d) 112
- (e) 112.50

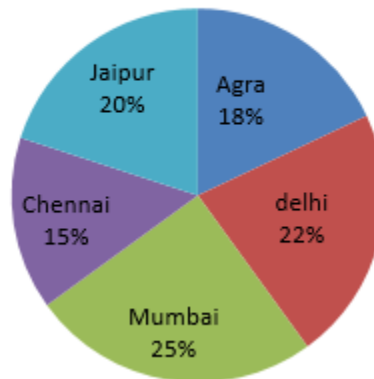
Q5. The marks scored in Hindi and Science together exceeds the marks scored in Maths by

- (a) 73.50
- (b) 74.50
- (c) 74
- (d) 73.80
- (e) 73

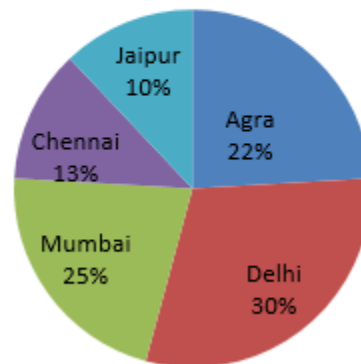
Directions (Q. 6-10): Study the following pie-chart carefully to answer these questions:

Total visitors to different places are 6500, out of which 40% are females. Percentage-wise distribution of visitors who visited 5 different places

Total visitors



Female visitors



Q6. What percentage of male visitors went Delhi?

- (a) $16\frac{2}{3}\%$
- (b) $14\frac{2}{3}\%$
- (c) $16\frac{1}{3}\%$
- (d) $12\frac{3}{4}\%$
- (e) $15\frac{3}{4}\%$

Q7. What is difference between no. of visitors, who went Chennai and Mumbai together and no. of female visitors who went Jaipur and Agra together?

- (a) 1900
- (b) 1850
- (c) 1768
- (d) 1838
- (e) 1958

Q8. What is ratio of no. of female visitor to no. of male visitors, who went Jaipur?

- (a) 5 : 1
- (b) 1 : 3
- (c) 4 : 1
- (d) 1 : 4
- (e) 1 : 5

Q9. Total male visitors who went Chennai and Agra together are what percent of total male visitors?

- (a) 32
- (b) 31.67
- (c) 31.50
- (d) 32.67
- (e) 30.65

Q10. What is the average of male visitors who went Chennai, Agra and Mumbai?

- (a) 736
- (b) 1100
- (c) 1295
- (d) 1130
- (e) 1095

Solution

S1. Ans.(b)

$$\text{Sol. Required answer} = \frac{68}{360} \times 100 = 18.89\%$$

S2. Ans.(d)

$$\text{Sol. Difference} = \frac{64-55}{360} \times 100 = 2.5\%$$

S3. Ans.(a)

$$\begin{aligned} \text{Sol. Required ratio} &= \left(\frac{648 \times (59+64)}{360} \right) : 648 \times \frac{(50+55)}{360} \\ &= 123 : 105 = 41 : 35 \end{aligned}$$

S4. Ans.(c)

$$\begin{aligned} \text{Sol. Required average marks} &= \frac{648 \times (68+55+64)}{\frac{360}{3}} \\ \Rightarrow \frac{648 \times 187}{360 \times 3} &= 112.20 \end{aligned}$$

S5. Ans.(d)

Sol. Marks scored in hindi and science

$$= \frac{648 \times (50+59)}{360} = \frac{648 \times 109}{360}$$

$$= 196.20$$

$$\text{Marks scored in maths} = \frac{648 \times 68}{360} = 122.40$$

$$\text{Required answer} = 196.20 - 122.40$$

$$= 73.80$$

S6. Ans.(a)

$$\text{Sol. Total male visitors} = 6500 \times \frac{60}{100} = 3900$$

$$\text{Total visitors, who went Delhi} = 6500 \times \frac{22}{100} = 1430$$

$$\text{Total female, who went Delhi} = 2600 \times \frac{30}{100} = 780$$

$$\text{Total male visitors who went Delhi} = 1430 - 780 = 650$$

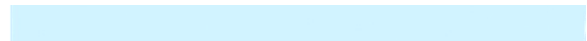
$$\text{Required percentage} = \frac{650 \times 100}{3900} = 16\frac{2}{3}\%$$

