STATISTICAL REASONING FOR EVERYDAY LIFE BENNETT BRIGGS TRIOLA

Chapter 2 (Measurement in Statistics) Exam, form A

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Identif	v the	following	variables a	s either	qualitative or	quantitative in #	1 and #2.

	1)	The state in which people live.	
		A) Qualitative	B) Quantitative
	2)	The size of your house.	
		A) Qualitative	B) Quantitative
Identif	y tł	ne number as either continuous or di	screte in #3 and #4.
		The average height of all freshmen entering co	
		A) Continuous	B) Discrete
	4)	The number of eggs in a goose nest is 8.	
		A) Continuous	B) Discrete
Determ	nine	which of the four levels of measure	ment is most appropriate.
	5)	Temperatures in degrees Fahrenheit of the occ	
		A) Ratio B) Interval	C) Ordinal D) Nominal
Two st	tate	ments are given in #6. Select the	statement for which a ratio of the
		ents is meaningful. State "Neither"	
	6)	1 - Kasheta ran the race in 22.3 sec, and Louis	
	-,	2 - Juan gets out of school at 2:45 PM, and Ai	
		A) Kasheta ran the race in 22.3 sec, and Lou	_
		B) Neither	
		C) Both	
		D) Juan gets out of school at 2:45 PM, and a	Aito gets out of school at 3:15 PM.
Select t	the	description that most completely cla	ssifies the given variable in #7.
	7)	Soft drink sizes: small, medium, large	8
		A) Qualitative, nominal	B) Quantitative, ordinal
		C) Quantitative, ordinal, discrete	D) Qualitative, ordinal
	8)	* -	Identify the potential error in the measurements
		A) Random	B) Systematic
	9)	Totals are determined by rounding to tent systematic.	hs. Identify the potential error as random or
		A) Random	B) Systematic
	10)	students, 90% of the student body of 2870 st	"Based on a survey of 156 randomly selected udents agree that no student should have to take "." If 2578 students actually agree, then what is
		A) 5 students	B) 287 students
		C) 0.17%	D) 292 students

11)							car is trav		les per hour; yo	u had the
	A) 5 n	nph		B) 7.1	%		C) 7.7%		D) 0.929	
12)	cm. Q techni	uality cians m	control	randoml its lengt	y select h. Their	s one o	of the part	ts, and four e 5.3234 cm	nufactured part different qualit a, 5.11259 cm, 5	y control
	A) 5.3	234		B) 5.1	1259		C) 5.351		D) 5.45	
13)			th a met t divisio		that has	grams	as the sma	allest division	n, a scale with n	nilligrams
	A) v	vill gua	rantee m	easurem	ents tha	t are mo	re accurate	e, but not ned	cessarily more p	recise.
	B) v	vill guai	rantee m	easurem	ents tha	t are mo	re precise	and more ac	curate.	
	C) v	vill gua	rantee m	easurem	ents tha	t are mo	re precise,	but not nece	essarily more acc	curate.
	D) v	vill not	guarante	ee measu	rements	that are	more accu	urate or more	e precise.	
14)	report	ed that	they had		ing bing				. Of these stud vening) in the pa	
	A) A	About 6	6.358%	of colleg	ge studer	nts indu	lged in bing	ge drinking l	ast month.	
	-	Of the 23 ast mon		21 colleg	e studen	ts in the	e country, 1	15,565,212 ii	ndulged in binge	drinking
							n binge dri			
	D) A	About 6:	5% of co	ollege st	ıdents ir	dulged	in binge di	rinking in the	e past month.	
15)			a percei		1050/		G) 2 1250	,	D) 0.021250/	
	A) 31.		_	B) 0.3	125%		C) 3.125%	0	D) 0.03125%	
16)			to a pe							
	A) –4				0045%		C) -4.5%		D) 0.45%	
17)	an av	erage o	f \$70 p	er cours	se on bo	oks. W	hat is the	percent dif	Mathematics maj ference between nearest percent	the two
	A) 64°	%		B) 399	%		C) -64%		D) -39%	
18)	How r	nuch le		boy's a					end an average of girl's expenditu	
	A) 61°	%		B) 158	3%		C) -158%	o	D) 39%	
19)	'Statis	tics Te	xt Index		er, roun				100 in 2000. W he 2000 edition	
	A) 20.	.0		B) 200	0.0		C) 50.0		D) 2.0	
20)	A part	of the	CPI is g	iven belo	ow:					
	Year	1975	1980	1985	1990	1995				
-	CPI	53.8	82.4	107.6	130.7	152 4	_			
	Suppo	se a we	l l	oceries in			What wo	uld these gro	oceries cost, to the	ne nearest
	A) \$38	•		B) \$44	1		C) \$111		D) \$129	

