SW 430: Research Methods in Social Work I
First Hourly Quiz

Name: ____________________________

1.20. When we use the Method of Authority, we hold a belief because
   a. evidence from a systematic observation of events supports our belief better than it supports any other belief.
   b. holding the belief helps us avoid anxiety associated with not knowing.
   c. it was endorsed by someone who has been socially or politically defined as a qualified producer of knowledge
   d. the belief was deduced by strictly following the forms and rules of logical argument.
   e. the majority of a random sampling of sources says the belief is true.

1.37. Jake said, “I loaned Dave $10 just before Halloween. I loaned him $10 more around Thanksgiving. On New Year’s Eve, I loaned him $30. For the Halloween loan, Dave said he would pay me on the next payday. For the Thanksgiving and New Year’s Eve loans, he said that he would pay all loans on the next payday. Dave has never paid me back.”
   Elwood asked, “Why won’t he pay you back?”
   Jake replied, “He just doesn’t care about others.”
   Elwood asked, “How do you know that he doesn’t care?”
   Jake replied, “Dave has never paid me back for any loan I have made him.”
   Does this inductive argument adequately support the conclusion that Dave doesn’t care or is the argument fallacious? Give one reason why or why not. (Your answer should have less than thirty words.)
   SUPPORTED   FALLACIOUS
   (circle your answer)

1.51. We evaluated a training program for adult and teenage family members of diabetics. The program was designed to show family members how to support a person with diabetes. The support program goal was to help the diabetic family member attain and maintain lower blood glucose levels.
   The families were selected from those with a family member with type 2 diabetes who were having difficulty managing blood glucose levels. The diabetic member in these families was attempting to manage blood glucose levels by modifying diet, exercising and using diabetes pills rather than insulin.
   We randomly selected 30 individuals and their families from those meeting the criteria for the program.
   One week before the training program began, the diabetic family member had a blood test that included a glycosylated hemoglobin test.
   The glycosylated hemoglobin test (also called the HbA1c test) measures the amount of glucose in the red blood cells. This gives an average blood glucose level over a period of two to three months. The test score is a percentage. According to the standard set by the American Diabetes Association, a desirable HbA1c score is at or below 7.0%.
   In this pre-test week, family members (including the person with diabetes) kept individual food diaries indicating what they ate and drank and when. The food diary form indicated that it was very important to record carbohydrates (sugar and starch) consumed.
   The actual training program took place over two 90-minute sessions separated by one week.
Separate 30-minute assessment interviews with the person with diabetes and family took place at the first session. Following this, the person with diabetes met with a nutritionist for 30 minutes to investigate successful and unsuccessful approaches the diabetic had used in managing diet. The last 10 minutes of the meeting were devoted to identifying ways the person with diabetes preferred to use in the management of diet.

While the person with diabetes was with the nutritionist, the other family members viewed a 15 minute video on dietary “dos and don’ts” for persons with diabetes. After viewing the video, family members and another nutritionist discussed which of the “dos and don’ts” occurred in their home.

The first session ended with a 30 minute meeting with all family members and the two nutritionists to discuss ways to create an home environment that would make it easier for the person with diabetes to manage his or her diet. The nutritionists gave family members food tables showing carbohydrate content in grams and recommended daily carbohydrate intake divided among breakfast, lunch, supper and two snacks.

The second session began with a 30-minute meeting of all family members with one of the two nutritionists. They identified components of diet management that were going well and components that were difficult to implement. From this, they developed modifications to the diet plan.

Next, the person with diabetes met with a social worker for 25 minutes to discuss any difficulties managing medications and scheduling and implementing exercise. The person with diabetes then identified procedures he or she preferred to use in managing medications and exercise.

While the person with diabetes was with the social worker, the other family members viewed a 15-minute video on management of blood glucose levels by modifying diet, engaging in exercise and use of diabetes pills. After viewing the video, family members and another social worker discussed things that occurred in the home that would help and hinder the diabetic family member in management of his or her diabetes.

The second session ended with a 35 minute meeting with all family members and the two social workers. They discussed ways to support the person with diabetes in managing and implementing his or her medications and exercise.

Three months after family members completed training, the diabetic family member had another blood test that included a glycosylated hemoglobin (HbA1c) test. We compared the HbA1c score from this test with the one from before training.

A. The independent variable in this study refers to which of the following.
   a. (1) one week before training,
      (2) three months after completion of training.
   b. blood glucose level.
   c. (1) diabetes pills,
      (2) insulin.
   d. daily carbohydrate intake.
   e. diagnosis.
   f. exercise status.
   g. (1) exercise,
      (2) no exercise.
   h. medication status.
   i. grams of carbohydrate.
   j. HbA1c change score.
   k. training status.
   l. (1) type 1 diabetes,
      (2) type 2 diabetes.

