

Please show all work on this test. No work shown implies no full credit if (even if the answer is correct!) and no partial credit if the answer is incorrect.

Problem I. Multiple Choice and Short Answer. (30 points total)

1. An opinion poll asks respondents whether they approve or disapprove of the job that Barack Obama is doing as President. The possible answers are "strongly approve", "approve", "disapprove", and "strongly disapprove". The type of data being asked for is (circle one): (3 points)

- a) quantitative b) explanatory **c) categorical** d) response e) none of these

2. Circle all of the following numerical descriptors that are resistant to outliers: (3 points)

- a) mean **b) median** c) standard deviation **d) IQR** e) none of these

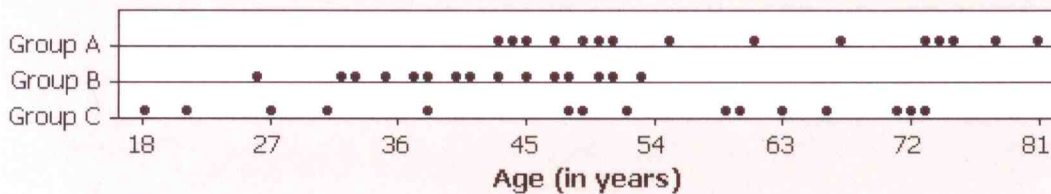
3. A research team wants to determine whether people who are deprived of sleep are more likely to develop depression. The team plans to break their results down by gender, age group (adolescent, young adult, adult, and senior), and ethnicity. The response variable in this study is: (3 points)

- a) ethnicity b) age group c) gender **d) depression** e) sleep deprivation f) none of these

4. The distribution of grades in a certain class is strongly left skewed. This means that the median is probably: (3 points)

- a) bigger than the mean** b) bigger than the IQR c) smaller than the mean
d) smaller than the IQR e) none of these

5. To answer questions (a) and (b) below use the following dotplots of ages (graphed on the same scale) for three groups of people. No calculation is needed to determine your answers. (3 points each, 6 total)



(a) Which group has the youngest mean (average) age? Group B

(b) Which group has the largest standard deviation in ages? Group C

6. **True or False** (circle one) If the linear association between two variables is strong, then we would expect the correlation coefficient r to be closer to one or negative one than to zero. (3 points)

7. Suppose the observational units in a study are customers arriving at a post office. For each of the following variables recorded, identify if it is quantitative or categorical. (3 points each, 9 points total)

- Quant Total time spent waiting in line and being served
Quant Total amount of money spent
Cat Whether they used a credit card or not.

