

BRAC UNIVERSITY

STA201

ELEMENTS OF STATISTICS AND PROBABILITY

Assignment 1

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SECTION: 01



Inspiring Excellence

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Answer to the question no 1

a) (i) there are 10 variables

(ii)

Qualitative	Model	Transmission	Fuel	Vehicle class	Model year
Quantitative	Engine Size	Cylinders	Numbers of gears	City MPG	Highway MPG

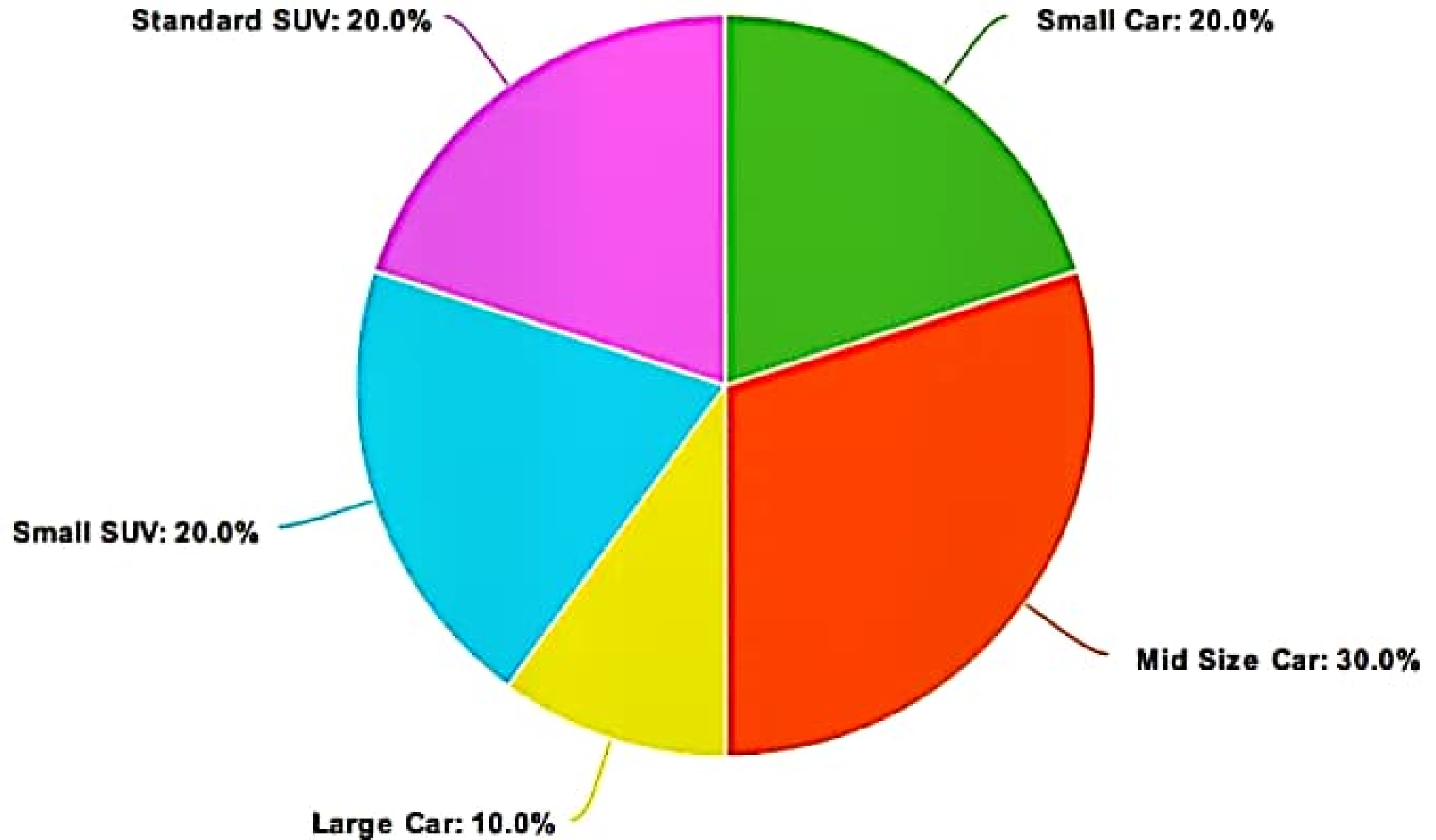
b)

Table: Frequency distribution of the variable
"Vehicle Class"

Vehicle class	Frequency	Angle, $\theta^\circ = \frac{f}{N} \times 360$
Small car	2	72*
Midsize car	3	108*
Large car	1	36*
Small SUV	2	72*
Standard SUV	2	72*
Total	10	360*

