

1. A country has four political parties say A, B, C, and D. An opinion survey was conducted on 50 people randomly. The data were obtained as follows:

B	C	A	B	A	C	D	A	A	B
C	A	B	C	D	A	B	B	C	D
A	D	B	B	C	A	C	B	A	D
A	B	C	C	B	A	C	A	A	C
A	C	A	B	A	C	B	B	B	D

- What type of data these are?
 - Construct a frequency distribution table and comment.
 - Which one is most popular party?
 - What is the percent of people liked the party B?
2. The following are the marks (out of 100) obtained by 50 students of STA101 in summer semester 2018 Examination.

55	54	76	70	77	80	84	66	80	61
62	64	80	85	78	42	72	63	85	50
72	53	54	76	90	66	85	82	79	83
78	55	69	80	72	74	74	54	54	54
81	86	58	72	92	78	38	85	69	82

Construct a grouped frequency distribution. Use classes 30-39, 40-49, 50-59, etc. Also find

- Obtain the class boundaries and class marks of the class intervals.
- What is the upper class limit of the class 70-79?
- What is the lower class boundary of the class 60-69?
- What is the mid value of class 40-49?
- What is the class width of class interval 50-59?
- From the frequency distribution find how many students got more than 80 and 70-80?

3. The following information, extracted from a survey of a Microfinance institution (MFI) represents the amount of loan request of 50 potential borrowers from any particular branch of that MFI.

1850	9250	6100	4500	5100	1800	6100	6500	6999	6780
3100	7475	6400	4950	8789	6100	6480	7050	9900	4790
4400	7900	6900	3865	5556	4859	6999	6780	8050	9900
5600	6600	9980	4800	8855	5550	1200	4790	6500	8050
3858	7300	8050	6200	7155	4980	8050	6480	7050	1500

For the given data construct a suitable frequency distribution table featuring the following components

- a. Class mid value b. Tally Bars c. Frequency d. Relative frequency
e. Cumulative frequency f. Cumulative relative frequency

Using the aforementioned information also answer the following

- Determine the number of loan request between tk 4000-6000
- Determine the proportion of loan request between 4000 – 6000.
- Determine the number of loan request below tk. 7000.
- Determine the proportion of loan request below tk. 7000.

4. Thirty AA batteries were tested to determine how long they would last. The results, to the nearest minute, were recorded as follows:

423, 369, 387, 411, 393, 394, 371, 377, 389, 409, 392, 408, 431, 401, 363, 391, 405,
382, 400, 381, 399, 415, 428, 422, 396, 372, 410, 419, 386, 390

The frequency distribution table is constructed below.

Table: Life of AA batteries, in minutes

Battery life, minutes (x)	Frequency (f)	Relative frequency	Percent frequency (%)
360-369	2	0.07	7
370-379	3	0.10	10
380-389	5	0.17	17
390-399	7	0.23	23
400-409	5	0.17	17
410-419	4	0.13	13
420-429	3	0.10	10
430-439	1	0.03	3
Total	30	1.00	100

- Find out the class interval of AA battery life which has maximum and minimum battery life (minutes) frequency?
- What is the probability or chance of any randomly selected AA battery having a life which ranges between 360-369 & 410-419?
- Determine the number of AA battery life below 420 minutes.
- Determine the proportion of AA battery life below 410 minutes.

5. Price of the fifty company's stock in 2018 are given below:

67.29	34.24	39.34	23.88	48.12
28.31	42.87	42.55	54.12	83.11
34.12	47.26	66.31	53.22	55.33
54.69	50.15	51.26	66.45	80.84
38.52	45.35	51.87	44.66	41.27
59.85	36.95	55.45	47.95	61.45
59.63	55.5	43.56	66.36	44.22
55.45	92.33	83.89	77.66	45.62
45.85	82.56	71.29	48.68	46.85
37.12	16.29	44.25	57.45	63.45

- Construct a suitable frequency distribution table featuring the components - class interval, class midpoint, tally marks, frequency, cumulative frequency and proportion.