S7. Ans.(c)

$$\text{Sol. Difference} = \frac{6500(15+25)}{100} - \frac{2600(10+22)}{100}$$

$$= 65 \times 40 - 26 \times 32$$

$$= 1768$$



S8. Ans.(d)

Sol. No. of female visitors, who went Jaipur

$$= 6500 \times \frac{40}{100} \times \frac{10}{100} = 260$$

$$\text{No. of male visitors} = 6500 \times \frac{20}{100} - 260$$

$$= 1040$$

$$\text{Ratio} = 260 : 1040 = 1 : 4$$

S9. Ans.(b)

Sol. Total visitors, who went Chennai & Agra

$$= \frac{6500(15+18)}{100} = 2145$$

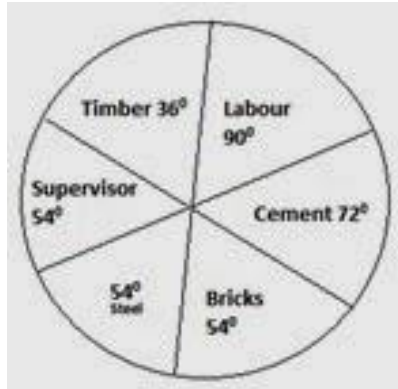
Total male visitors, who went Chennai & Agra

$$= 2145 - \left(6500 \times \frac{40}{100} \times \frac{35}{100} \right)$$

$$= 2145 - 910 = 1235$$

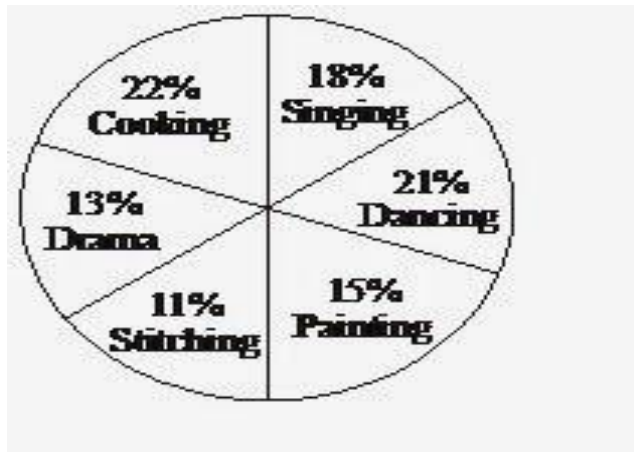
$$\text{Required \%} = \frac{1235 \times 100}{3900} = 31.67\%$$

Directions (1-4): The pie-graph given below shows the breakup of the cost of construction of a house. If the total cost of construction is ₹15, 00,000, answers the questions given below:



- The amount spent on labour is:
 (A) 90,000 (B) 2, 50,000
 (C) 3,60,000 (D) 3,75,000
- The amount spent on bricks, steel and cement is what percentage of the total cost of construction?
 (A) 50% (B) 54%
 (C) 72% (D) 75%
- The amount spent on timber is what percent of the amount spent on cement?
 (A) 36% (B) 50%
 (C) 72% (D) 18%
- Out of total cost of construction what amount has been spent on labour and supervision?
 (A) 1, 44,000 (B) 3, 00,000
 (C) 6, 00,000 (D) 7,50,000

Directions (5-8): The pie-chart given below shows the percentage of 3600 students enrolled in different hobby classes in a school. Study it carefully and answer the questions that follow:



5. What is the total number of students enrolled in stitching and Drama classes together?
(A) 684 (B) 846
(C) 648 (D) 864
6. How many students are enrolled in painting classes?
(A) 550 (B) 540
(C) 450 (D) 520
7. Number of students enrolled in painting classes are approximately what percent of those enrolled in singing classes?
(A) 83% (B) 92%
(C) 78% (D) 66%
8. What is the ratio of number of students enrolled in singing and Dancing classes together to those enrolled in Drama classes respectively?
(A) 3 : 5 (B) 4 : 7
(C) 3 : 1 (D) None of these

Answers With Explanation :

1. (D)

$$\begin{aligned} \text{Amount spent on labour} \\ &= (90/360) \times 1500000 \\ &= 3,75,000 \end{aligned}$$