* : ignoring rounding error

Pie Chart for Vehicle Class



Small Car Mid Size Car Large Car Small SUV Standard SUV

(c) Table : Frequency Distribution of Transmission by Number of Gears

Transmission	Number of Gears				Total
	5	6	7	8	
Automatic	0	3	0	4	7
Manual	1	1	1	0	3
Total	1	4	1	4	10

(i) The highest frequency is held "Automatic"

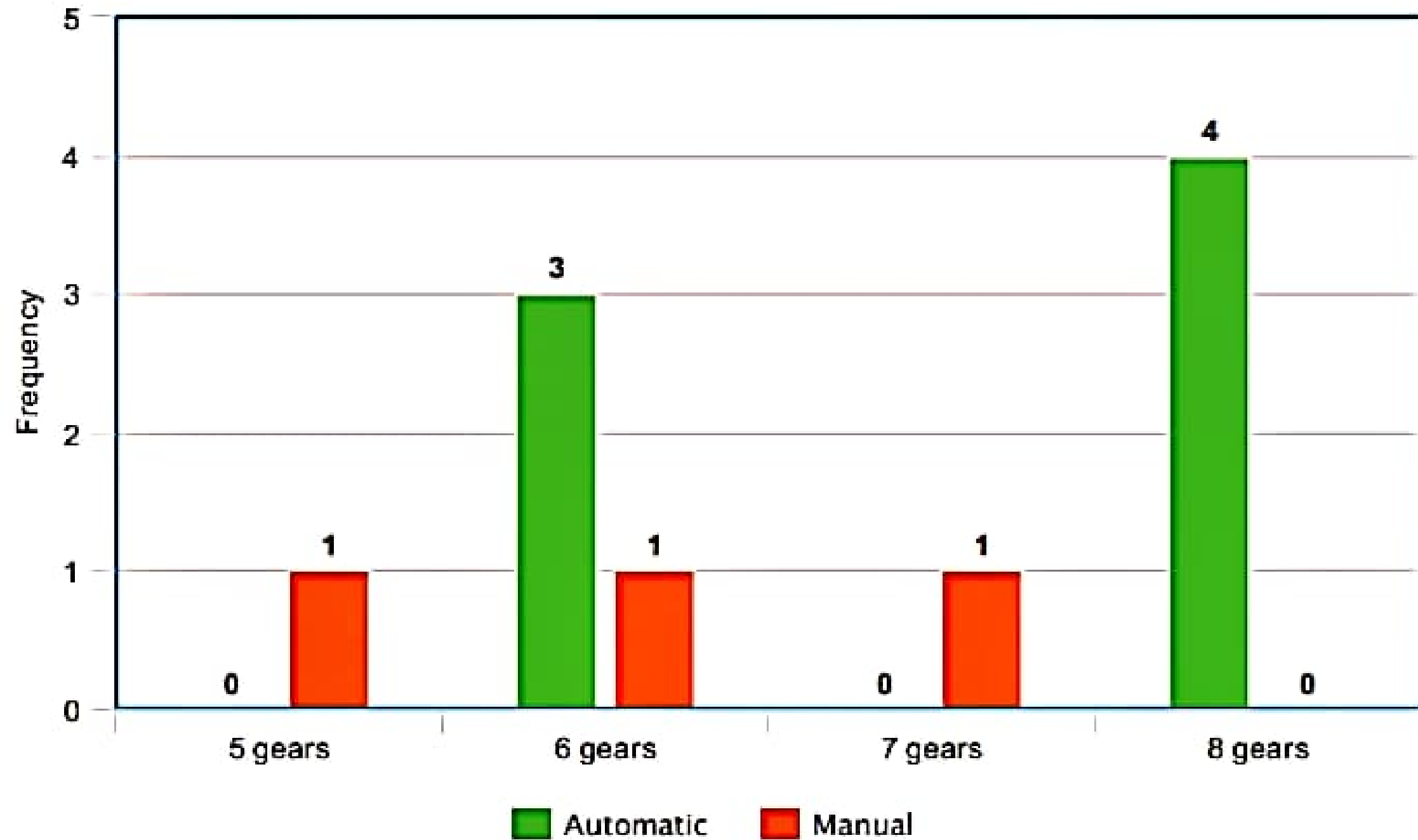
(ii) $\frac{1}{10}$ or 10% vehicles have 7 gear

(iii) $\frac{4}{7}$ proportion or 57.14% Automatic vehicles have 8 gears

(iv) $\frac{1}{4}$ or ~~25%~~ ^{25%} Manual vehicles have 6 gear.

