V118 Practice Exam 1 - format identical to Exam 1

Name:_____

Instructor:___Professor Elizabeth Housworth___

Instructions: Use pencil or blue or black ink. Put your name on each page of this exam. Do you work in the space provided in the interior pages. Transfer your answer to each problem to the answer-page for the exam, clearly and neatly indicating your choice. There are at least four versions of this exam distributed throughout this class. Cheating is unlikely to pay off.

Committment to honest and ethical work: All work on this exam is my own. I have done nothing on this exam that could be considered to be dishonest or cheating.

Signature: _____

Answers

1.	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**
2.	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**
3.	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**
4.	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**
5.	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**
6.	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**
7.	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**
8.	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**
9.	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**
10.	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**
11.	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**
12.	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**
13.	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**
14.	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**

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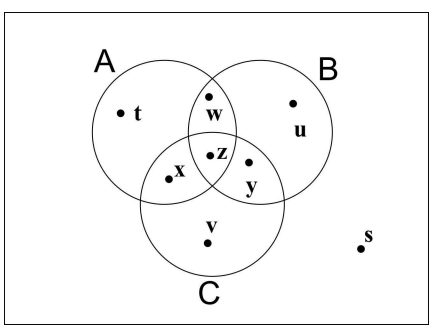
1. Consider a universal set $U = \{a, b, c, d, x, y, z\}$. Let S be the set $S = \{a, x, y\}$.

Which of these sets are NOT subsets of S: $A = \emptyset$, $B = \{x\}$, $C = \{a, x, z\}$, $D = \{a, y\}$, and $E = \{a, x, y\}$?

a A and D **c** B **e** C **g** D

b A and E **d** E **f** C and E **h** none of the above

2. In the diagram provided, the set $(A \bigcup B) \bigcap C'$ contains the points:



a $\{s, w\}$ **c** $\{s, t, u, w\}$ **e** $\{v\}$ **g** $\{x, y, z, s\}$

b $\{t, u, w\}$ **d** $\{x, y, z\}$ **f** $\{z\}$ **h** none of the above

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3. Consider sets A and B where $n(A) = 21$ and $n(B) = 32$. How many elements are there in the Cartesian product $A \times B$?

a 21×32 **c** $21 + 32$ **e** $21/32$ **g** 21^{32}

b 32^{21} **d** $32 - 21$ **f** $32/21$ **h** none of the above

4. Consider a universal set $U = \{a, b, c, d, e, p, q, r, s, t\}$ and subsets $R = \{a, b, p, q, t\}$ and $S = \{b, q, s\}$. Which of the following IS a member of $R \bigcap S'$?

a a **c** b **e** c **g** d

b e **d** q **f** s **h** none of the above

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5. Consider a universal set $U = \{a, b, c, d, e, p, q, r, s, t\}$ and subsets $R = \{a, b, p, q, t\}$ and $S = \{b, q, s\}$. Which of the following IS NOT a subset of $R \bigcup S'$?

a $\{t\}$ **c** $\{s\}$ **e** $\{e\}$ **g** $\{p\}$

b $\emptyset$ **d** $\{a\}$ **f** $\{b\}$ **h** none of the above

6. If A and B are disjoint subsets of a universal set U, and if $n(U) = 15$, $n(A) = 6$, and $n(B) = 3$, what is $n((A \bigcup B)')$?

a 7 **c** 4 **e** 5 **g** 1

b 3 **d** 6 **f** 8 **h** none of the above

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7. If A and B are subsets of a universal set U, and if $n(U) = 25$, $n(A) = 9$, $n(B') = 10$, and $n(A \bigcup B) = 17$, what is $n(A \bigcap B)$?

a 0 **c** 8 **e** 1 **g** 7

b 2 **d** 5 **f** 4 **h** none of the above

8. A playbox contains 10 balls. Five balls are red. Three balls are made from foam. If four balls are neither red nor made from foam, how many foam balls are red?

a 0 **c** 1 **e** 2 **g** 3

b 4 **d** 5 **f** 6 **h** none of the above

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9. One hundred students were surveyed about their first semester freshmen year courses and the following information was obtained.

- 75 took a mathematics course
- 40 took a composition course
- 30 took a foreign language
- 20 took mathematics and a foreign language
- 30 took mathematics and composition
- 15 took a foreign language and composition
- 10 took none of the three

How many took all three types of courses their first semester freshman year?

a 10	**c** 15	**e** 6	**g** 8
b 25	**d** 20	**f** 5	**h** none of the above

10. A pin is formed by arranging 4, not necessarily distinct, numbers from the set $\{0, 1, 2, 3, 4, 5, 6, 7, 8, 9\}$. How many different pins are possible?

a 9^4	**c** 10×4	**e** $10 \times 9 \times 8 \times 7$	**g** 2^{10}
b 4^{10}	**d** 11^4	**f** 10^4	**h** none of the above

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11. A pin is formed by arranging 4, not necessarily distinct, numbers from the set $\{0, 1, 2, 3, 4, 5, 6, 7, 8, 9\}$. How many of the possible pins do not use 0 for the first number?

a 9^4 **c** $10^4 - 1$ **e** $10 \times 9 \times 8 \times 7$ **g** 9×10^3

b $4^{10} - 1$ **d** $11^4 - 1$ **f** $11 \times 10 \times 9 \times 8 - 1$ **h** none of the above

12. A pin is formed by arranging 4, not necessarily distinct, numbers from the set $\{0, 1, 2, 3, 4, 5, 6, 7, 8, 9\}$. How many of the possible pins use 9 exactly once?

a 9^4 **c** 2×9^3 **e** 9×10^3 **g** 3×9^3

b 4×9^3 **d** $9 \times 8 \times 7 \times 6$ **f** $10^4 - 4$ **h** none of the above

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13. An experiment consists of testing lightbulbs until two in a row are found defective or until four lightbulbs are tested. What is the size of the sample space?

a 10 **c** 15 **e** 9 **g** 12

b 11 **d** 8 **f** 16 **h** none of the above

14. For the experiment described in the previous question, let E be the event that the last bulb tested was defective. How many elements are in E?

a 2 **c** 6 **e** 5 **g** 1

b 4 **d** 7 **f** 3 **h** none of the above