2. (A)

$$\begin{aligned} \text{Amount spent on bricks, steel and cement} \\ &= [(54+54+72)/360] \times 100 = 50\% \end{aligned}$$

3. (B)

$$\begin{aligned} \text{\% of amount spent on timber with respect to the amount spent on cement} \\ &= (36/72) \times 100 = 50\% \end{aligned}$$

4. (C)

$$\begin{aligned} \text{Amount spent on labour and supervision} \\ &= [(90+54)/360] \times 1500000 \\ &= 6,00,000 \end{aligned}$$

5. (D)

$$\begin{aligned} \text{Required number of students} \\ &= (13 + 11) \times 3600/100 = 864 \end{aligned}$$

6. (B)

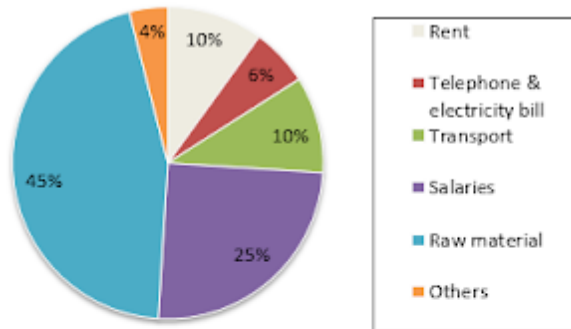
Required number of students
 = $15 \times \frac{3600}{100} = 540$

7. (A)
 $\frac{15}{18} \times 100 = 83.33 = 83\%$ (Approx.)

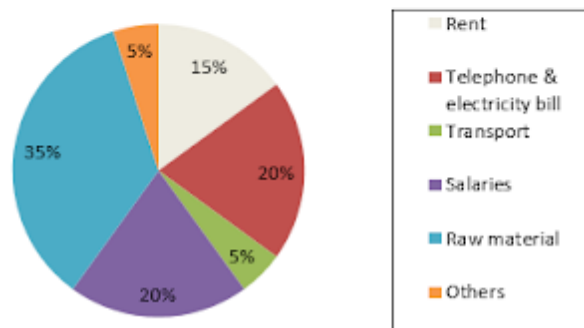
8. (C)
 Ratio = $\frac{18 + 21}{13} = \frac{39}{13} = 3 : 1$

Directions (1-5): Go through the data set given below and solve the questions based on it. The following pie charts show the break-up of the annual expenditures of two private sector companies:

Ram Tech(TOTAL EXPENDITURE IN 2008 = Rs 100000)



Pam Tech(TOTAL EXPENDITURE IN 2008 = Rs 80000)



Q1. The amount spent on transport by PamTech is what percentage of the amount spent by RamTech on transport?

- (a) 30%
- (b) 35%
- (c) 40%
- (d) 45%
- (e) None of these

S1. Ans.(c)

Sol. Amount spent by PamTech on transport = 5% of Rs. 80000 = Rs. 4000

Amount spent by RamTech on transport = 10% of Rs. 100000 = Rs. 10000

Hence, $(4000 \times 100)/10000 = 40\%$

Q2. The expenditure on raw material for both companies taken together, is what fraction of the total expenditure in 2008?

(a) 0.2

(b) 0.25

(c) 0.3

(d) 0.4

(e) None of these

S2. Ans.(d)

Sol. $(45 + 35)/ 200 = 0.4$

Q3. Both RamTech and PamTech spend the same amount on which category?

(a) Rent

(b) Transport

(c) Salaries

(d) Others

(e) None of these

S3. Ans.(d)

Sol. Others for both the companies = Rs. 4000

Q4. For which category the difference in expenditure is maximum?

(a) Telephone & Electricity Bill

(b) Transport

(c) Salaries

(d) Raw Material

(e) None of these

S4. Ans.(d)

Sol. For the category, raw material the difference is maximum

= $45000 - 28000 = \text{Rs. } 17000$.

Q5. The amount spent on salaries by PamTech is what percentage more than the amount spent by RamTech on rent?

