STA201 Assignment 1

Question 1

The following table shows some information on a variety of different vehicles. Using the information given in table 1, answer question 1a – 1d

Table 1: Vehicles

Model	Engine size	Cylinders	Transmission	Number of gears	Fuel	Vehicle Class	City MPG	Hwy MPG	Model Year
ACURA RDX	3.5	6	Automatic	6	Gasoline	small SUV	19	28	2010
HYUNDAI Sonata	1.6	4	Manual	7	Gasoline	large car	28	38	2015
Ford Fiesta	1.6	4	Manual	5	Gasoline	Small car	28	36	2006
DODGE Challenger	6.4	8	Automatic	8	Gasoline	midsize car	14	25	2010
BMW X5 xDrive35i	3	6	Automatic	8	Gasoline	standard SUV	18	24	2013
HONDA Accord	3.5	6	Automatic	6	Gasoline	midsize car	21	32	2014
LAND ROVER Range Rover	3	6	Automatic	8	Diesel	standard SUV	22	29	2008
BENTLEY Mulsanne	6.8	8	Automatic	8	Gasoline	midsize car	11	18	2012
MAZDA CX-5	2.5	4	Automatic	6	Gasoline	small SUV	24	30	2013
PORSCHE Cayman GTS	3.4	6	Manual	6	Gasoline	small car	19	26	2015

1a)

i. How many variables are listed in table 1?

ii. Classify the variables according to their types (Qualitative / Quantitative).

1b) Construct a frequency distribution table to represent the summary information of the variable "Vehicle Class" and display the results in a pie chart.

1c) Complete the following table and answer the questions

Table 2: Frequency distribution of Transmission by Number of Gears

Transmission	Number of Gears				Total
	5	6	7	8	
Automatic					
Manual					
Total					

i. What is the modal response for the variable "Transmission"? (Which has the highest frequency?)
ii. What proportion of vehicles have 7 gears?
iii. What proportion of Automatic vehicles have 8 gears?
iv. What proportion of vehicles with 6 gears are Manual?
v. Construct a side by side bar chart to represent the information given in table 2.

1d) Complete the following table and answer the questions

Table 3: Frequency distribution of Hwy MPG

Hwy MPG	Tally	Frequency	Relative frequency	Cumulative relative frequency
15 – 20				
20 – 25				
25 – 30				
30 – 35				
35 – 40				

i. What proportion of vehicles have mileage between 20 and 30 MPG?
ii. What proportion of vehicles have mileage of at least 30 MPG?
iii. Construct a histogram to display the data represented in table 3.

Question 2

Mrs. X teaches Statistics at Brac University. She recently wrote down the class marks of two sections and compared them. The data can be found below:

Sec 1:	70	93	98	80	87	78	77	91	74	87	81	69	73
	85	72	83	76	65	87	75	62	82	74	91	78	
Sec 2:	85	76	80	78	72	89	85	90	96	84	87	80	65
	76	95	82	82	63	96	81	82	68	88	93	88	

Construct a comparative stem-and-leaf display by listing stems in the middle of your paper and then placing the Section 01 leaves out to the left and the Section 02 leaves out to the right. Then comment on the interesting features of the display.

Question 3

The following data set represents the record high temperatures in degree Fahrenheit (℉) for each of the 50 US states:

106	98	96	108	90	93	89	103	104	119
111	85	97	102	85	109	93	120	98	102
90	96	114	108	91	100	96	105	89	96
107	99	113	125	88	122	110	85	99	90
93	102	123	110	111	101	92	96	89	116

i. Construct a suitable frequency distribution table using interval 85 – 95, 95 – 105 and so on.

ii. Sketch a graph of the percentage polygon using the frequency distribution table from part (i). When do we prefer such types of graphs?

iii. Construct an Ogive to visualize the data represented in the frequency distribution table from part (i). What is the advantage of using Ogive over other graphs of quantitative variables?