Chapter 2 (Measurement in Statistics) Exam, form B

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Identify	y th	e following variab	oles as either qualit	tative or quantitat	ive in #1 and #2.	
	1)	A person's height in fe	eet.			
		A) Qualitative		B) Quantitative		
2	2)	A person's political aff	filiation.			
		A) Qualitative		B) Quantitative		
Identify	y th	e number as eithe	r discrete or conti	nuous in #3 and #4	4.	
2	3)	The number of books a	available from Amazon.			
		A) Discrete		B) Continuous		
4	4)	An athlete runs 100 me	eters in 10.7 seconds.			
		A) Discrete		B) Continuous		
Determ	ine	which of the four	levels of measurer	ment is most appr	opriate in #5.	
:	5)	Ages of survey respond	dents.			
		A) Ratio	B) Interval	C) Ordinal	D) Nominal	
Two st	ate	ments are given	in #6. Select the	statement for w	hich a ratio of the	
measur	em	ents is meaningful	l. State "Neither" o	or "Both" if appro	priate.	
(6)	1 - Kim pulled weeds minute.	at the rate of twenty w	eeds per minute, and J	forge pulled 18 weeds per	
		2 – Anna Lisa swam 4	45 yards underwater, and	d Marissa swam 35 ya	rds underwater.	
		A) Anna Lisa swam 4	45 yards underwater, an	d Marissa swam 35 ya	rds underwater.	
		B) Kim pulled weeds minute.	s at the rate of twenty w	veeds per minute, and J	forge pulled 18 weeds per	
		C) Neither				
		D) Both				
Select t	he	description that m	ost completely clas	ssifies the given va	ariable in #7.	
,	7)	Preference ratings: as importance a 1"	in "Rate the item of	most importance to y	you a 5 and that of least	
		A) Qualitative, ordinal		B) Quantitative, ordin	al	
		C) Quantitative, ordina	al, discrete	D) Qualitative, nomin	al	
:	8)	A computer uses voice random error.	e recognition software. I	Identify a misinterprete	ed word as a systematic or	
		A) Systematic		B) Random		

9)	Identify the potential error in recording arrival times for interstate highway trips as random or systematic.						
	A) Systematic		B) Random				
10)	The size of an e-mail f absolute error?	ile is stated as 210 kB,	but the file size is actua	ally 220.5 kB. What is the			
	A) 5%	B) 10%	C) 10.5 kB	D) -10.5 kB			
11)	The pickup time of an rings. What is the relat		set at 5 rings, but the	machine picks up after 4			
	A) –1 ring	B) 4 to 6 rings	C) -25%	D) -20%			
12)	The approximate value values is the most prec		hich of the following e	xperimentally determined			
	A) 3.14	B) 3.247	C) 3.412114	D) 3.3245			
13)	Compared with a store readings as second		dings as seconds	, a stopwatch that gives			
	A) more accurate, bu	it not necessarily more	precise.				
	B) more precise and	more accurate.					
	C) not necessarily m	ore precise or more acc	eurate.				
	D) more precise, but	not necessarily more a	ccurate.				
14)		e 61 m by 31 m. She	reported that there we	ter of lawn and measured are 208,010,000 blades of			
	A) correctly represer	nts her measurements.					
	B) is less than her me	easurements warrant.					
	C) could be greater i	f she used a more preci	se calculator.				
	D) is excessive giver	her measurements.					
15)	Convert 13% to decima	al form.					
	A) 0.013	B) 0.13	C) 1.3	D) 13			
16)	Convert 5.65 to a perce	ent.					
	A) 565%	B) 5.65%	C) 0.565%	D) 56.5%			
17)				cigarettes and 61% of 7th e absolute increase, to the			
	A) 77%	B) 336%	C) 436%	D) 47%			
18)				% of persons 60-65 years to the older group, to the			
	A) 76 points	B) 319 points	C) –46 points	D) 46 points			

- 19) Suppose that the cost of a statistics text was \$55 in 1985 and is \$90 in 2000. What is the 'Statistics Text Index' number, rounded to the nearest tenth, for the 1985 edition with the 2000 price as the reference value?
 - A) 0.6
- B) 163.6
- C) 1.6
- D) 61.1

20) A part of the CPI table is given below:

Year	1975	1980	1985	1990	1995
CPI	53.8	82.4	107.6	130.7	152.4

Suppose an actuary's salary was \$86,000 in 1995. What would the salary have to have been in 1975 if it had just kept up with inflation (round to the nearest \$1000)?

