

# Exam 1

*In this exam, you are not to use any type of calculators or cell phones.*

Each question has 5 points value.

Name:

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Score					

1. Let  $N = \{\text{Ava, Andy, Deborah, Emerson}\}$ .

Fill the blank with the correct notation: Emerson \_\_\_\_\_  $N$

2. How many subsets does the set  $\{a, b, c\}$  have?

3. Write the given set  $B$  using the listing method.

$B = \{x \mid x \text{ is a counting number less than } 2\}$

4. Let  $U = \{c, d, e, f, g, h\}$ ,  $A = \{c, e, g\}$  and  $B = \{d, f, g, h\}$

- a. Draw the Venn diagram of the sets.

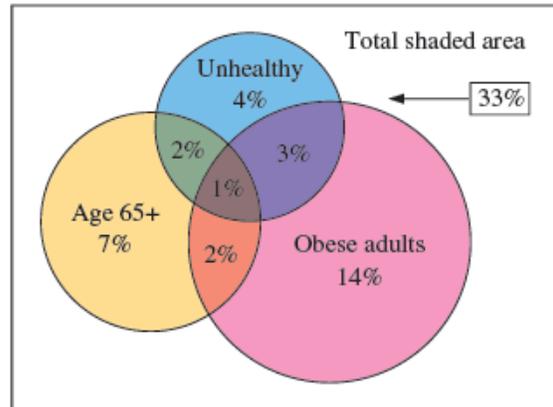
- b. Find  $A \cup B$ .

- c. Find  $A \cap B'$ .

- d. Find  $A'$ .

5. Refer to the Venn diagram.

Find the percent of people that are unhealthy, and obese.



6. A coffee company was willing to pay \$1 to each person interviewed about his or her likes(L) and dislikes(D) on types of coffee. Of the persons interviewed, 190 liked ground coffee, 240 liked instant coffee, 80 liked both, and 25 did not like coffee at all.

a. Draw the Venn diagram which shows the above information.

b. How many people either like or dislike coffee?

c. What is the total amount of money the company had to pay?

7. A man has 2 suits and 4 shirts. How many different outfits consisting of a suit and a shirt he can wear?

8. A student is taking 5 classes, each of which requires 1 book. In how many ways can she stack the 5 books she must carry?

9. Circle the correct one.

**Permutation, Combination** is the number of ways to choose  $k$  objects from  $n$  objects and order it.

10. Evaluate the following. Your answer must include the formula.

a.  $P(6,2)$

b.  $C(6,2)$

11. If 20 people all shake hands with each other, how many handshakes are there?

12. Find the probability on a single toss of a pair of six-sided dice of obtaining the same number on both dice.

13. An executive has to visit 1 of his 5 plants for an inspection. If these plants are numbered 1, 2, 3, 4, and 5, and if he selects the plant he will visit at random, find the probability that he will visit an even-numbered plant

14. Let  $n(A) = 30$ ,  $n(B) = 10$  and  $n(A \cap B) = 5$ . What is  $n(A \cup B)$ ?