(a) 50%

(b) 65%

(c) 60%

(d) 45%

(e) None of these

S5. Ans.(c)

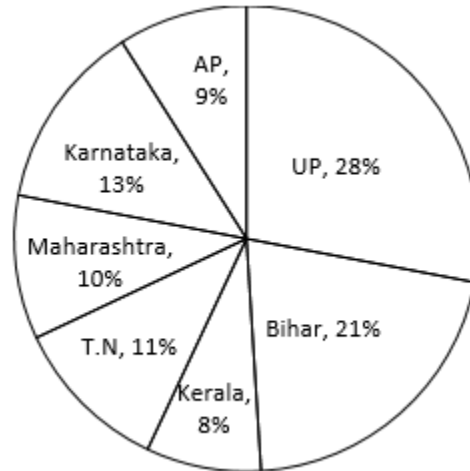
Sol. Amount spent by PamTech on salaries = 20% of Rs. 80000 = Rs. 16000

Amount spent by RamTech on rent = 10% of Rs. 100000 = Rs. 10000

Required % = $\frac{6000}{10000} \times 100 = 60\%$ More

Directions (6-10): Go through the data given below and solve the questions based on it.

The total population of the different states in 1993 is 25 lakhs.



States	Sex M – F
UP	4 : 3
Bihar	3 : 2
AP	4 : 3
Karnataka	4 : 5
Maharashtra	4 : 5
Tamil Nadu	3 : 4
Kerala	5 : 6

Q6. Approximately what will be the percentage of total male in UP, Maharashtra and Kerala of the total population of the given states?

- (a) 20%
- (b) 25%
- (c) 24%
- (d) 28%
- (e) 22%

S6. Ans.(c)

Sol. Total males in UP, Maharashtra and Kerala

$$= \left[\frac{4}{7} \times \frac{28}{100} + \frac{4}{9} \times \frac{10}{100} + \frac{5}{11} \times \frac{8}{100} \right] \frac{25}{100}$$

$$= \left[16 + \frac{40}{9} + \frac{40}{11} \right] \frac{1}{400} = 60000$$

$$\text{Required \%} = \frac{0.6 \times 100}{25} \approx 24 \%$$

Q7. If in the year 1994 there was an increase of 10% population of UP and 12% of Bihar compared to the previous year, then what was the ratio of the population of UP to Bihar in 1994?

- (a) 27/32
- (b) 31/42
- (c) 55/84
- (d) 23/42
- (e) None of these

S7. Ans.(e)

Sol. Required ratio = $\frac{110\% \text{ of } 28\% \text{ of } 25 \text{ lakh}}{112\% \text{ of } 21\% \text{ of } 25 \text{ lakh}}$

$$= \frac{110 \times 28}{112 \times 21} = \frac{55}{42}$$

Q8. Women of Andhra Pradesh is approximately what percentage of the women of Tamil Nadu?

- (a) 60%
- (b) 70%
- (c) 50%
- (d) 55%
- (e) None of these

S8. Ans.(a)

Sol. Required percentage = $\frac{\frac{3}{7} \text{ of } 9\% \text{ of } 25 \text{ lakh}}{\frac{4}{7} \text{ of } 11\% \text{ of } 25 \text{ lakh}}$

$$= \frac{3 \times 9}{4 \times 11} \times 100 \approx 60\%$$

Q9. What is the ratio of the number of females in Tamil Nadu to the number of females in Kerala?

- (a) 21/138
- (b) 242/43
- (c) 205/84
- (d) 121/84

(e) None of these

S9. Ans.(d)

$$\begin{aligned} \text{Sol. Required ratio} &= \frac{\frac{4}{7} \text{ of } 11\% \text{ of } 25 \text{ lakh}}{\frac{6}{11} \text{ of } 8\% \text{ of } 25 \text{ lakh}} \\ &= \frac{4 \times 11 \times 11}{7 \times 6 \times 8} = \frac{121}{84} \end{aligned}$$

Q10. In Tamil Nadu, if 70% of the females are literate and 75% of the males are literate, what is the approximate number of illiterate in the state?

