

INTRODUCTION TO DATA INTERPRETATION

Not a day passes without our coming across figures and statistics. Study and manipulation of such data leads us to an important area - namely Data Interpretation. Data can be organised in a number of ways so that larger volume of data can be presented in a more compact and precise form. Data thus presented has to be deciphered correctly by the user of the data. This process of deciphering the data from its compactly presented form is called Data Interpretation.

Unorganised and haphazard data does not make any sense - more so to top management for whom time is a very valuable and rare commodity. Hence, any data, be it daily production figures, daily sales figures, financial performance or productivity, will have to be presented in a concise manner - at the same time being precise so that top management can study it with least of effort and time thus also facilitating faster decision making.

In this section, we will cover Data Interpretation questions on which are almost certain in every MBA entrance exams either as a part of Mathematics or as a separate section.

Over the last few years, persons setting the question papers for competitive exams have developed enormous liking for this area. Consequently, the variety of questions asked and the degree of difficulty have increased over a period of time.

Methods of Presenting Data:

Numerical data can be presented in one or more of the following ways

- | | | |
|----------------------------|----------------------------|------------------------------|
| (i) Data Tables | (ii) Pie Charts | (iii) 2 - Dimensional Graphs |
| (iv) Bar Charts | (v) 3 - Dimensional Graphs | (vi) Venn Diagrams |
| (vii) Geometrical Diagrams | (viii) Pert Charts | (ix) Others |

The "Others" category covers miscellaneous forms like descriptive case format, etc. customised for the situation. Data can also be presented by using a combination of two or more of the above forms.

While some data can be presented in many different forms, some other data may be amenable to be presented only in a few ways. In real life situations, the style of data presentation is based on the end-objective. In certain situations data has to be presented as a combination of two or more forms of data presentation.

Let us understand each of the above forms of data presentation with an example.

DATA TABLE

Here data is presented in the form of simple table. While any type of data can be presented in table form, that too in a very accurate manner, interpreting the data in table form is more difficult and time consuming than the other modes, all of which are basically pictorial or graphical in presentation.

Data tables can be of a number of types. They can be of a single-table variety or combination of tables. Some examples of tables are given below.

TABLE 1

Movement of Goods by Different Modes of Transport (in 000's of metric-ton-kms)

Year	Road	Rail	Air	Water	Total
1985	1000	1500	120	20	2640
1986	1600	2000	129	24	3753
1987	2907	3090	139	28	6164
1988	4625	5200	152	27	10004
1989	6346	7540	174	33	14093
1990	7920	10250	212	40	18422
1991	9540	13780	266	50	23636

Note: All figures are fictitious.

From the table we can deduce the following:

- Rate of growth by each mode of transport in successive years as well as cumulative annual growth.
- Rate of growth of total haulage by all modes of transport together in any year.
- Contribution by each mode of transport to the total haulage in any given year.
- Trends of growth over time for various modes of transport.
- Given the cost of transportation for each mode, we can calculate total annual cost of transportation over the years for various modes of transport as well make a cost comparison.
- Finding out the mode of transportation in any given year that forms the largest percentage of total haulage.
- For a given mode of transport, finding out the year in which the percentage increase in haulage over the previous year was the highest.

TABLE 2

Railway Time Table – Coromandel Express

Place	Cumulative mileage	Arrival Time (in hrs.)	Departure Time (in hrs.)
Madras	0	-	08.00
Nellore	200	11.20	11.30
Vijayawada	525	15.30	16.00
Rajamundry	700	19.20	19.30
Visakhapatnam	1100	01.10	01.30
Bhubaneswar	1450	03.45	04.00
Kharagpur	1600	07.25	07.30
Calcutta	1925	09.30	-

From the above Time Table, we can obtain the following:

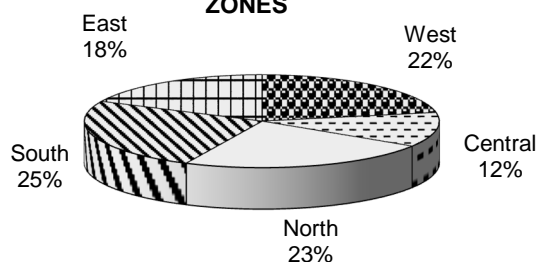
- Distance between various stations.
- Total idle time as a proportion of total travel time.
- Average speed between stations as well as over the entire journey.
- Minimum and maximum speeds of the between two stations.