(v) side by side bar chart

Fig: Distribution of Vehicles by Transmission and Gears



d)

Table: Frequency distribution of Hwy MPG

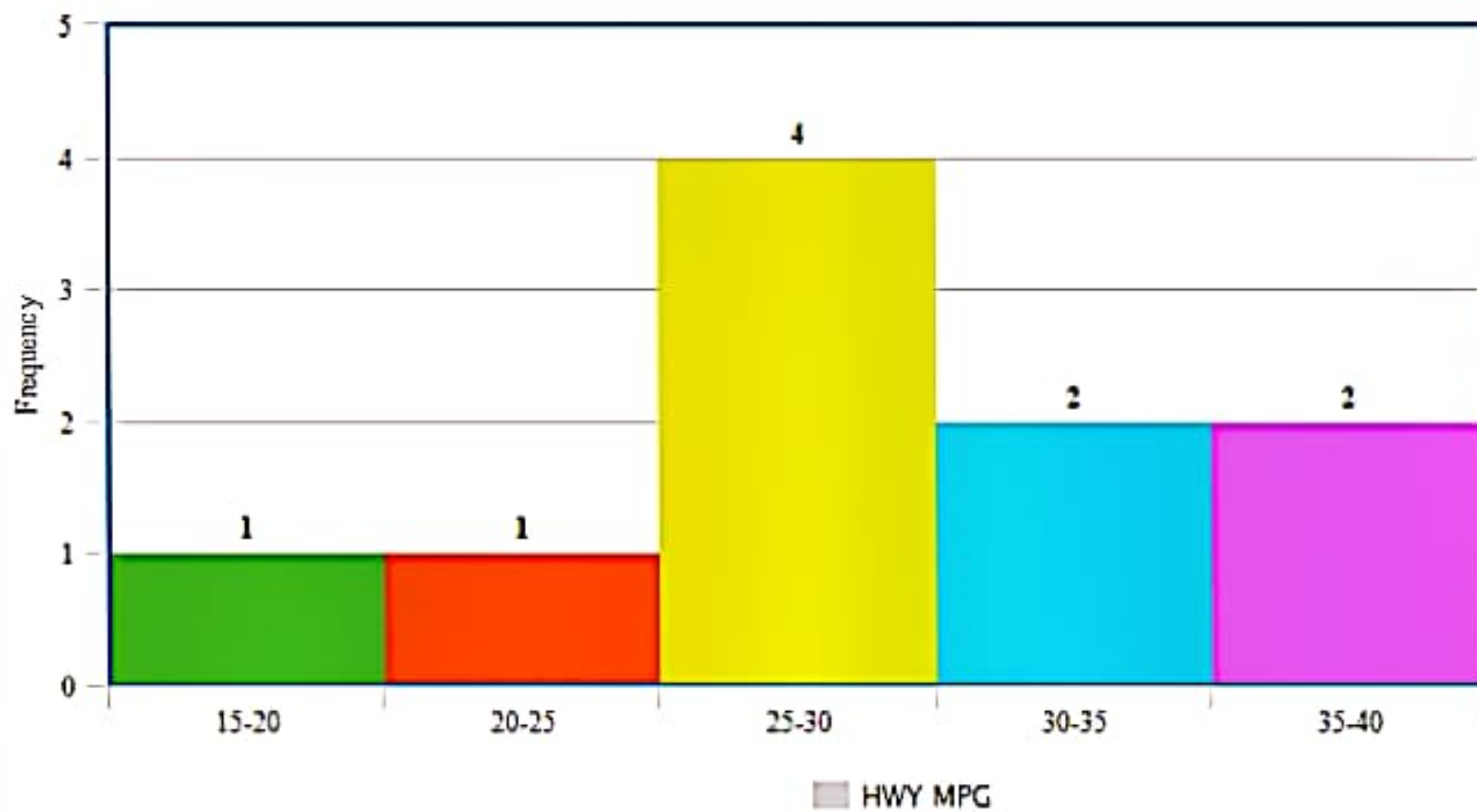
Hwy MPG	Tally	Frequency	Relative Frequency	Cumulative Relative Frequency
15-20	I	1	$\frac{1}{10}$	$\frac{1}{10}$
20-25	I	1	$\frac{1}{10}$	$\frac{2}{10}$
25-30	IIII	4	$\frac{4}{10} = \frac{2}{5}$	$\frac{6}{10}$
30-35	II	2	$\frac{2}{10} = \frac{1}{5}$	$\frac{8}{10}$
35-40	II	2	$\frac{2}{10} = \frac{1}{5}$	$\frac{10}{10}$
Total		10	1	

(i) $\frac{5}{10}$ Proportion of vehicles have mileage between 20 and 30 MPG

(ii) $\frac{4}{10}$ proportion or 40% of vehicles have mileage greater than 30 MPG

(iii) No to graph of the table.