- A) \$244,000
- B) \$30,000
- C) \$58,000
- D) \$128,000

Chapter 2 (Measurement in Statistics) Exam, form C

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Identif	y the	following	variables a	as either	quantitative o	r qualitative	in #1	and #2.

or an	31101	s the question.	
Ident	ify t	he following variables as e	ither quantitative or qualitative in #1 and #2.
	1)	Brand of basketball shoes worn	by a team.
		A) Quantitative	B) Qualitative
	2)	Outcome of tossing a coin.	
		A) Quantitative	B) Qualitative
Ident	ify t	he number as either contin	uous or discrete in #3 and #4.
	3)	The average speed of cars passi Friday is 32.3 mi/h.	ng a busy intersection between 4:30 P.M. and 6:30 P.M. on a
		A) Continuous	B) Discrete
	4)	The total number of scam emails	s you receive in a month is 7.
		A) Continuous	B) Discrete
Deter	min	e which of the four levels o	of measurement is most appropriate in #5.
	5)	Political party preference of surv	vey respondents.
		A) Nominal B) Ordin	nal C) Interval D) Ratio
Two	stat	ements are given in #6.	Select the statement for which a ratio of the
		e	"Neither" or "Both" if appropriate.
	6)	1 The fertilized grass grew 2 the same week.	.9 inches in a week; the unfertilized grass grew 1.8 inches in
		2 The single-stage model rock	ket went up 287 ft; the two-stage model rocket went up 412 ft.
		A) The single-stage model rock	xet went up 287 ft; the two-stage model rocket went up 412 ft.
		B) The fertilized grass grew 2. the same week.	9 inches in a week; the unfertilized grass grew 1.8 inches in
		C) Neither	
		D) Both	
Select	t the	description that most com	pletely classifies the given variable in #7.
	7)	Number of wins by the NFL team	ms in the NFC Central division
		A) Quantitative, nominal	B) Quantitative, interval
		C) Qualitative, interval	D) Quantitative, ratio
	8)		a cup in a cup measuring cup marked in quarters. Assuming is, relative to 1/4 and 1/2, identify the potential measurement
		A) Systematic	B) Random
	9)	A person is always late for class	. Identify the potential error as random or systematic.
		A) Systematic	B) Random