- (a) 75000
 (b) 76500
 (c) 77500
 (d) 80000
 (e) 74500

S10. Ans.(b)

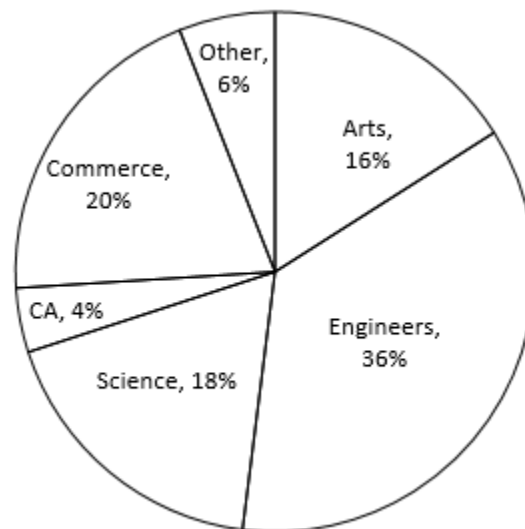
Sol. Total number of illiterate in Tamil Nadu

= (100 - 70) 30% of female + (100 - 75) 25% of males in the state.

$$\begin{aligned} &\left[\frac{30}{100} \times \frac{4}{7} + \frac{25}{100} \times \frac{3}{7} \right] \text{ of } 11\% \text{ of } 25 \text{ lakh} \\ &\frac{195}{700} \times \frac{11}{100} \times 2500000 \approx 76500 \end{aligned}$$

Directions (11-15): Go through the data given below and solve the questions based on it.

2,000 students secured admissions into the 2-year MBA programme beginning in 1997. Figure A given below provides the educational background of this batch of students. The same batch of students graduated in 1999 and had opted for different specializations as indicated in figure B given below. All the students who secured admission in 1997 passed out in 1999.



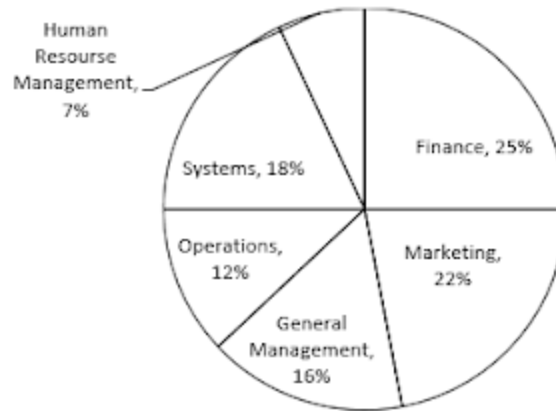


Figure A: When they entered in 1997

Figure B: When they left in 1999

Note: 20% of Engineers and 10% of (Science + Commerce) students were with some work experience before joining MBA programme. All others students were without work experience.

Q11. 40% of students with work experience specialized in Marketing. How many students with specialization in Marketing are without work experience?

- (a) 352
- (b) 396
- (c) 440
- (d) 88
- (e) None of these

S11. Ans.(a)

Sol. Students with work experience

$$= 36\% \times 20\% \times 2000 + 10\% [38\% \text{ of } 2000]$$

$$= 2000 \times [36\% \times 20\% + 38\% \times 10\%] = 220$$

Now marketing students with work experience = 40% of 220 = 88

So, total marketing students = 22% of 2000 = 440

So, Marketing students without work experience = 440 – 88 = 352

Q12. If 50% of engineers specialized in Systems, how many non-engineers specialized in Systems?

- (a) 360
- (b) 0
- (c) 100
- (d) 160
- (e) None of these

S12. Ans.(b)

Sol. Number of students specializing systems = 360

Number of engineers specializing systems = $36/100 \times 50/100 \times 2000 = 360$

So, number of non-engineers specializing systems = 0

Alternatively, this question can be done by seeing only the percentage values too.

Q13. What is the difference between the number of students specializing in Finance in 1999 and the number students who had CA or Commerce background?

- (a) 500
- (b) 480
- (c) 20
- (d) 40
- (e) None of these

S13. Ans.(c)

Sol. Number of students specializing in finance = 25% of 2000 = 500

Total number of CA or commerce students

= (20 + 4) % of 2000 = 480

Difference = 500 – 480

= 20

Q14. 24% of students of graduating class in 1998 specialized in finance. Find the % increase in the number of students specializing in finance from 1998 to 1999.

- (a) 1%
- (b) 100/24%
- (c) 3%
- (d) Cannot be determined
- (e) None of these

S14. Ans.(d)

Sol. Since total number of students doing graduation in 1998 is not known, this question cannot be answered.

