Show all work.
Simplify your answer.
Circle your answer.

No books, no calculators, no cell phones, no pagers, no electronic devices of any kind.

Name_____

Circle your Discussion Section:

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343  T   12:05--12:55        1412 STERLING
344  R   12:05--12:55        1327 STERLING
345  T   13:20--14:10        1327 STERLING
346  R   13:20--14:10        55 BASCOM
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Problem	Points	Score
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
Total	70	

Solutions will be posted shortly after the exam: www.math.wisc.edu/~miller/m210

1. (10 pts) Let $A = \{1, 2\}$, $B = \{1, 3, 6\}$ and $C = \{1, 2, 3, 4, 5\}$. Find

$$(A \cup B) \cap C$$

2. (10 pts) X, Y, Z are subsets of a universal set U. Draw a Venn diagram to illustrate the set

$$(X \cup Y) \cap Z'$$

3. (10 pts) The staff at the zoo ask visitors to complete a survey. The results were 245 went to the elephant house and 270 went to monkey house. If 185 went to both how many visited only one of the two?

4. (10 pts) A die is weighted so that throwing a 1 or 6 are equally likely; throwing a 1 is half as likely as throwing a 2,3,4, or 5; and these are equally likely. What probabilities should be assigned to each possible outcome?

5. (10 pts) A burglar can 'visit' three houses on each of the streets, Monroe, Jefferson, Adams, Franklin, Washington, and Clinton. He plans to pick a street and then a house and rob it on Friday and for Saturday he will pick a different street and then a house on it to rob. How many ways can he do this?

6. (10 pts) The department of mathematics has nine men and five women faculty. A committee of five is to be formed to look into the question of why women are under represented in the math department. If the committee is to have three men and two women on it, in how many ways can it be chosen?

7. (10 pts) A hat contains three apples, two peaches, and four candy bars. If three objects are randomly chosen from the hat, what is the probability that all three are candy bars?

Answers

1. $\{1, 2, 3\}$

3. 145

4. $Pr(1) = Pr(6) = .1$ $Pr(2) = Pr(3) = Pr(4) = Pr(5) = .2$

5. 270

6. 840

7. 1/21