1	A) -50%	B) $-33\frac{1}{3}\%$	C) 50%	rror? D) $33\frac{1}{3}\%$
		2		3
	A pharmacist puts 32 pror?	pills into a prescription	order that calls for 30	pills. What is the absolute
1	A) -6.7%	B) –2 pills	C) 2 pills	D) 6.7%
-	The approximate value alues is the most accu		hich of the following e	experimentally determined
Í	A) 3.14	B) 3.3245	C) 3.412114	D) 3.247
3) V	Which of the following	g statements is correct?		
Í	A) "Precise measure	ment" means the same	thing as "accurate mea	surement".
I	B) An accurate meas	surement must be precis	se.	
(C) A precise measur	ement must be accurate	. .	
I	D) A precise measur	ement is not necessarily	y accurate.	
re		a drinking binge (more		s. Of these students, 789 vening) in the past month.
	A) About 66 2500/ a	C 11 . 1 . 1 .		
1	A) About 66.338% C	of college students indu	lged in binge drinking	last month.
		•		
I	B) Of the 23,456,32 last month.	•	e country, 15,565,212 i	
I	B) Of the 23,456,32 last month. C) About 65% of co.	1 college students in the	n binge drinking.	ndulged in binge drinking
I (B) Of the 23,456,32 last month. C) About 65% of co.	1 college students in the llege students indulge in llege students indulged	n binge drinking.	ndulged in binge drinking
I (I) C	B) Of the 23,456,32 last month. C) About 65% of co	1 college students in the llege students indulge in llege students indulged	n binge drinking.	ndulged in binge drinking
I I I C	B) Of the 23,456,32 last month. C) About 65% of co. D) About 65% of co. Convert 1779% to dec	1 college students in the llege students indulge in llege students indulged imal form. B) 17.79	e country, 15,565,212 in binge drinking. in binge drinking last in	ndulged in binge drinking month.
(I) C	B) Of the 23,456,32 last month. C) About 65% of co. D) About 65% of co. Convert 1779% to dec. A) 177.9	1 college students in the llege students indulge in llege students indulged imal form. B) 17.79	e country, 15,565,212 in binge drinking. in binge drinking last in	ndulged in binge drinking month.
I I I I I I I I I I I I I I I I I I I	B) Of the 23,456,32 last month. C) About 65% of co. D) About 65% of co. Convert 1779% to dec. A) 177.9 Convert 0.0195% to dec. A) 0.000195 A professor's checking	1 college students in the llege students indulge in llege students indulged imal form. B) 17.79 ecimal form. B) 1.95	e country, 15,565,212 in binge drinking. in binge drinking last in binge drinking last in C) 1.779 C) 0.195 year ago was \$1470	month. D) 177,900 D) 19.5 Currently, it is \$1040.
I ((I I I I I I I I I I I I I I I I I	B) Of the 23,456,32 last month. C) About 65% of co. D) About 65% of co. Convert 1779% to dec. A) 177.9 Convert 0.0195% to dec. A) 0.000195 A professor's checking	1 college students in the llege students indulge in llege students indulged imal form. B) 17.79 ecimal form. B) 1.95 ag account balance a	e country, 15,565,212 in binge drinking. in binge drinking last in binge drinking last in C) 1.779 C) 0.195 year ago was \$1470	month. D) 177,900 D) 19.5 Currently, it is \$1040
I (I (I (I (I (I (I (I (I (I (B) Of the 23,456,32 last month. C) About 65% of co. D) About 65% of co. Convert 1779% to dec. A) 177.9 Convert 0.0195% to dec. A) 0.000195 A professor's checking calculate the relative p. A) -41% Research shows that 1.	1 college students in the llege students indulge in llege students indulged imal form. B) 17.79 recimal form. B) 1.95 reg account balance a percentage change to the B) 29% 5.5% of persons 20-25	e country, 15,565,212 in binge drinking. in binge drinking last in the binge drinking. C) 0.195 year ago was \$1470 e nearest percentage por C) 41% years old vote and 63.5	month. D) 177,900 D) 19.5 Currently, it is \$1040 int. D) -29% 5% of persons 60-65 years
(I I I I I I I I I I I I I I I I I I I	B) Of the 23,456,32 last month. C) About 65% of co. D) About 65% of co. Convert 1779% to dec. A) 177.9 Convert 0.0195% to dec. A) 0.000195 A professor's checking calculate the relative part of the convert of the conv	1 college students in the llege students indulge in llege students indulged imal form. B) 17.79 recimal form. B) 1.95 reg account balance a percentage change to the B) 29% 5.5% of persons 20-25	e country, 15,565,212 in binge drinking. in binge drinking last in the binge drinking. C) 0.195 year ago was \$1470 e nearest percentage por C) 41% years old vote and 63.5	month. D) 177,900 D) 19.5 Currently, it is \$1040.0 oint. D) -29% 5% of persons 60-65 years
I I I I I I I I I I I I I I I I I I I	B) Of the 23,456,32 last month. C) About 65% of co. D) About 65% of co. Convert 1779% to dec. A) 177.9 Convert 0.0195% to dec. A) 0.000195 A professor's checking calculate the relative part of the p	llege students in the llege students indulge in llege students indulged imal form. B) 17.79 recimal form. B) 1.95 reg account balance a percentage change to the B) 29% 5.5% of persons 20-25 relative change from the B) 76% of a statistics text was number, rounded to the statistics text was number, rounded to the statistics text was number, rounded to the statistics in the statistics text was number, rounded to the statistics text was number, rounded to the statistics in the statistics text was number, rounded to the statistics in the statistic	c country, 15,565,212 in binge drinking. in binge drinking last in binge drinking. C) 0.195 year ago was \$1470 e nearest percentage por C) 41% years old vote and 63.5 e younger group to the compared by the binge drinking.	month. D) 177,900 D) 19.5 Currently, it is \$1040. oint. D) -29% 5% of persons 60-65 years older group, to the nearest

20) A part of the CPI table is given below:

Year	1975	1980	1985	1990	1995
CPI	53.8	82.4	107.6	130.7	152.4

What is the percent increase of a market basket of goods from 1975 to 1985? Round the percent to the nearest integer.

- A) 100%
- B) 200%
- C) 54%
- D) 50%

Chapter 2 (Measurement in Statistics) Exam, form D

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Identif	y the	following	variables a	as either	quantitative o	r qualitative	in #1	and #2.

- 1) A player's number on her soccer jersey
 - A) Quantitative
- B) Qualitative
- 2) The number of textbooks owned by a student
 - A) Quantitative
- B) Qualitative

Identify the number as either continuous or discrete in #3 and #4.