PIE-CHARTS

This is probably the simplest of all pictorial forms of data presentation. Here, total quantity to be shown is distributed over one complete circle or 360 degrees. In pie-charts, data is essentially presented with respect to only one parameter (unlike in two and 3-dimensional graphs described later). This form essentially presents shares of various elements as proportion or percentage of the total quantity. Each element or group in the pie-chart is represented in terms of quantity (or value, as the case may be) or as the angle made by the sector representing the elements or as a proportion of the total or as a percentage of the total.

Chart 1 gives distribution of the population in different geographical zones.

**CHART 1
DISTRIBUTION OF POPULATION IN GEOGRAPHICAL ZONES**



From the above pie chart, we can calculate the following:

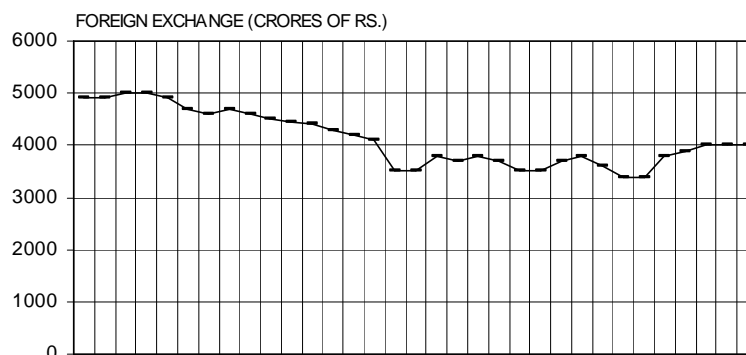
- Population in any zone given the total population
- Population of any zone as a percentage of that of another zone
- Percentage increase in the total population given the percentage increase in the population of one or more zones

Pie Charts are also very frequently used in combination with other forms of data or along with other Pie-Charts.

TWO-DIMENSIONAL GRAPHS

CHART 2

FOREIGN EXCHANGE RESERVES OF INDIA



This is essentially used for continuous data but can also be used for depicting discrete data provided we understand the limitation. Also known as Cartesian Graphs, they represent variation of one parameter with respect to another parameter each shown on a different axis. These types of graphs are useful in studying the rate of change or understanding the trends through extrapolations.

These graphs can be of various types and a few of them are shown below (Charts 2 to 4):

The graph in Chart 2 shows the changes in the foreign exchange reserves of our country during a period of time. One can find out trends and the growth rates of foreign exchange reserves.

CHART 3
AUTOMOBILES IN INDIA

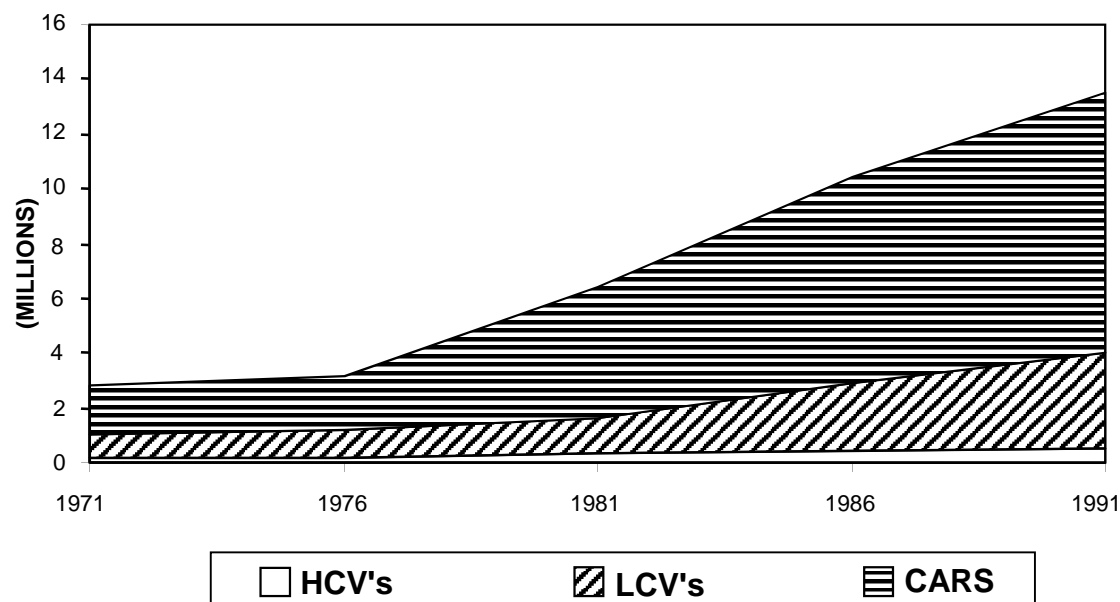


Chart 3 shows a cumulative type of graph (stacked graph). It gives more information than the previous graph that you studied in Chart 2.