B. Levels of the independent variable in this study refer to which of the following.
   a. (1) one week before training,
      (2) three months after completion of training.
   b. blood glucose level.
   c. (1) diabetes pills,
      (2) insulin.
   d. daily carbohydrate intake.
   e. diagnosis.
   f. exercise status.
   g. (1) exercise,
      (2) no exercise.
   h. medication status.
   i. grams of carbohydrate.
   j. HbA1c change score.
   k. training status.
   l. (1) type 1 diabetes,
      (2) type 2 diabetes.
C. The dependent variable in this study refers to which of the following.
   a. (1) one week before training, (2) three months after completion of training.
   b. blood glucose level.
   c. (1) diabetes pills, (2) insulin.
   d. daily carbohydrate intake.
   e. diagnosis.
   f. exercise status.
   g. (1) exercise, (2) no exercise.
   h. medication status.
   i. grams of carbohydrate.
   j. HbA1c change score.
   k. training status.
   l. (1) type 1 diabetes, (2) type 2 diabetes.

D. The dependent measure in this study refers to which of the following.
   a. (1) one week before training, (2) three months after completion of training.
   b. blood glucose level.
   c. (1) diabetes pills, (2) insulin.
   d. daily carbohydrate intake.
   e. diagnosis.
   f. exercise status.
   g. (1) exercise, (2) no exercise.
   h. medication status.
   i. grams of carbohydrate.
   j. HbA1c change score.
   k. training status.
   l. (1) type 1 diabetes, (2) type 2 diabetes.

E. Identify the level of measurement for the dependent measure.
   a. Nominal
   b. Ordinal
   c. Interval
   d. Ratio

1.81. When we work to protect “the autonomy of (autonomous) persons, with courtesy and respect for individuals as persons, including those who are not autonomous,” we are implementing which one of the following ethical principles.
   a. Beneficence
   b. Competence
   c. Comprehension
   d. Justice
   e. Respect

2.02. S.S. Stevens defined four levels of measurement used to classify measurement schemes: Nominal, Ordinal, Interval, and Ratio.

For each of the following, identify the level of measurement by writing Nominal, Ordinal, Interval, or Ratio in the space provided. Do NOT use initials.

a. ________  Age in years.
   n. ________  Difference between household income for the first quarter of this year and the second quarter of this year ($Y_{\text{Difference}} = Y_{\text{2nd}} - Y_{\text{1st}}$).
   z. ________  Percentage of correct answers on a skills test.
   c. ________  Social Security number.
   ζ. ________  Standardized score ($z$ score). $z = \frac{Y - \mu_y}{\sigma_y}$

3.12. The score ($Y$) in the following table represents the number of times a child received first aid at the Gomer Pyle Fine Arts and Letters Summer Boot Camp. $f$ represents the number of children at that particular score.
Fill in the cumulative frequency \((cf)\) column so that it shows the number of children at or below each score level.

b. Fill in the cumulative percentage frequency \([c\%f = (cf/n)(100)]\) column so that it shows the percentage of children at or below each score level.

Please show your work.

### Quiz Question 4.14

Suppose that one in ten referrals for child sexual abuse will be confirmed upon investigation – 

\[ P[\text{confirmed sexual abuse}] = 0.10 \]

One out of two neglect referrals received will be confirmed for neglect – 

\[ P[\text{confirmed neglect}] = 0.50 \]

a. Assume (1) that the occurrence of child sexual abuse and child neglect are not related (are independent) and (2) that there is no pattern to how referrals for child sexual abuse and child neglect occur. What is the probability that the next referral received for both child sexual abuse and child neglect will be confirmed for both child sexual abuse and child neglect? Please show your work and round your final answer to three decimal places.

Probability = 

\[ P[\text{confirmed sexual abuse AND confirmed neglect}] = \underline{\quad} \]

b. Assuming the same conditions as before, what is the probability that the next referral received for both child sexual abuse and child neglect will be confirmed for child sexual abuse or child neglect? Please show your work and round your final answer to three decimal places.