Q15. 30% of Engineers and 40% of Commerce students specialized in Finance. The remaining students who specialized in finance were Science graduates. What percentage of Science graduates opted for finance?

- (a) 24.66%
- (b) 34.44%
- (c) 38.68%
- (d) Cannot be determined
- (e) None of these

S15. Ans.(b)

Sol. Number of engineers who specialized in finance = $30\% \times 36\% \times 2000 = 216$

Number of commerce students who specialized in finance = $40\% \times 20\% \times 2000 = 160$

So, number of Science graduates specializing in finance = (25% of 2000) – 216 – 160 = 124

∴ % of Science students specializing in finance

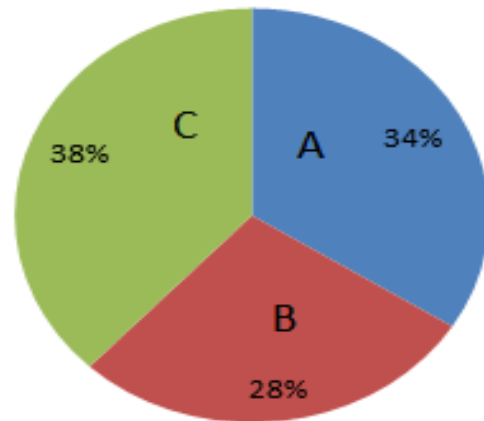
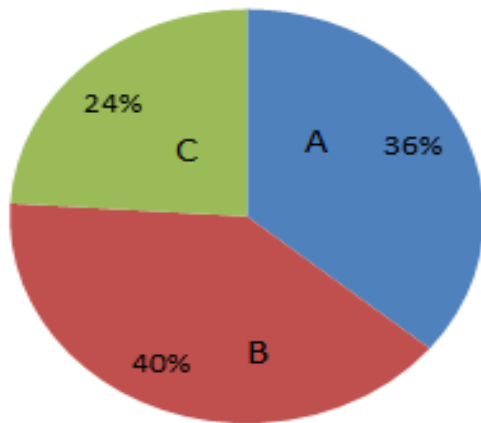
$$= \frac{124}{18\% \text{ of } 2000} \times 100 = 34.44\%$$

Directions (6 – 10): Study the following pie-charts carefully and answer the questions that follow:

The pie charts show the percentage wise distribution of employees in 3 departments – A, B, C of a company in 2 different cities – P, Q. There are 4 departments in each city, but the data given is of 3 departments.

Total employees in city P = 3500

Total employees in city Q = 4200



6. In which of the 3 departments given, total number of employees is greater in both cities?
- A) A
B) B
C) C
D) Both A and B
E) Both A and C

Answer

Option A

Solution:

In A = 36% of 3500 + 34% of 4200 = 2688

In B = 40% of 3500 + 28% of 4200 = 2576

In C = 24% of 3500 + 38% of 4200 = 2436

7. If a 4th department is also included, the percentage of employees in department B in city P will become 50% of the total employees in city P. What is the number of employees in the

4th department in city P?

- A) 1200
- B) 1300
- C) 1500
- D) 1400
- E) None of these

Answer

Option D

Solution:

Let number of employees in 4th Dept. = x

In dept. B employees are = $40/100 * 3500 = 1400$

So

$$1400/(1400+x) * 100 = 50$$

Solve, $x = 1400$

8. If the number of employees in 4th department is 124 more in city P than number of employees in department C in city Q, then number of employees in 4th department in city P makes what percent of total employees in city P?
- A) 25.23%
 - B) 28.56%
 - C) 35.38%
 - D) 30.84%
 - E) 32.95%

Answer

Option E

Solution:

Number of employees in department C in city Q = $38/100 * 4200 = 1596$

So, number of employees in 4th department in city P = $1596 + 124 = 1720$

So total employees in city P becomes $1720+3500 = 5220$

So required % = $1720/5220 * 100 = 32.95\%$

9. Total number of employees in departments B and C together in city P makes what percent of the total employees in departments B and C together in both cities?
- A) 41.32%
 - B) 45.98%
 - C) 44.69%
 - D) 46.33%
 - E) 49.67%