From the graph given in Chart 3, the relative proportion of different varieties of vehicles which constitute the total can be obtained along with the trends and growth rates, percentage variation, actual variations and trends for any period of time can be ascertained.

CHART 4
MOTION GRAPH OF Q1, Q2 AND Q3

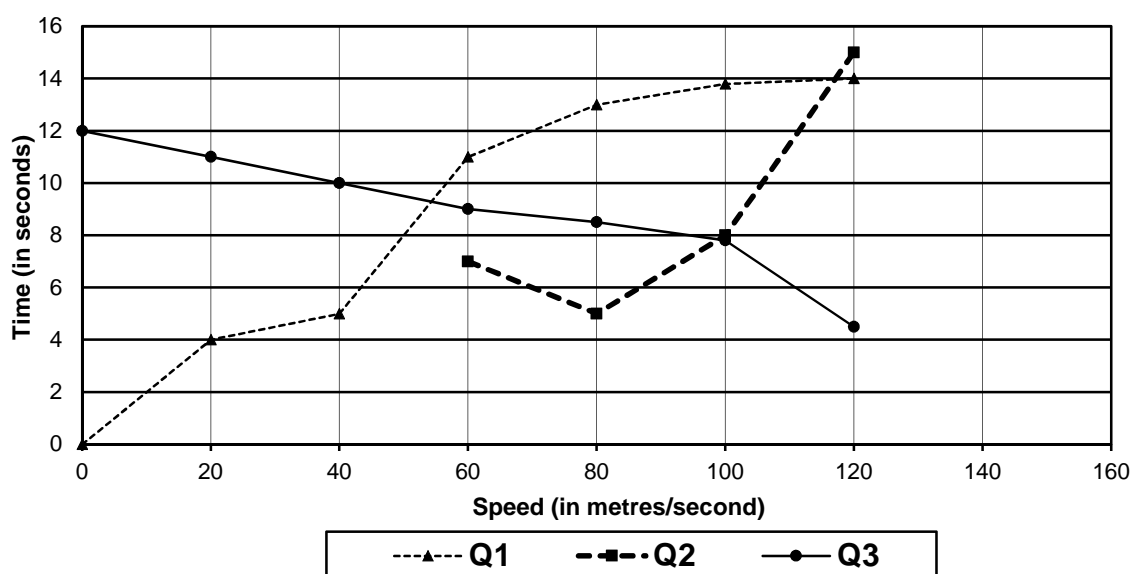


Chart 4 presents another type of two-dimensional graph which is mostly used to depict scientific data like speed, velocity, vectors etc.,. In the graph speed trends of three bodies Q1, Q2, Q3 is given.

BAR CHARTS

This is a type of graph used mostly to depict data in a discrete way. They are accurate and comparison of variables is very convenient.

