

Data Interpretation (Lecture - 1)

Data plays an important role in day to day life. If data is too large, it can be represented in precise form in a number of ways. Once data is represented in precise form, the user of that data has to understand it properly. The process of interpreting the data from its precise form is called Data Interpretation.

Data Interpretation is a part of every MBA entrance exam. So, we will discuss different ways of representing data and we will see how we can extract the data from the given representations.

Different ways of representing data:

- | | |
|------------------------|------------------------------------|
| 1. Data Tables | 2. Pie Charts |
| 3. Two-Variable Graphs | 4. Bar Charts |
| 5. Venn Diagrams | 6. Three-Variable Graphs |
| 7. PERT Chart | 8. Combination of 2 or more charts |

Now, we shall study these methods in detail.

1. Data Table:

Here the entire data is represented in the form of a table. The data can be represented in a single table or in combination of tables. To understand it better, look at the following example.

Population of different cities (in 000's)

Year	Hyderabad	Mumbai	Chennai	Bangalore	Delhi
2002	2000	4000	3700	1650	3850
2003	2400	4800	4300	1760	4160
2004	3000	5500	5150	2325	4750
2005	3500	6450	6070	2810	4800
2006	3750	7210	6910	3020	5110
2007	4500	7800	7430	4010	6500
2008	8000	9560	8150	6000	8050

From the above table, we can find the following:

- Population of a particular city with respect to that in any other city for a given year.
- Percentage change in the population of any city from one year to another.
- The rate of growth of population of any city in any given year over the previous year.
- The city, which has maximum percentage population growth in the given period.
- For a given city, finding out the year in which the percentage increase in the population over the previous year was the highest.
- Rate of growth of the population of all the cities together in any given year over the previous year.

EXAMPLE:

NUMBER OF BOYS OF STANDARD XI PARTICIPATING IN DIFFERENT GAMES

Class Games	XI A	XI B	XI C	XI D	XI E	Total
Chess	8	8	8	4	4	32
Badminton	8	12	8	12	12	52
Table Tennis	12	16	12	8	12	60
Hockey	8	4	8	4	8	32
Football	8	8	12	12	12	52

Note:

- Every student (boy or girl) of each class participates in a game.
- In each class, the number of girls participating in each game is 25% of the number of boys participating in each game.
- Each student (boy or girl) participated in one and only one game.

1. All the boys of class XI D passed at the annual examination but a few girls failed. If all the boys and girls who passed XI D and entered XII D are in the ratio of 5 : 1, how many girls failed in XI D ?

(1) 8 (2) 5 (3) 2 (4) 1

- Sol.** **Note:** Before solving these questions note that the table is given for the number of boys and not for the total number of students.

The number of boys in XI D are 40

∴ Girls in XI D = $40 \times \frac{1}{4} = 10$

Number of boys who passed XI D and entered XII D = 40

Ratio in XII D = 5 : 1

∴ In XII D Boys → 5; Girls → 1

or Boys 40; Girls 8

Girls in XI D = 10 Girls in XII D = 8

∴ $10 - 8 = 2$ girls failed. ∴ **Answer: (3)**

2. Girls playing which of the following games need to be combined to yield a ratio of boys to girls of 4 : 1 if all boys playing chess and badminton are combined?

(1) Table Tennis & Hockey (2) Badminton & Table Tennis
(3) Chess & Hockey (4) Hockey & Foot ball

- Sol.** Number of boys playing chess and badminton = $52 + 32 = 84$ boys

Since girls are 25% of boys,

To yield a ratio of 4:1, number of girls should be 21

∴ Girls playing Hockey and Football = $\frac{1}{4} \times 32 + \frac{1}{4} \times 52 = 8 + 13 = 21$ girls

∴ Girls of hockey + football have to be combined to give a ratio of 4 : 1 if boys playing chess & badminton are combined. **Answer: (4)**

3. What should be the total number of students in the school if all the boys of class XI A together with all the girls of class XI B and class XI C were to be equal to 25% of the total number of students?
 (1) 272 (2) 560 (3) 656 (4) 340

Sol. Boys of XI A = 44

Boys of XI B = 48 Girls of XI B = 12

Boys of XI C = 48 Girls of XI C = 12

Total = 68

We are given that $(44 + 12 + 12) = 68$ is 25% of total students in the school.

$$\therefore \text{Total students} = \frac{68}{0.25} = 272. \text{ Answer: (1)}$$

4. Boys of which of the following classes need to be combined to equal four times the number of girls in class XI B and class XI C
 (1) XID & XIE (2) XIA & XIB (3) XI A & XI D (4) None of these

Sol. Number of girls in XI B + XI C = 24

4 times = 96

\therefore Boys of XI B and XI E have to be combined. Hence **Answer: (4)**

5. If boys of class XI E participating in chess together with girls of class XI B and class XI C participating in Table Tennis & hockey respectively are selected for a course at the college of sports, what percentage of the students will get this advantage approximately?
 (1) 4.38 (2) 3.51 (3) 10.52 (4) 13.5

Sol. Boys of XI E playing chess = 4

Girls of XI B playing Table Tennis = 4

Girls of XI C playing Hockey = 2

\therefore Number of student selected = $4 + 4 + 2 = 10$

Number of students in the school = boys + girls = $228 + 57 = 285$

$$\therefore \text{Percentage} = \frac{10}{285} \times 100 = 3.51. \text{ Answer: (2)}$$

