QUIZ 2 BUM2413, APPLIED STATISTICS, SEM II 2013/2014

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MATRIC NO.: CB13006 SECTION: 10

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1. A group of students is required to determine the best method in measuring the circumference of a tennis ball. Table 1 shows a set of data of Method X and the following *Excel* outputs show the descriptive statistics for Method Y and Method Z.

Table 1: Measurements of a tennis ball (in cm)

Student	A	B	C	D	E
Method X	30.0	18.9	18.9	28.0	20.1

Method Y		Method Z	
Mean	10	Mean	21.35
Standard Error	0.288386	Standard Error	0.413454
Median	20.85	Median	21.35
Mode	21.05	Mode	21.35
Standard Deviation	0.706399	Standard Deviation	1.012752
Sample Variance	0.499	Sample Variance	1.02
Kurtosis	-1.41345	Kurtosis	-1.71543
Skewness	1.011083	Skewness	-0.63605
Range	1.6	Range	2.4
Minimum	20.5	Minimum	19.7
Maximum	22.1	Maximum	22.1
Sum	126.3	Sum	125.9
Count	5	Count	5
Confidence Level(95.	0.741321	Confidence Level(95.(	1.062818

a. Find the value of sample mean and ~~standard deviation~~ variance for Method X. Use the correct notations.

(2 Marks)

$\bar{x} = 23.18$

$S = 4.8139$

$S^2 = 23.1736$

b. State the sample mean and variance for Method Y and Method Z using the correct notation.

(3 Marks)

Method Y

$\bar{x} = 10$

$S^2 = 0.4989$

$S^2 = 0.499$

Method Z

$\bar{x} = 21.35$

$S^2 = 1.0256$

$S = 1.02$

c. Based on measures of central tendency, what is the distribution for each method?

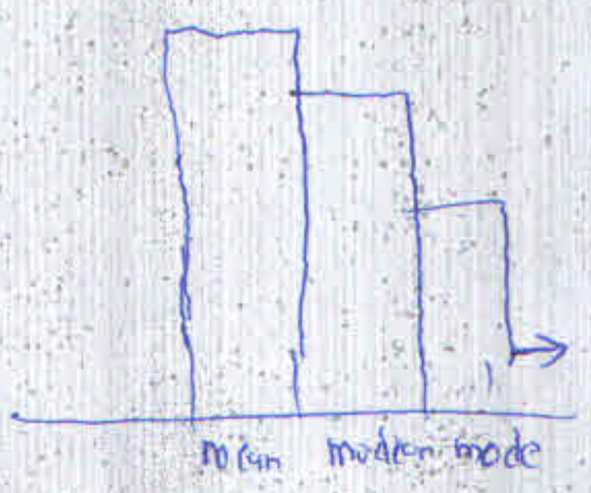
(3 Marks)

Method X

mean = $\bar{x}$ = 23.18

~~median =~~

mode = 18.9



Right skewed/ positively skewed distribution

Method Y

$\bar{x}$ = 10

median = 20.85

mode = 21.05

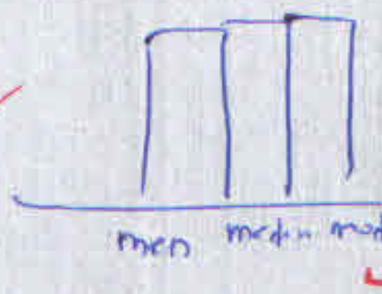
left skewed distribution

Method Z

$\bar{x}$ = 21.35

median = 21.35

mode = 21.35



Symmetry distribution

d. Based on answers in (a) and (b), which method produced the best measurement of a tennis ball? State your reason.

(2 Marks)

The method X produce the best measurment of a tenni s ball because the value of variance and standard deviation is more dispersed than method Y and method Z.