CHART 5

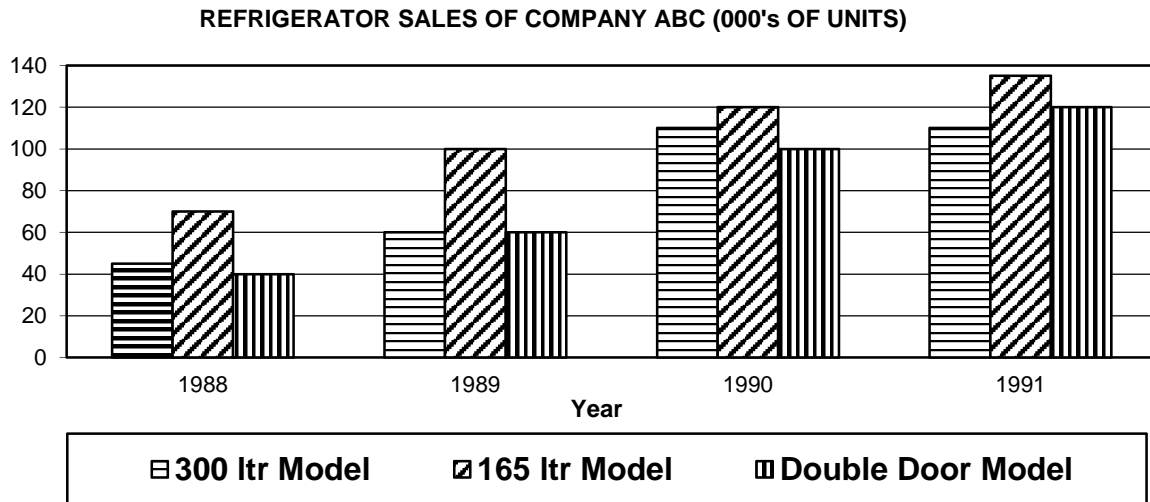


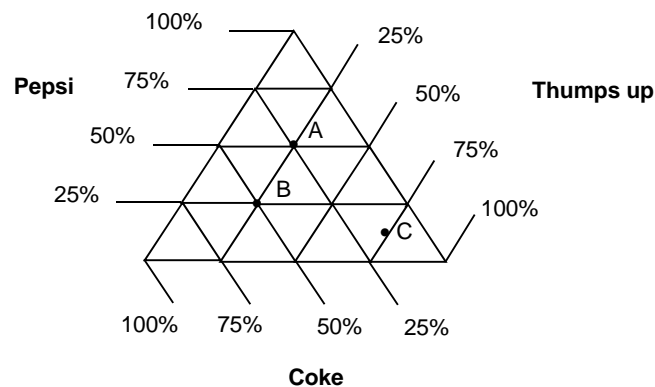
Chart 5 shows model wise sales of refrigerators during four years. From this graph we can obtain the following:

- Percentage contribution of each model to the company's total sales for four years.
- Relative increase or decrease in the share of each model.
- Sales trend of various models.

Using this bar chart one can carry out a detailed performance evaluation of the company with respect to the sales of the four year period 1988 to 1991 for any given model. These bar charts can also be depicted horizontally. Another variation could be showing each product at one place (rather than each year at one place).

THREE-DIMENSIONAL GRAPH

CHART 6



The data (parameters) in a triangular graph are given on each side of the triangle. Each point represents a particular parameter in terms of the percentage, the same represents.

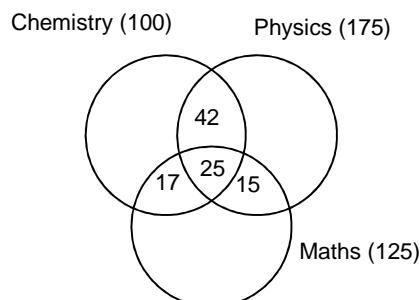
This graph represents the percentage of students who like the three Colas – Pepsi, Thumps up and Coke in three colleges A, B and C.

VENN-DIAGRAMS

You must be familiar with the concept of sets. Data is represented in the form of Venn-Diagrams when operations have to be carried out on different distinct sets of elements each following a different functional rule. All the elements in a set follow the same functional rule. By Set Union and Intersection operations, you can establish new sets from the existing sets.

For example (Chart 7) consider three of the courses Physics, Chemistry, Maths offered to B.Sc students of various groups.

CHART 7



From the chart, you can arrive at the number of students who are studying only one out of the above three subjects.

PERT CHARTS

The word PERT stands for "Project Evaluation and Review Techniques". The progress of any project is monitored and the execution of various activities is scheduled keeping in mind resource constraints (like labour) and time constraints. For the purpose of data interpretation questions, the data may be given in the form of a table or a chart.

We will here take a table and draw a PERT chart from the table.

TABLE 3

Interior Decoration of an Office Room

The interior decoration work of an office is taken up and the activities involved along with the time taken by each activity is given below.

Activity	Duration (in weeks)	Other activities to be completed before this activity can be taken up.
False roofing	2	-
Making Furniture	1	-
Fixing Furniture	1	False roofing, Partition systems.
Fixing Venetian Blinds	1	Painting of Doors and Windows.
Fixing Air-Conditioner	1	-
Painting Walls	1	False roofing.
Partition Systems	2	False roofing, Laying the carpet.
Laying of the carpet	1	False roofing, Painting of Doors and Windows, Painting of walls.
Painting of Doors and Windows	1	False roofing.

From the table, you can arrive at the minimum time after which a particular activity can be taken up or the whole task can be completed.

CHAPTER – 1

TABLES

Worked out Examples:

These questions are based on the table given below giving the statistics regarding the fruits with five vendors – A, B, C, D, E at the Fruit Mart.

Vendor	Number of Apples	Percentage spoiled	Average weight (in gms)	Number of Oranges	Percentage spoiled	Average weight (in gms)	Number of Bananas	Percentage spoiled	Average weight (in gms)
A	200	20	200	150	20	60	600	10	60
B	250	30	160	100	27	75	800	20	85
C	160	15	300	80	30	50	1000	35	40
D	300	$16\frac{2}{3}$	180	200	15	100	1200	$16\frac{2}{3}$	38
E	180	10	200	240	25	90	900	20	50

1.01: What is the number of spoiled apples with all the five vendors put together?