Note: Number of students in the school should not be taken as 272 – that figure is valid only for Q.3

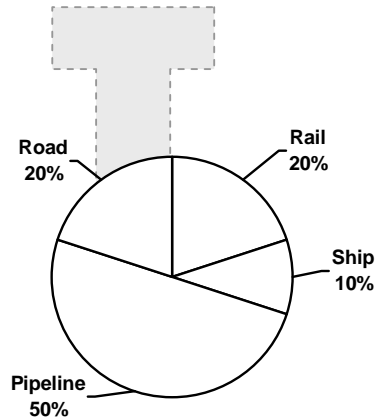
6. If for social work every boy of class XI D and XI C is paired with a girl of the same class, what percentage of boys of these two classes cannot participate in social work?
 (1) 88 (2) 66 (3) 60 (4) 75

Sol. Since girls are only 25% of the boys only 25% of the boys can participate and 75% of the boys cannot participate in social work. Hence **Answer: (4)**

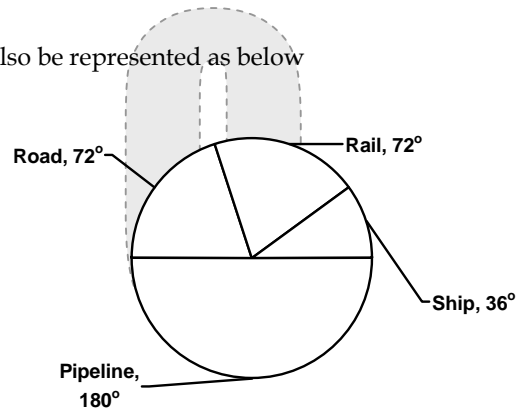
2. Pie Chart

In this, the total quantity is distributed over one complete circle. This circle is made into various parts for various elements. Each part represents share of the corresponding element as portion of the total quantity. These parts can be represented in terms of percentage or in terms of angle.

Look at the following Pie-chart representing crude oil transported through different modes over a specific period of time.



The above pie chart can also be represented as below

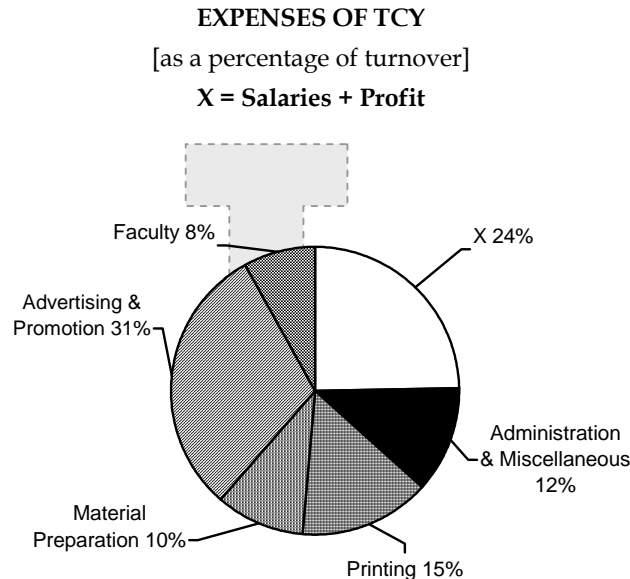


We can find the following from the above pie chart.

1. The oil that has been transported through any mode if the total transported amount is known.
2. The proportion of oil transported through any mode with respect to any other mode.
3. The total oil transported, if the oil transported through any particular mode is known.

EXAMPLE:

These questions are based on the diagram given below



1. If the turnover of TCY was Rs. 2 lakhs this year and the salaries to be paid were Rs. 95000, what is the loss this year as a percentage of turnover?

(1) 23.5% (2) 19.03% (3) 47.5% (4) 26.7%

Sol. From the pie chart we can say that $X = 24\%$

$$X = 24/100 \times 2 \times 10^5 = 48000$$

Salaries = Rs. 95000

$$\text{Loss} = (95000 - 48000) / (200000) \times 100 = 23.5\%. \text{ Answer: (1)}$$

2. If total salaries are Rs. 1,20,000 per year and 12% profit on turnover is made, what will be the printing charges that year ?

(1) Rs. 10 lacs (2) Rs. 1.51lacs (3) Rs. 1 lac (4) Rs. 75000

Sol. $0.24x = 120000 + 0.12x$, where x is total turnover $\Rightarrow x = 10^6$

$$\text{Printing charges} = 0.15x = 0.15 \times 10^6 = 1.5 \text{ lac. Answer: (2)}$$

3. If TCY had spent Rs. 40000 more for Advertising and Promotion than for printing, how much more would they have spent for material preparation than for faculty?

(1) Rs. 2500 (2) Rs. 6000 (3) Rs. 7500 (4) Rs. 5000

Sol. $0.31x - 0.15x = 40000 \Rightarrow x = 2.5 \times 10^5$

$$\text{More amount spent on material preparation than faculty} = 0.1x - 0.08x = 0.02 \times 2.5 \times 10^5 = \text{Rs. 5000.}$$

Answer: (4)

4. If TCY has to pay total salaries of Rs. 1.32 lacs, what should be the turnover of TCY so that there is no profit no loss?

(1) Rs. 6 lacs (2) Rs. 5 lacs (3) Rs. 5.5 lacs (4) None of these

Sol. $0.24x = 132000$, where x is total turnover

$$\Rightarrow x = \text{Rs. 5.5 lacs. Answer: (3)}$$