Probability = 

\[ P[\text{confirmed sexual abuse OR confirmed neglect}] = \underline{\quad} \]
4.30. You wish to evaluate support for requiring parental notification before providing abortion services to a minor in a neighborhood served by a community clinic. You have a sampling frame containing the names of the N = 5,280 parents who live in the neighborhood. You wish to draw a sample of n = 165 individuals. You determine that to do this, you would need to select every 32nd individual (k = N/n = 5,280/165 = 32) listed in the sampling frame after making a random start within the first 32 individuals in the population. You assign consecutive identification numerals from 1 to 5,280 to each of the individuals. Then you take a table of random digits and look at the last four digits of the random digits in the table. If the last four digits were greater than 5280, you would ignore that random digit.

For example, in the table of random digits to the left, you would read 03991 as 3991, 10461 as 0461, 20097 as 0097, 76794 as 6794, 23287 as 3287, 31630 as 1630, and 01272 as 1272. Since 6794 is greater than 5280, you would ignore this number. If you selected 23287 from the table, the first sampling unit selected would be the individual with the 3287 identification numeral. You would then select all sampling units with identification numerals that differed from 3287 by a multiple of 32. Going upwards from 3287, these would be sampling units with id numbers 3319 (3287+32), 3351 (3287+64), 3383 (3287+96), etc. Going downwards, these would be sampling units with id numbers 3319 (3255–32), 3223 (3287–64), 3191 (3287–96), etc. If you follow this procedure you have drawn a(n)

a. purposive sample
d. stratified sample
b. quota sample
e. systematic sample
c. random sample

5.10. A characteristic of a population (such as average age) is called a(n)

_________________________ while the same characteristic of a sample is called a(n) ____________________________.

5.20. The score (Y) in the following table represents the score on a social skills checklist.

<table>
<thead>
<tr>
<th>Y</th>
<th>f</th>
<th>cf</th>
</tr>
</thead>
<tbody>
<tr>
<td>76-80</td>
<td>1</td>
<td>48</td>
</tr>
<tr>
<td>71-75</td>
<td>1</td>
<td>47</td>
</tr>
<tr>
<td>66-70</td>
<td>2</td>
<td>46</td>
</tr>
<tr>
<td>61-65</td>
<td>6</td>
<td>44</td>
</tr>
<tr>
<td>56-60</td>
<td>8</td>
<td>38</td>
</tr>
<tr>
<td>51-55</td>
<td>11</td>
<td>30</td>
</tr>
<tr>
<td>46-50</td>
<td>7</td>
<td>19</td>
</tr>
<tr>
<td>41-45</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>36-40</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>31-35</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>26-30</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>21-25</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Use the following formula to find the score at the 25th percentile.

\[ Y_p = Y_L + \frac{n(p) - cf_i}{f_i} (i) \]
where

- \( Y_p \) stands for the score at the percentile point
- \( Y_L \) stands for the exact lower limit of the interval containing the score at the percentile
- \( p \) stands for the percentile expressed as a proportion
- \( n \) stands for the total number of scores in distribution
- \( cf_b \) stands for the cumulative frequency up to lower limit of interval containing \( Y_p \)
- \( f_i \) stands for the number of scores within the interval containing \( Y_p \)
- \( i \) stands for the interval width (size of interval), \( i = Y_U - Y_L \)

Please show your work and round your final answer to one decimal place.
5.20.1. \( n(p) = \) __________
5.20.2. \( Y_L = \) __________
5.20.3. \( cf_b = \) __________
5.20.4. \( f_i = \) __________
5.20.5. \( i = \) __________
5.20.6. \( Y_{.25} = \) __________

5.33. A distribution has the following measures of central tendency

\[
\bar{Y} = 22 \\
Y_{.50} = 26 \\
Y_{\text{Mode}} = 30
\]

What type of frequency distribution would you expect this to be?

a. bimodal  
   d. positively skewed
b. leptokurtic  
   e. negatively skewed
c. platykurtic

d. positively skewed

5.40. If Elwood has a score at the 37\textsuperscript{th} percentile, this means that ______ percent of the scores are less than or equal to his.

5.52. The following scores represent the number of visits made to Louis Rose Community Mental Health Clinic for a sample of \( n = 12 \) clients.

Visits: \{\( Y | Y = 2, 5, 5, 4, 5, 5, 1, 3, 8, 6, 9, 7 \}\)

Calculate the following and SHOW YOUR WORK.

5.52.1. Mean = __________
5.52.2. Median = __________
5.52.3. Mode = __________
5.62. A distribution of scores has the following characteristics.

\[
\begin{align*}
Y_{\text{Max}} &= 98 \\
Y_{75} &= 90 \\
Y_{50} &= 86 \\
Y_{25} &= 84 \\
Y_{\text{Min}} &= 83
\end{align*}
\]

The value for the interquartile range for this distribution is \( \text{IQR} = \) \underline{__________}.