- (A) 143 (B) 167 (C) 193 (D) 207

Sol: Total number of spoiled apples with

$$\text{Vendor A} = 200 \times \frac{20}{100} = 40$$

$$\text{Vendor B} = 250 \times \frac{30}{100} = 75$$

$$\text{Vendor C} = 160 \times \frac{15}{100} = 24$$

$$\text{Vendor D} = 300 \times \frac{16.66}{100} = 50$$

$$\text{Vendor E} = 180 \times \frac{10}{100} = 18$$

$$\text{total number of apples spoiled} = 40 + 75 + 24 + 50 + 18 = 207 \quad \text{Choice (D)}$$

1.02: What is the weight of all the oranges with the five vendors put together?

- (A) 41.3 kgs (B) 56.3 kgs
(C) 62.1 kgs (D) 67.7 kgs

Sol: Weight of oranges with

$$\text{vendor A} = 150 \times 60 = 9000 \text{ gms}$$

$$\text{vendor B} = 100 \times 75 = 7500 \text{ gms}$$

$$\text{vendor C} = 80 \times 50 = 4000 \text{ gms}$$

$$\text{vendor D} = 200 \times 100 = 20000 \text{ gms}$$

$$\text{vendor E} = 240 \times 90 = 21600 \text{ gms}$$

$$\text{Total weight of all oranges} = 9 + 7.5 + 4 + 20 + 21.6 = 62.1 \text{ kgs} \quad \text{Choice (C)}$$

1.03: Which of the following vendors has the highest number of unspoiled bananas?

- (A) D (B) E (C) C (D) B

Sol: Unspoiled Bananas with vendors:

$$A = 600 \times \frac{90}{100} = 540 ; B = 800 \times \frac{80}{100} = 640$$

$$C = 1000 \times \frac{65}{100} = 650 ; D = 1200 \times \frac{83.33}{100} = 1000$$

$$E = 900 \times \frac{80}{100} = 720 ;$$

Vendor D has the highest number of unspoiled bananas.

Alternately: By observation, we can say that vendor D has the maximum number of unspoiled bananas as he is having the maximum number of bananas and the spoiled percentage is minimum.

Choice (A)

1.04: By what percentage is the number of unspoiled oranges with vendor E less than the number of spoiled bananas with vendor C?

- (A) 39.16% (B) 51.42%
(C) 41.31% (D) 48.57%

Sol: Unspoiled oranges of vendor

$$E = 240 \times \frac{75}{100} = 180 \rightarrow (A)$$

Spoiled bananas of vendor

$$C = 1000 \times \frac{35}{100} = 350 \rightarrow (B)$$

$$\therefore A \text{ is } 170 \text{ less than } B \therefore \frac{170}{350} \times 100 = \frac{17}{35} \times 100$$

50% of 35 is 17.5, so required answer must be very close to 50% but less than 50%. Choice (D)

1.05: Approximately, what is the total weight of the oranges possessed by the vendors A, B and C put together as a percentage of the total weight of the bananas with the five vendors put together?

- (A) 6% (B) 7% (C) 8% (D) 9%

Sol: Weight of oranges A, B, C = $9 + 7.5 + 4 = 20.5$ kgs

$$\text{Weight of Bananas with Vendor A} = 600 \times 60 = 36 \text{ kgs}$$

$$\text{Vendor B} = 800 \times 85 = 68 \text{ kgs}$$

$$\text{Vendor C} = 1000 \times 40 = 40 \text{ kgs}$$

$$\text{Vendor D} = 1200 \times 38 = 45.6 \text{ kgs}$$

$$\text{Vendor E} = 900 \times 50 = 45 \text{ kgs}$$

$$\text{Total weight of bananas} = 234.6 \text{ kgs}$$

$$\therefore \text{Required \%} = \frac{20.5}{234.6} \times 100$$

$$10\% \rightarrow 23.46$$

$$- 1\% \rightarrow 2.34$$

$$9\% \rightarrow 21.10$$

$$- 0.5\% \rightarrow 1.17$$

$$8.5\% \rightarrow 19.93$$

\therefore Answer must be more than 8.5%.

Hence, choice (D) Choice (D)

Exercise – 1(a)

Directions for questions 1 to 5: These questions are based on the table given along side which shows the number of fan regulators rejected and the percentage of those accepted by the quality control department, out of the total number of fan regulators assembled by five machines P, Q, R, S and T.

Machine	Number of fan regulators rejected	Percentage of acceptance of fan regulators
P	600	90
Q	1000	80
R	550	90
S	840	86
T	1650	85

Directions for questions 1 to 5: Type in your answer in the input box provided below the question.