Answer

Option C

Solution:

Take data from 1st questions

OR

Number of employees in departments B and C together in city P = 64% of 3500 = 2240

Number of employees in departments B and C together in city Q = 66% of 4200 = 2772

Required % = $2240 / (2240 + 2772) * 100 = 44.69\%$

10. Find the ratio between the number of employees in departments A and C together in city P and that in same departments together in city Q.
- A) 17 : 28
 - B) 21 : 29
 - C) 12 : 37
 - D) 24 : 35
 - E) 25 : 36

Answer

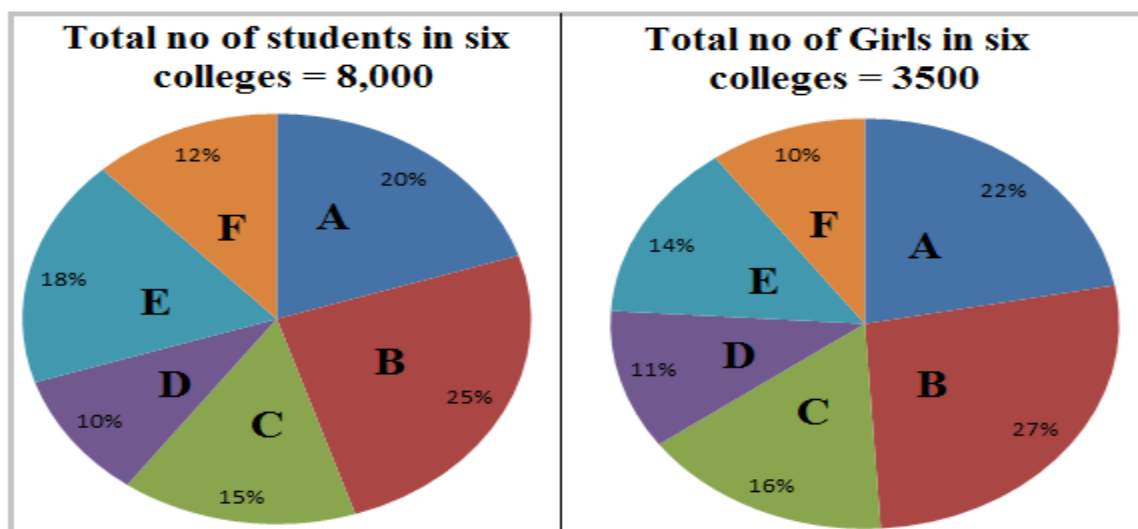
Option E

Solution:

Required ratio =

$60/100 * 3500 : 72/100 * 4200 = 25 : 36$

Directions (6-10): Study the following Pie chart carefully and answer the questions given below. The percentage –wise distribution of candidates (Boys and Girls) studying in six different colleges and the percentage –wise distribution of Girls in each college



6. What is the number of boys studying in college E?
A) 860
B) 950
C) 845
D) 780
E) None

Answer

Option B

Solution:

Total Students in college E 18% of 8000=1440

Girls in college E 14% of 3500 =490

Then no of boys =1440-490=950.

7. What is the ratio of the number of Boys in college B to that of girls in college C?
A) 193:154
B) 211:112
C) 112:211
D) 154:193
E) None

Answer

Option B

Solution:

Total Students in college B 25% of 8000=2000

Girls in college B 27% of 3500 =945

Then no of boys =2000-945=1055.

Girls in college C 16% of 3500 =560

Ratio 1055 : 560

211:112.

8. The number of Boys in college A is what percent of the total number of students studying in that college?
A) 51.8%
B) 65%
C) 62.25%
D) 68%
E) None

Answer

Option A**Solution:**

Total Students in college A 20% of 8000=1600

Girls in college A 22% of 3500 =770

Then no of boys =1600-770=830.