5.77 The following distribution of scores has a mean of \( \bar{Y} = 7 \). Calculate the sum of squares – \( SS_Y \) – and write the answer in the space provided.

Show your work.

<table>
<thead>
<tr>
<th>Score ((Y))</th>
<th>(Y - \bar{Y})</th>
<th>((Y - \bar{Y})^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
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<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
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<td>4</td>
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<td>9</td>
<td></td>
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<td>8</td>
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<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\( SS_Y = \underline{____________} \)

5.86. The mean of a population \((N = 16)\) of scores is \( \mu_Y = 64 \). The sum of squares is \( SS_Y = 10,000 \).

5.86.1. What is the variance of this population? \underline{____________}

5.86.2. What is the standard deviation of this population? \underline{____________}

Show your work and round your final answer to the nearest whole number.
5.93. The Comprehensive Assessment Measure of Personal Excellence and Reliability (CAMPER) has been standardized with $\mu = 50$ and $\sigma = 10$. Calculate the $z$-scores for the following individuals.

$$z_{y} = \frac{Y - \mu}{\sigma_{y}}$$

Show your work and round your final answer to one decimal place.

<table>
<thead>
<tr>
<th>Name</th>
<th>CAMPER Score</th>
<th>$z$ -Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gideon</td>
<td>59</td>
<td></td>
</tr>
<tr>
<td>Ida Rae</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>Ijourie</td>
<td>64</td>
<td></td>
</tr>
<tr>
<td>Juanita</td>
<td>89</td>
<td></td>
</tr>
</tbody>
</table>

5.95. The following chart depicts a normal frequency distribution.

Line A is at $-1\sigma$; line B is at $\mu$; line C is at $+1\sigma$.

Use the Table of the Standard Normal Distribution ($z$) and answer the following questions. (Give your answer to four decimal places.)

5.95.01. What proportion of the population is below A? 
5.95.02. What proportion of the population is above A? 
5.95.03. What proportion of the population is below B? 
5.95.04. What proportion of the population is above B? 
5.95.05. What proportion of the population is below C? 
5.95.06. What proportion of the population is above C? 
5.95.07. What proportion of the population is between A and B? 
5.95.08. What proportion of the population is between B and C? 
5.95.09. What proportion of the population is between A and C? 
5.95.10. What proportion of the population is above C or below A? 

![Normal Frequency Distribution Chart]
6.11. For depressed individuals, intensity of stress ($X$) has been found to be related to suicide risk ($Y =$ number per thousand attempting suicide within ten days).

A prediction equation has been derived with a slope of $B_1 = +0.2$ and $Y$-intercept of $B_0 = +1.2$. On the following graph, draw the prediction line for suicide risk over the range of stress intensity from 0 to 10.

Show your calculations.

6.21. The correlation between stress rating and suicide risk score is $r = +0.12$.

What is the proportion of variance in suicide risk score explained ($PVE$) by stress rating?

$PVE =$ _______________

Please show your work and round your answer to two decimal places.
7.16. The following table shows data on reported reliability coefficients of five tests designed to measure an individual’s tendency to respond aggressively.

<table>
<thead>
<tr>
<th>Test</th>
<th>Alpha</th>
<th>Retest</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>.82</td>
<td>.87</td>
</tr>
<tr>
<td>B</td>
<td>.83</td>
<td>.83</td>
</tr>
<tr>
<td>C</td>
<td>.91</td>
<td>.88</td>
</tr>
<tr>
<td>D</td>
<td>.91</td>
<td>.82</td>
</tr>
<tr>
<td>E</td>
<td>.92</td>
<td>.92</td>
</tr>
</tbody>
</table>

The alpha reliability coefficients for each test are based on data collected from a single administration of the test to a single group of individuals.

The retest reliability coefficients for each test are based upon the correlations between test scores for two administrations of the test to a single group of individuals. The test administrations were separated by seven days.

We want to select the test that would be most sensitive to change in an individual’s tendency to respond aggressively.

Based solely upon the reliability coefficient data in the table, which of the five tests would be most sensitive to change? Please circle the correct answer.