1. How many fan regulators assembled by machine R were accepted?

2. Which machine assembled the highest number of regulators?

3. Approximately by what percentage is the number of rejections of regulators assembled by P more than that of R?

4. By what percentage is the number of fan regulators assembled by T more than the total number of fan regulators assembled by P and Q?

5. What is the average number of regulators assembled by machines R and S?

Directions for questions 6 to 10: These questions are based on the table given below.

Number of employees in five companies

Name of the company	Classification based on the age of the employee			
	Above 20 years but below 30 years	Above 20 years but below 40 years	Above 20 years but below 50 years	50 years or above but below 60 years
Pallis	125	148	165	36
Dagritech	96	153	187	60
Starshine	108	127	141	72
Greenhorn	68	93	213	68
Farmtech	97	125	148	48

Note: The age of an employee lies between 20 years and 60 years.

6. In which of the following companies is the ratio of number of employees aged thirty years or above but below 50 years to the total number of employees of that company, the highest?
(A) Pallis (B) Dagritech
(C) Greenhorn (D) Farmtech
7. In which of the following age groups is the number of employees of all the given companies, together the highest?
(A) More than 20 years but below 30 years.
(B) Thirty years or more but less than fifty years.
(C) Forty years or more but less than 50 years.
(D) Thirty years or more.
8. If 27 employees aged below 25 years but above 20 years join Greenhorn company, what percentage of the employees aged below 50 years but above 20 years, does the group of aged below 40 years but above 20 years constitute?
(A) 25% (B) 50% (C) 45% (D) 200%
9. Which of the following could be the average age of the employees of Pallis?
(A) 26 years (B) 34 years
(C) 43 years (D) 51 years
10. Which of the following companies has the highest number of employees?
(A) Pallis (B) Agritech
(C) Greenhorn (D) Dagritech

Directions for questions 11 to 15: The following table shows the number of students in an engineering college who have applied to five companies and the number of students who got selected into them from 2013 to 2018.

Company Year	IBM		Microsoft		CSC		Wipro		Lucent	
	App	Selected	App	Selected	App	Selected	App	Selected	App	Selected
2013	950	230	880	200	950	275	975	260	995	235
2014	980	240	960	250	1075	290	990	280	1075	265
2015	860	300	1080	290	1125	305	1080	295	1060	290
2016	1190	320	1100	325	1140	315	1150	305	1120	308
2017	1150	350	1250	330	1220	325	1175	310	1200	325
2018	1200	280	1300	336	1240	340	1400	375	1375	380
Total	6330	1720	6570	1731	6750	1850	6770	1825	6825	1803

Note: A student who has applied to one company didn't apply to other companies.

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11. What is the approximate percentage of students who got selected into Microsoft or CSC in the year 2016?
(A) 32.3% (B) 25.7%
(C) 28.5% (D) 37.5%
12. The total number of students applied to IBM during 2013 through 2015, is approximately what percentage of the total number of students who have applied to that company during the years 2016 through 2018?
(A) 85.6% (B) 72.3%
(C) 75.83% (D) 78.8%
13. The total number of students who got selected into all the companies in 2017 is approximately what percentage of the number of students who have applied to all the companies in that year?
(A) 25.01% (B) 29.63% (C) 27.35% (D) 30.72%
14. The number of students who got selected into Lucent during the years 2013 to 2016 together is approximately what percentage of the students who have applied for this company in these four years?
(A) 26.87% (B) 23.62% (C) 21.53% (D) 25.83%
15. During the given period, the percentage of the total number of students who got selected as a percentage of that appeared is the highest for
(A) CSC (B) Lucent
(C) Microsoft (D) Wipro

Directions for questions 16 to 20: These questions are based on the following table.

Investment composition and returns of several companies for three years

Name of the company	Investment Composition (Equity : Debt : Others)	Return on equity during the first year	Overall return in three years	Best return in any one year	Return in any one of the remaining years
KNBC	60 : 23 : 17	68.5%	26%	93%	12%
Tatas	55 : 25 : 20	51%	51%	106%	27%
SPML	62 : 28 : 10	70%	62%	85%	31%
JMM	50 : 30 : 20	40%	29%	53%	11%
Arthurs	68 : 21 : 11	72%	65%	88%	32%
Kones	65 : 23 : 12	68%	56%	76%	21%
Alliance	77 : 15 : 8	79%	63%	88%	45%
Ispat	57 : 28 : 15	53%	49%	58%	40%
P.R.I	55 : 28 : 17	48%	52%	72%	22%

Note: The investment and the investment composition of a company remains the same in any year.

