Date: _____ Name: Dhrumil Patel

MDM4U, Quiz #3 – Unit 3: Collecting and Displaying Data /15K /1C (time)

1. Match each of the following sampling methods with the appropriate style on the right: <2 marks>

i)	B	You create a survey on your blog and regularly check back to see the responses of the people who complete it.	A Systematic Random Sample
ii)	A	You stand outside you're the cafeteria and ask every 10th person who walks by what their favourite food is.	B Voluntary-Response Sample
iii)	C	You put the names of all the people you want to survey in a hat and randomly choose pieces of paper from the hat.	C Simple Random Sample
iv)	D	You want to know where people are going to University so you call all your closest friends.	D Convenience Sample

2. Describe the similarities/differences between a stratified sample and a multi-stage sample: <3 marks>

Both sampling methods split a pop. into groups and conduct a random sample from those groups.

Stratified sampling randomly samples from each group to get a total sample.

Multi-stage sampling randomly samples from a group to produce a new group and can either repeat the process on this group or conduct a random sample on this group.

3. Consider this bookshelf on the right

Its properties include:

- height - weight - colour - price - number of books in it - number of shelves
- material - where it was built - number of cabinets - width - depth

<3 marks>

a) List two properties that are quantitative: height, weight

b) List two properties that are qualitative: colour, material

***Items from parts (a) & (b) can be reused for (c) & (d) ***

c) List a property that has discrete values: number of shelves

d) List a property that has continuous values: height

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4. The following stem-and-leaf plot displays the number of points scored by a basketball team throughout the season.

<2 marks>

Stem	Leaf
4	5 6 6 8 9
5	0 2 4 5 5 5 6 7
6	0 1 2 2 7 8
7	1 5

a) How many games were more than 55 points scored? 10

b) Based on the data, in what percentage of their games do they score more than 50 points?

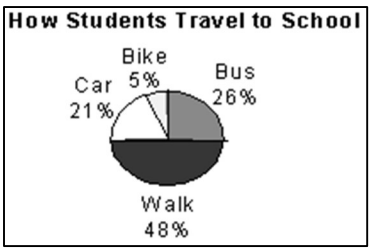
$$\%>50 = \frac{\#\text{ of games } >50\text{pts}}{\text{total \# of games}} \times 100\%$$

$$= \frac{15}{21} \times 100\% = 71.4\%$$

∴ They score >50 pts in 71.4% of games.

5. Students were asked how they travel to school each morning. The pie chart to the right summarizes this data.

<2 marks>



a) Determine the sector angle for biking.

$$\theta = (\%)(360^\circ)$$
$$= \left(\frac{5}{100}\right)(360^\circ)$$
$$= 18^\circ$$

∴ The sector angle for biking is 18°.

b) If there are 950 students at the school, how many students arrive by car?

$$\text{car students} = (\%)(\text{total})$$
$$= \left(\frac{21}{100}\right)(950)$$
$$= 199.5 \simeq 200.$$

∴ About 200 students arrive by car.

6. Look closely at the following survey. Circle **THREE** examples of bias and state how the survey can be modified to eliminate the bias.

<3 marks>

Customer Survey

Help us identify what can make our great store even better!

Circle the appropriate response:

Gender: Male Female (1)

Age: Under 10 10-15 15-25 Over 25

How often do you shop at this store?

__ all the time! __ frequently __ once in a while (2)

Some things you would like to see in the store:

- □ Louder music
- □ Shorter lines
- □ Bigger sales
- □ Even more fun stuff!

(3)

Measurement Bias.
The survey should be inclusive of non-binary people to avoid alienating potential customers. Add an "other" option.

Measurement Bias. Add a "never" option to balance positive and negative responses.

Measurement Bias. The provided options are too limited to accurately represent customers' opinions. Add an "other" option or a spot for a customer to write an answer.