

# Applied Statistics

## Unit – 1 – Data Description and Representation

Present the following information in tabular form.

1. In 1995 out of total 2000 workers in a factory, 1550 were members of a trade union. The number of women workers employed was 250, out of which 200 did not belong to any trade union. In 2000, the number of union workers was 1725 of which 1600 were men. The number of non – union workers was 380, among which 155 were women.
2. In a sample study about coffee habit in two towns, the following information was received: Town A: Females were 40%; Total coffee drinkers were 45% and Males non-coffee drinkers were 20%. Town B: Males were 55%; Males non-coffee drinkers were 30% and Females coffee drinkers were 15%.
3. Out of a total number of 10,000 candidates who applied for jobs in a government department, 6,854 were males, 3,146 were graduates and others, non-graduates. The number of candidates with some experience was 2,623 of whom 1,860 were males. The number of male graduates was 2,012. The number of graduates with experience was 1,093 that includes 323 females.
4. In 1990, out of a total of 2,000 students in a college, 1,400 were enrolled for Graduation and the rest for Post-graduation (P.G.). Out of 1,400 Graduate students, 100 were girls. In all, there were 600 girls in the college, out of which 250 were in P.G. In 1995, the number of Graduate students increased to 1,700, of which 650 were girls. The number of P.G. students fell to 500, of which only 50 were boys. In 2000, the total number of students was 2,200. The number of boys and girls in P.G. classes was equal. Out of 800 girls in the college, 650 were for Graduation. Represent the above information in a tabular form. Also calculate the percentage increase in the number of Graduate students in 2000 as compared to 1990.
5. In 2002, the number of workers in the trade union was 3,450, of which 3,200 were men. The number of non-trade union workers was 760, of which 330 were women. In 2003, out of a total of 4,000 workers in a factory, 3,300 were members of a trade union. The number of women workers employed was 500, out of which 400 did not belong to any union. **Present the above information in a suitable form.**
6. In 2000, out of a total of 1,750 workers of a factory, 1,200 were members of a trade union. The number of women employed was 200, of which 175 did not belong to a trade union. In 2002, the number of union workers increased to 1,580, of which 1,290 were men. On the other hand, the number of non-union workers fell to 208, of which 180 were men. In 2004, there were 1,800 employees who belonged to a trade union and 50 who did not belong to a trade union. Of all the employees in 2004, 300 were women, of whom only 8 did not belong to a trade union. **Present the above data in a suitable form.**
7. In a trip organized by a college, there were 100 persons. The average cost works out to Rs. 15.60 per head. There were 80 students, each of whom paid Rs. 16. Members of the teaching staff were charged at a higher rate. The number of servants was 6 (all males) and they were not charged. The number of ladies was 20% of the total, of which two were ladies staff members. **Tabulate the above information in proper tabular form.**
8. Write any four types of diagrams used to present statistical data.
9. Distinguish between primary and secondary data and discuss various methods of collecting primary data.
10. Write short notes on Box plots and Probability plots.

## Stem and Leaf

Draw the stem and leaf diagram of given observations:

1. 44, 46, 47, 49, 63, 64, 66, 68, 72, 72, 75, 76, 81, 84, 88
2. -23.678, -12.45, -3.4, 4.43, 5.5, 5.678, 16.87, 24.7, 56.8
3. 4.7, -30, 2.38, 13.7, 9.38, -11.324, -7.523, 18.198, 17.527, 32.55, 21, 17, 14, 28.382, 17.98

## Histogram

1. Draw the histogram for the following frequency distributions:

Variable	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 - 70	70 – 80
Frequency	12	30	35	65	45	25	18

2. Draw the histogram for the following frequency distributions:

Variable	10 – 15	15 – 20	20 – 25	25 – 30	30 – 40	40 – 60	60 – 80
Frequency	7	19	27	15	12	12	8

3. Draw the histogram for the following frequency distributions:

Mid value	10	20	30	40	50	60	70
Variable	5 – 15	15 – 25	25 – 35	35 – 45	45 – 55	55 – 65	65 – 75
Frequency	7	19	27	15	12	12	8

4. Draw the histogram for the following frequency distributions:

Variable	10	20	40	60	90	120
Frequency	12	30	70	130	120	75

## Box Plots

Draw the box plot of the following data:

1. 70, 33, 50, 65, 30, 55, 65, 52
2. 53, 42, 39, 35, 18, 63, 65, 52, 46
3. 43, 76, 87, 32, 30, 65, 43, 27

## Time Sequence Plots

1. Draw the graph for the following:

Year	1990	1991	1992	1993	1994	1995	1996	1997
Yield (in Millions)	12.8	13.9	12.8	13.9	13.4	6.5	2.9	14.8

2. Draw the graph for the following:

Year	1971	1972	1973	1974	1975	1976
Cement	107	113.1	107.6	102.6	116.7	133.9

Iron & Steel	100.6	112	96.1	100.2	121.3	145
General Index	104.2	110.2	112	114.3	119.3	131.2

3. Draw the graph for the following:

Year	1990	1991	1992	1993	1994	1995	1996	1997
Imports (Million tons)	400	450	560	620	580	460	500	540
Imports (Million Rs.)	220	235	385	420	420	380	360	400

4. Draw the graph for the following:

Years	1970 – 71	1971 – 72	1972 – 73	1973 – 74	1974 – 75
Credits(C)	18.9	20.9	24.2	46.1	40.7
Debits(D)	22.2	24.9	26.7	33	47.2
Balance (C-D)	-3.3	-4.0	-2.5	13.1	-6.5