- a. Test A
- b. Test B
- c. Test C
- d. Test D
- e. Test E
### Proportions for the Standard Normal Distribution (z)

<table>
<thead>
<tr>
<th>$z$</th>
<th>0.00</th>
<th>0.01</th>
<th>0.02</th>
<th>0.03</th>
<th>0.04</th>
<th>0.05</th>
<th>0.06</th>
<th>0.07</th>
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</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td>0.0000</td>
<td>0.0040</td>
<td>0.0080</td>
<td>0.0120</td>
<td>0.0160</td>
<td>0.0199</td>
<td>0.0239</td>
<td>0.0279</td>
<td>0.0319</td>
<td>0.0359</td>
</tr>
<tr>
<td>0.1</td>
<td>0.0398</td>
<td>0.0438</td>
<td>0.0478</td>
<td>0.0517</td>
<td>0.0557</td>
<td>0.0596</td>
<td>0.0636</td>
<td>0.0675</td>
<td>0.0714</td>
<td>0.0753</td>
</tr>
<tr>
<td>0.2</td>
<td>0.0793</td>
<td>0.0832</td>
<td>0.0871</td>
<td>0.0910</td>
<td>0.0948</td>
<td>0.0987</td>
<td>0.1026</td>
<td>0.1064</td>
<td>0.1103</td>
<td>0.1141</td>
</tr>
<tr>
<td>0.3</td>
<td>0.1179</td>
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<td>0.1293</td>
<td>0.1331</td>
<td>0.1368</td>
<td>0.1406</td>
<td>0.1443</td>
<td>0.1480</td>
<td>0.1517</td>
</tr>
<tr>
<td>0.4</td>
<td>0.1554</td>
<td>0.1591</td>
<td>0.1628</td>
<td>0.1664</td>
<td>0.1700</td>
<td>0.1736</td>
<td>0.1772</td>
<td>0.1808</td>
<td>0.1844</td>
<td>0.1879</td>
</tr>
<tr>
<td>0.5</td>
<td>0.1915</td>
<td>0.1950</td>
<td>0.1985</td>
<td>0.2019</td>
<td>0.2054</td>
<td>0.2088</td>
<td>0.2123</td>
<td>0.2157</td>
<td>0.2190</td>
<td>0.2224</td>
</tr>
<tr>
<td>0.6</td>
<td>0.2257</td>
<td>0.2291</td>
<td>0.2324</td>
<td>0.2357</td>
<td>0.2389</td>
<td>0.2422</td>
<td>0.2454</td>
<td>0.2486</td>
<td>0.2517</td>
<td>0.2549</td>
</tr>
<tr>
<td>0.7</td>
<td>0.2580</td>
<td>0.2611</td>
<td>0.2642</td>
<td>0.2673</td>
<td>0.2704</td>
<td>0.2734</td>
<td>0.2764</td>
<td>0.2794</td>
<td>0.2823</td>
<td>0.2852</td>
</tr>
<tr>
<td>0.8</td>
<td>0.2881</td>
<td>0.2910</td>
<td>0.2939</td>
<td>0.2967</td>
<td>0.3000</td>
<td>0.3016</td>
<td>0.3041</td>
<td>0.3066</td>
<td>0.3091</td>
<td>0.3133</td>
</tr>
<tr>
<td>0.9</td>
<td>0.3159</td>
<td>0.3186</td>
<td>0.3212</td>
<td>0.3238</td>
<td>0.3264</td>
<td>0.3289</td>
<td>0.3315</td>
<td>0.3340</td>
<td>0.3365</td>
<td>0.3399</td>
</tr>
<tr>
<td>1.0</td>
<td>0.3413</td>
<td>0.3438</td>
<td>0.3461</td>
<td>0.3485</td>
<td>0.3508</td>
<td>0.3531</td>
<td>0.3554</td>
<td>0.3577</td>
<td>0.3599</td>
<td>0.3621</td>
</tr>
<tr>
<td>1.2</td>
<td>0.3849</td>
<td>0.3869</td>
<td>0.3888</td>
<td>0.3907</td>
<td>0.3925</td>
<td>0.3944</td>
<td>0.3962</td>
<td>0.3980</td>
<td>0.3997</td>
<td>0.4015</td>
</tr>
<tr>
<td>1.3</td>
<td>0.4032</td>
<td>0.4049</td>
<td>0.4066</td>
<td>0.4082</td>
<td>0.4099</td>
<td>0.4115</td>
<td>0.4131</td>
<td>0.4147</td>
<td>0.4162</td>
<td>0.4177</td>
</tr>
<tr>
<td>1.4</td>
<td>0.4192</td>
<td>0.4207</td>
<td>0.4222</td>
<td>0.4236</td>
<td>0.4251</td>
<td>0.4265</td>
<td>0.4279</td>
<td>0.4292</td>
<td>0.4306</td>
<td>0.4319</td>
</tr>
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![Normal Distribution Curve](image-url)