- 3) The number of DIRECT TV customers
 - A) Continuous
- B) Discrete
- 4) The voltage of the electricity in a power line
 - A) Continuous
- B) Discrete

Determine which of the four levels of measurement is most appropriate in #5.

- 5) A librarian rates fives books on an "ease of reading" scale from 1 (easy) to 10 (hard).
 - A) Nominal
- B) Ordinal
- C) Interval
- D) Ratio

Two statements are given in #6. Select the statement for which a ratio of the measurements is meaningful. State "Neither" or "Both" if appropriate.

- 6) 1 Jan earned a B on her test and Bob earned a C.
 - 2 Bob wears size 9 shoes and Earl wears size 13.
 - A) Jan earned a B on her test and Bob earned a C.
 - B) Bob wears size 9 shoes and Earl wears size 13.
 - C) Neither
 - D) Both

Select the description that most completely classifies the given variable in #7.

- 7) A Prostate Specific Antigen (PSA) test is useful in detecting prostate cancer in men. A sample of blood is analyzed and the concentration of PSA is reported in nanograms per milliliter. Values less than 4.0 are considered normal and values over 10.0 indicate that further tests are needed. The best classification of the PSA variable is
 - A) Nominal

- B) Qualitative, Ordinal
- C) Quantitative, Continuous
- D) Quantitative, Discrete
- 8) Amtrak passenger trains are often late in arriving at their destinations. Identify the potential error in arrival time as systematic or random.
 - A) Systematic

B) Random

9)	of grapes by standing of the weight to the neare	on a bathroom scale wi	ith and without the grap error in the weight as s	ter estimates the 4 pounds bes. The scale only shows systematic or random.
	A) Systematic		B) Random	
10)				ands, 12 ounces of grapes attive error? (There are 16
	A) 4 ounces	B) –4 ounces C) 6.	.25% D) -6.25%	⁄o
11)	A golfer estimates that distance is exactly 212			is 200 yards. The actua
	A) -12 yards	B) -6.0%	C) 6.0%	D) -5.7%
12)	measured in grams eq physics experiments. number was the sam determined experimen	It is named after Ama e for all substances. tally. Some of them a that you have to move nost accurate?	tht. It can only be de deo Avogadro, who po Various values for are 6.02 x 10 ²³ , 6.022	quantity of the substance termined by chemistry of ostulated in 1811 that this this constant have been x 10 ²³ , and 6.02214199 x blaces to the right. Which
12)	,	<i>'</i>	· /	· · · · · · · · · · · · · · · · · · ·
13)	your weight to the near		ight to tenths of a pou	and, a scale that measures
	A) more precise and i	more accurate.		
	B) less precise, but m	nay be more accurate.		
	C) more precise, but	may be less accurate.		
	D) less precise and le	ss accurate.		
14)				om a day's production of Select the most believable
	A) About 2.047% of	the day's production w	as defective.	
	B) Of the 27,114 tires	s produced that day, 55	5 were defective.	
	C) A little over 2% of	f all tires produced by	the plant that day were	defective.
	D) A little over 3% o	f all tires produced by	the plant that week wer	e defective.
15)	Convert 112.463% to 0	• •	•	
	A) 1.12463	B) 11.2463	C) 1124.63	D) 11246.3
16)	Convert 0.1963 to a pe	*	0)	_
10)	A) 0.001963%	B) 0.01963%	C) 1.963%	D) 19.63%
17)	*		· ·	2 pounds to 185 pounds
-1)	What is his percent inc			2 position to 100 pounds
	A) 13.0 pounds	B) 8.0%	C) 7.6%	D) 7.0%
	, .	•	•	*

WI was \$3.89 w	hile in Appleton, WI	orice of a gallon of regular, the average price was \$ e nearest tenth of a percent	3.74. What is the per	centage
A) -3.9%	B) 3.9%	C) -4.0%	D) 4.0%	

- 19) Suppose that the cost of a statistics text was \$45 in 1980 and \$76 in 2005. What is the Statistics Text Index number, rounded to the nearest tenth, for the 1980 edition with the 2005 price as the reference value?
 - A) 0.6 B) 5.9 C) 59.2 D) 168.9
- 20) A part of the CPI table is given below:

Year	1975	1980	1985	1990	1995	2000	2005
СРІ	53.8	82.4	107.6	130.7	152.4	172.2	195.3

Suppose that a statistician's salary was \$64000 in 1985. What would the salary have to be in 2005 to keep up with inflation (rounded to the nearest \$1000)?

- A) \$125,000
- B) \$69,000
- C) \$116,000
- D) \$35,000