Fig: Histogram of the distribution of Vehicles by HWY MPG



Answer to the question no 2

(i)

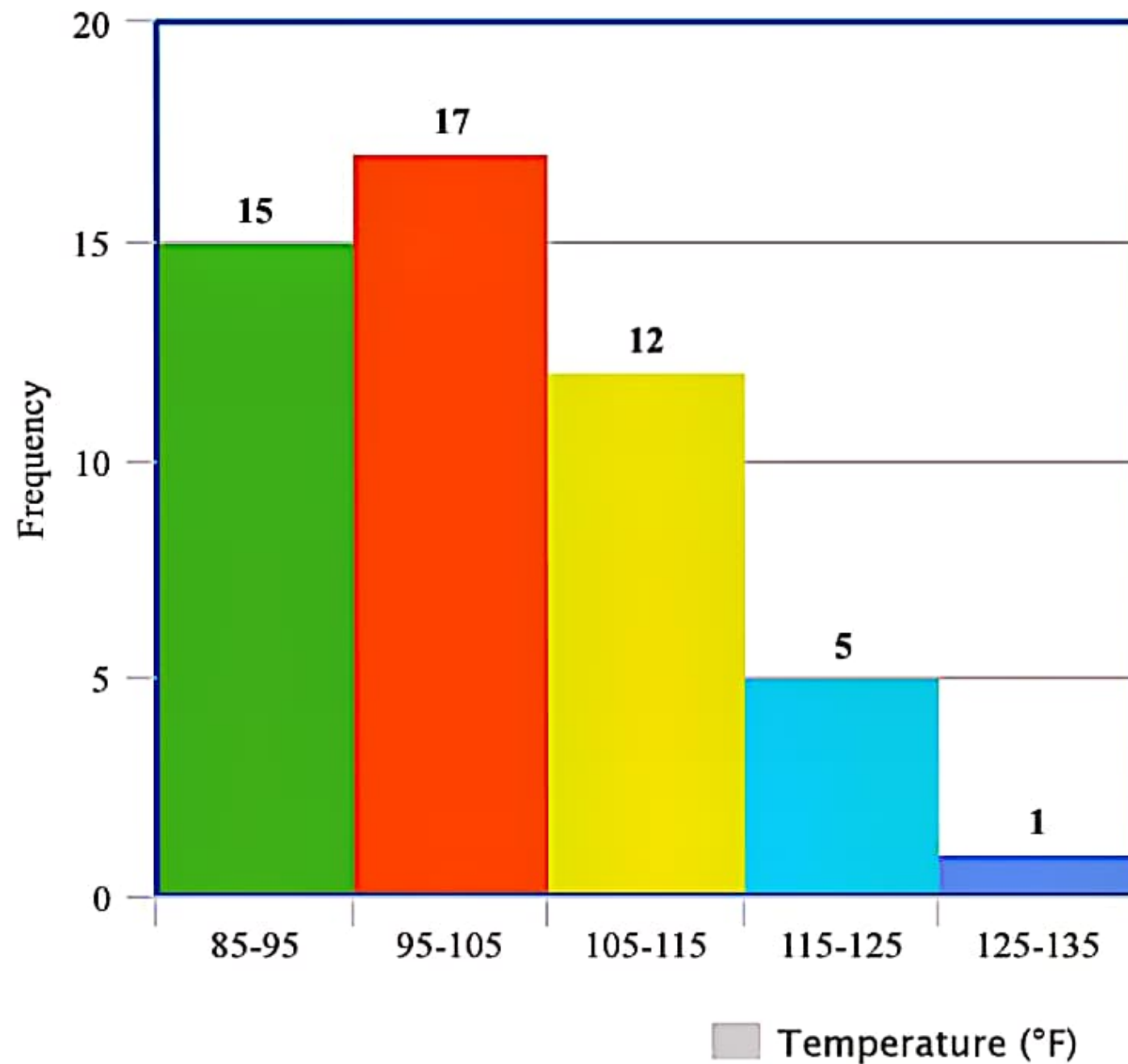
Table: Frequency distribution of high temperatures in degree Fahrenheit of 50 us states

Class interval*	Tally	Frequency
85 - 95		15
95 - 105		12
105 - 115		12
115 - 125		5
125 - 135		1
Total		50

* upper class limit excluded

(ii) Histogram of the table

Fig: Histogram of the distribution of the Temperature of 50 Us State



Answer to the question no 3

Fig: Stem-and-leaf display of American and French movies by running time

Am leaves	Stem	Fr leaves
	8	1
2, 5, 5, 5, 4, 3, 2, 1, 1, 0, 0, 0	9	0, 0, 2, 3, 4, 5, 6, 6
9, 4, 3, 2	10	2, 3, 5, 6
6, 6, 3, 0	11	1, 3, 6, 9
8, 5, 0	12	2, 2, 2, 5, 5, 8
8	13	7
	14	
	15	8
2	16	

From the stem-and leaves display we can see that both American and French movies play time is mostly in stem 9. Also we can count how many movie time is different. Also the main thing is that

Date :/...../.....

The researcher can easily see from the display that both American and French movie playtime is pretty similar