16. If the investments of SPML and Arthurs are in the ratio 2 : 3, then the debt component of Arthurs is how much percentage more than that of SPML?
(A) 12.5% (B) 20% (C) 25% (D) 17.5%
17. If the investment of Ispat during each of the given three years is ₹1, 200 crores, what is its best return for any one of the three years?
(A) ₹480 crores (B) ₹588 crores
(C) ₹600 crores (D) None of these
18. During the three years, what is the rate of return of the Tatas, which is neither the best nor the worst?
(A) 40% (B) 20% (C) 27% (D) 36%
19. If the investments of the following companies are equal for the given three years, which of them gets the maximum returns on equity for the three years?
(A) KNBC
(B) JMM
(C) Kones
(D) Cannot be determined
20. Which of the following companies has incurred a loss during any one of the three years?
(A) JMM (B) Arthurs
(C) KNBC (D) Kones

Exercise – I(b)

Directions for questions 1 to 6: These questions are based on the table given below which represents the percentage growth in the volume of sales of five brands of motorbikes across the years mentioned.

Name of the Bike	1985-1990	1990-1995	1995-2000	2000-2005
Suzuki Hayabusa	15	20	25	50
Kawasaki TF-910	10	10	20	40
Honda Mag-EV	5	10	20	30
Ducati DXTRA	20	10	30	40
Aprilla AS-X100	20	10	10	50

1. The sales of which motor bike have increased by the highest percentage from 1990 to 2000?
(A) Ducati DXTRA (B) Kawasaki TF-910
(C) Suzuki Hayabusa (D) Aprilla AS-X100
2. If Ducati DXTRA has registered a sales of 42,900 in 2000, then what is the difference in its sales for 2005 and its sales in 1990?
(A) 21,400 (B) 30,060
(C) 16,170 (D) 25,440

3. The sales of Kawasaki TF-910 in 2000 were 2,64,000 and the sales of Aprilla AS-X100 for 2005 are 5,44,500. What is the ratio of the sales of Kawasaki TF-910 to that of Aprilla AS-X100 in 1990?
(A) 2 : 3 (B) 18 : 31 (C) 15 : 27 (D) 2 : 5
4. If in 2000, the sales of each of the brands of motor bikes were 2,35,950, then how many of the given brands had sales of more than 1,65,000 in 1990?
(A) 2 (B) 4 (C) 3 (D) 5
5. By what percentage are the sales for 2005 more than the sales in 1995 for Honda Mag-EV?
(A) 52% (B) 56% (C) 71.6% (D) 80.2%
6. What are the sales of all the brands of bikes put together in the year 2000, given that the sales of all the bikes put together in 1990 is 7,07,850?
(A) 2,70,000 (B) 4,60,000
(C) 5,83,000 (D) Data inadequate

Directions for questions 7 to 10: These questions are based on the table given below.

**Sectorwise Composition of India's Exports
(in percentage terms)**

Section	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003
Agriculture & Allied	17.9	18.2	18.2	13.4	12.1
Ores & Minerals	5.2	1.8	2.7	2.8	3.6
Petroleum & Crude	2.3	1.4	3.2	4.9	4.5
Manufactured Goods	73.6	77.6	74.7	76.1	77.4
Other Products	1.0	1.0	1.2	2.8	2.4

**Product wise Composition of Exports of the Manufactured Goods sector
(in percentage terms)**

Product	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003
Leather products	7.1	5.5	5.0	4.4	3.8
Chemicals	8.8	7.8	9.2	9.8	10.1
Engineering Goods	12.5	13.6	13.2	15.7	16.6
Textiles	14.0	13.7	13.6	11.8	11.8
Readymade Garments	12.3	11.6	13.1	11.4	10.4
Gems & Jewellery	15.3	16.6	17.8	16.8	18.3
Others	30	31.2	28.1	30.1	29
Total	100	100	100	100	100

7. By what percentage has the exports of Petroleum & Crude in India increased from 1998-1999 to 2002-2003.
(A) 75.85% (B) 95.65%
(C) 81.45% (D) Data Inadequate
8. In 2000-2001, if \$224.10 million worth of leather goods was exported from India then the total exports of India were (in \$ million)
(A) 5000 (B) 4000 (C) 6000 (D) 8000
9. If the exports of gems and jewellery in 1999-2000 were approximately \$300 million then what is the value (in millions) of the exports of Ores & Minerals in 2002-2003, given that the value of India's exports has increased by 150% from 1999-2000 to 2002-2003?
(A) \$162 (B) \$184
(C) \$179 (D) None of these
10. If India's exports increased by 20% from 1998-1999 to 2002-2003, then find the approximate percentage increase in the exports of the engineering goods from 1998-1999 to 2002-2003.
(A) 57% (B) 68% (C) 78% (D)

Directions for questions 11 to 15: These questions are based on the table given below.