ID	Gender	Age	Health Status	Smoking Status	Education	Monthly income (Tk)
1	Male	45	Good	Non-Smoker	Higher	32000
2	Male	36	Average	Non-Smoker	Secondary	14000
3	Female	23	Average	Smoker	Secondary	13000
4	Male	42	Poor	Smoker	Illiterate	4000
5	Male	57	Good	Smoker	Primary	9000
6	Female	40	Poor	Smoker	Higher	28000
7	Female	34	Average	Non-Smoker	Secondary	11000
8	Male	67	Good	Non-Smoker	Illiterate	7500
9	Male	38	Good	Non-Smoker	Primary	9500
10	Male	41	Average	Non-Smoker	Secondary	10000
11	Male	45	Poor	Smoker	Higher	32000
12	Male	36	Average	Non-Smoker	Secondary	14000
13	Female	23	Average	Smoker	Secondary	13000
14	Male	42	Poor	Non-Smoker	Illiterate	4000
15	Male	57	Good	Smoker	Primary	9000
16	Female	40	Poor	Smoker	Higher	28000
17	Female	34	Average	Non-Smoker	Secondary	11000
18	Male	67	Good	Smoker	Illiterate	7500
19	Male	38	Average	Non-Smoker	Primary	9500
20	Male	41	Average	Non-Smoker	Secondary	10000

Exercise:

The following table represents the information of 40 individuals collected in a socio-economic survey.
Using the information given in table 1 answer question A - D

Table 1: Summary information of 50 individuals

Sl. #	Gender	Religion	Previous month's Income	Division	Marital Status
1	M	Islam	1500	Dhaka	Married
2	F	Hindu	3100	Rajshahi	Married
3	M	Buddha	4400	Sylhet	Married
4	M	Christian	5600	Khulna	Unmarried
5	F	Hindu	3858	Dhaka	Divorced
6	M	Islam	9250	Rajshahi	Married
7	M	Islam	7475	Chittagong	Married
8	M	Hindu	7900	Khulna	Unmarried
9	F	Buddha	6600	Rangpur	Divorced
10	F	Islam	7300	Dhaka	Unmarried
11	M	Islam	6100	Barishal	Married
12	M	Buddha	6400	Rajshahi	Married
13	M	Christian	6900	Sylhet	Married
14	F	Islam	9980	Khulna	Unmarried
15	M	Islam	8050	Dhaka	Divorced
16	M	Christian	4500	Rajshahi	Married
17	M	Islam	4950	Chittagong	Married
18	M	Hindu	3865	Dhaka	Unmarried
19	F	Hindu	4800	Rajshahi	Divorced
20	M	Buddha	6200	Sylhet	Unmarried
21	F	Islam	5100	Barishal	Married
22	M	Islam	8789	Rajshahi	Married
23	M	Christian	5556	Sylhet	Married
24	F	Islam	8855	Khulna	Unmarried
25	M	Buddha	7155	Dhaka	Divorced
26	M	Islam	1800	Rajshahi	Married
27	F	Islam	6100	Chittagong	Married
28	M	Christian	4859	Khulna	Married
29	M	Islam	5550	Rangpur	Married
30	F	Christian	4980	Dhaka	Unmarried
31	M	Hindu	6100	Barishal	Divorced
32	F	Islam	6480	Rajshahi	Married
33	M	Christian	6999	Sylhet	Married
34	M	Islam	1200	Khulna	Unmarried
35	F	Christian	8050	Dhaka	Divorced
36	F	Hindu	6500	Rajshahi	Unmarried
37	M	Christian	7050	Chittagong	Married
38	F	Islam	6780	Khulna	Married
39	M	Hindu	4790	Rangpur	Married
40	M	Buddha	6480	Barishal	Married

Question A:

- i. How many variables are listed in table I?
- ii. Mention the variable name listed in Table I.

Question B:

Construct a frequency distribution table to represent the summary information of the variable “Division” and determine proportion of respondent from Dhaka.

Question C:

Complete the following table # 3 and answer (a) & (b)

Table 3: Frequency distribution of gender by Religion

Gender	Religion				Total
	Islam	Hindu	Christian	Buddha	
Male					
Female					
Total					

- a) What is the modal response for the variable “Gender”
- b) What proportion of respondents are “Buddha”

Question D:

Complete the following table # 4 and answer a), b) & c)

Table 4: Frequency distribution of previous month's income

Income Group	Tally	Frequency	Relative frequency	Cumulative relative frequency
Below – 2000				
2000 – 4000				
4000 – 6000				

6000 – 8000				
8000 - 10000				

- a) What proportion (Percentage) of people had previous month's income between 2000 - 6000
- b) What proportion (Percentage) of people had previous month's income less than 4000
- c) Construct Histogram to display the data represented in table 4