1600 100

830 ? ==> 51.8%

9. The number of girls studying in college D is what percent of the number of boys in college B?
- A) 35%
 - B) 32.5%
 - C) 28%
 - D) 36.5%
 - E) None

Answer**Option D****Solution:**

Girls in college D 11% of 3500 =385

Boys in college B we calculated in 7th ques =1055

1055 == 100

385 ? ==> 36.5%

10. What is the approximate average number of students studying in college B,D and E together?
- A) 1540
 - B) 1250
 - C) 1413
 - D) 1620
 - E) None

Answer**Option C****Solution:**

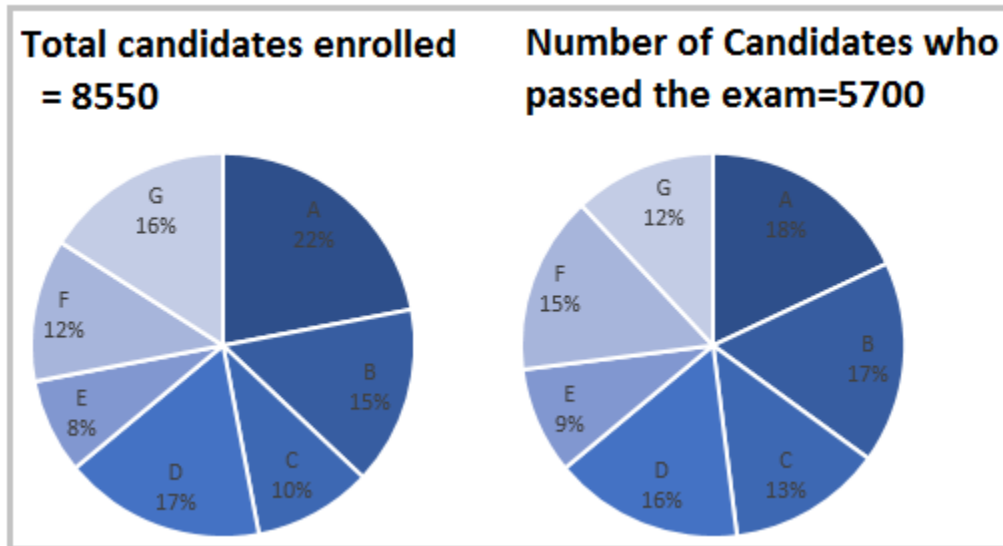
(25+10+18) =53

53% of 8000=4240

Average 4240/3=1413

Directions (6 – 10) : Study the following pie charts carefully and answer the questions given below.

Distribution of candidates who were enrolled for Bank exam and the candidate who passed the exam in different institutions.



6. What percentage of candidates passed the Exam from institute E out of the total number of candidates enrolled from the same institute?
- A) 85%
 B) 75%
 C) 82%
 D) 70%
 E) None

Answer

Option B

Solution:

8% of 8550 100

9% of 5700 ? ==>75%.

Or

$(9\% \text{ of } 5700 / 8\% \text{ of } 8550) * 100 = 75\%$.

7. Which institute has the highest percentage of candidates passed to the candidates enrolled?
- A) C
 B) G
 C) F
 D) B
 E) None

Answer**Option A****Solution:****A:** 22% of 8550 100

18% of 5700 ? ==>54.55%

B: 15% of 8550 100

17% of 5700 ? ==>75.56%

C: 10% of 8550 100

13% of 5700 ? ==>86.67%

D: 17% of 8550 100

16% of 5700 ? ==>62.75%

E: 8% of 8550 100

9% of 5700 ? ==> 75%

F: 12% of 8550 100

15% of 5700 ? ==>83.33%

G: 16% of 8550 100

12% of 5700 ? ==> 50%

Institute C is the highest.

8. The number of candidates passed from institutes D and A together exceeds the number of candidates enrolled from institutes E and C together by:

A) 356

B) 433

C) 420

D) 399

E) None

Answer**Option D****Solution:** $(16+18)\%$ of 5700 – $(10+8)\%$ of 8550 $=34\%$ of 5700 - 18% of 8550 $=1938-1539$ $=399.$

9. What is the percentage of candidates passed to the candidates enrolled for institutes B and C together?

A) 86%

B) 84%

C) 80%

D) 78%

E) None

Answer

Option C

Solution:

(15+10) 25% of 8550 100

(17+13) 30% of 5700 \Rightarrow 80%.

10. What is the ratio of candidates passed to the candidates enrolled from institute A?

A) 12:7

B) 6:11

C) 7:12

D) 11:6

E) None

Answer

Option B

Solution:

18% of 5700 : 22% of 8550

6:11.

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