The table below reflects the preferences of children who watch different types of TV programmes, as found by a survey of a residential neighbourhood in which all the children participated.

	Cartoons	Sports	Movies	Games	Quiz	Horror	Music	News
Cartoons	760	525	311	440	590	200	370	68
Sports	892	214	118	128	214	79	43	74
Movies	222	498	152	76	112	61	53	118
Games	151	232	214	112	286	74	53	63
Quiz	127	109	102	144	112	43	68	69
Horror	63	129	112	108	123	72	59	132
Music	132	118	121	107	69	91	83	74
News	59	88	53	48	68	31	29	23

The number in each cell represents the number of children who prefer different types of programmes. The programme in the row represents the first preference and the programme in the column represents the second preference. Ex. Row 1, column 1 = 760 means that there are 760 children whose first and only preference is cartoons. Row 1, column 2 = 525 means there are 525 children whose first preference is Cartoons and the second preference is Sports.

11. The number of children whose first preference is either Games or Quiz and second preference is either Horror or Music is approximately what percentage of the children whose first and only preference is Cartoons?
(A) 21% (B) 31%
(C) 41% (D) 60%
12. What is the total number of children who prefer only one type of programmes?
(A) Less than 760 (B) 1528
(C) 970 (D) Cannot be determined
13. If a fee of ₹10 is collected from every child who prefers programmes of more than one type and has Cartoons as the first preference while a fee of ₹8 is collected from those whose second preference is Cartoons and ₹5 is collected from those who prefer only Cartoons, then what is the total fee amount collected?
(A) ₹42,008 (B) ₹49,606
(C) ₹55,684 (D) Data inadequate
14. If the popularity of a type of programme is measured by the number of children who have it as their first preference and if the children watch only programmes that are either their first or second preference, then approximately by what percentage is the number of children who watch the most popular type of programmes more than the number of children who watch the least popular type of programmes?
(A) 200% (B) 300% (C) 400% (D) 700%
15. What is the difference in the number of children whose first preference is either Cartoons or News and those whose first preference is Movies?
(A) 1310 (B) 2371 (C) 2480 (D) 1810

Directions for questions 16 to 20: These questions are based on the table given below.

There was an inter college competition of different events. The following table gives the details of the participants from all the five colleges and the distribution of the prizes won.

Colleges	Athletics		Cultural Events		Outdoor games		Indoor games	
	P	Q	P	Q	P	Q	P	Q
A	120	20	100	30	50	10	8	2
B	200	25	80	28	30	5	10	4
C	80	15	50	16	20	2	20	5
D	20	2	120	25	40	16	40	12
E	60	10	50	8	60	24	35	7

Notes:

- (A) P = The number of students who participated in the event
Q = The number of students who won prizes
- (B) A college, say X is said to perform better than another college, say Y, if the ratio of the number of prizes won to the number of students participated for college X is greater than that for college Y.
- (C) No student is allowed to take part in more than one event.
16. Which college has performed the best in athletics?
(A) B (B) A (C) C (D) E
17. In which of the events for college 'B' is the ratio of prizes won per participant the maximum?
(A) Athletics (B) Cultural Events
(C) Outdoor games (D) Indoor games

Directions for questions 18 to 20: Type in your answer in the input box provided below the question.

18. Approximately what percentage of the participants won prizes in cultural events?
19. The prizes won by the students of college C and college D together is approximately what percentage of the prizes won by all the students?
20. Approximately what percentage of students from college E did not win any prize?

Key

Exercise – I(a)

- | | | | | |
|---------|---------|-------|-------|-------|
| 1. 4950 | 5. 5750 | 9. B | 13. C | 17. D |
| 2. T | 6. C | 10. C | 14. D | 18. C |
| 3. 9 | 7. D | 11. C | 15. A | 19. D |
| 4. 0 | 8. B | 12. D | 16. A | 20. C |

Exercise – I(b)

- | | | | |
|------|-------|-------|--------|
| 1. C | 6. D | 11. B | 16. C |
| 2. B | 7. D | 12. B | 17. D |
| 3. A | 8. C | 13. A | 18. 27 |
| 4. C | 9. D | 14. C | 19. 35 |
| 5. B | 10. B | 15. B | 20. 76 |