

Winter 2016 FORM A Name Last: _____ First: _____

Exam 1: Ch. 1, 2, 3

Class Time: _____

Directions:

- Put your NAME and CLASS TIME on THIS EXAM and on your SCANTRON.
 - Write FORM A on your SCANTRON.
 - Each question has exactly one BEST answer. There are 21 questions.
 - You may write on this exam. There is no scratch paper allowed.
 - Each question is worth 5 points for a total of 105 points. This includes 5 bonus points!
 - If you have no note page, you must write **NO NOTES** on your SCANTRON.
 - Put your SCANTRON and PAGE of NOTES inside your EXAM. Before you start packing up your things, turn in your EXAM and SCANTRON. Then go back to your desk to pack up your materials. When your exam is returned, you will get back all materials you turned in.
 - Turn your cell phone OFF. Any noise from a cell phone will signal that your exam is over. **FAILURE TO FOLLOW ALL OF THE ABOVE INSTRUCTIONS WILL COST YOU THE 5 BONUS POINTS**
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Questions 1 – 2 refer to the following:

Suppose events H and R are independent. $P(H) = 0.34$ and $P(R|H) = 0.26$.

1. Find $P(R)$.

- A. 0.7647 B. 0.0884 C. 0.2600 D. Need more information

2. Find $P(H \text{ AND } R)$.

- A. 0.2600 B. 0.7647 C. 0.0884 D. Need more information

3. The number of holiday parties a person attended in 2015 can be described as what type of data:

- A. Quantitative discrete
- B. Quantitative continuous
- C. Qualitative
- D. Qualitative continuous

Questions 4 - 7 refer to the following:

Your statistics instructor was curious about the average number of times per day De Anza students use Twitter. She surveyed the first 18 (for a total of 36) students who entered the classroom in 2 of her 4 classes and found the following results.

| Number of classes | Frequency | Rel. Freq. | Cum. Rel. Freq |
|-------------------|-----------|------------|----------------|
| 0 | 13 | | |
| 1 | 4 | | |
| 2 | 6 | | |
| 3 | 3 | | |
| 4 | 2 | | |
| 5 | 2 | | |
| 6 | 6 | | |

4. What is the mode?

- A. 0 B. 2 and 6 C. 13 D. 6

5. The type of sampling used was:

- A. Simple Random Sampling
- B. Convenience Sampling
- C. Stratified Sampling
- D. Cluster Sampling

6. The inter-quartile range (IQR) is:

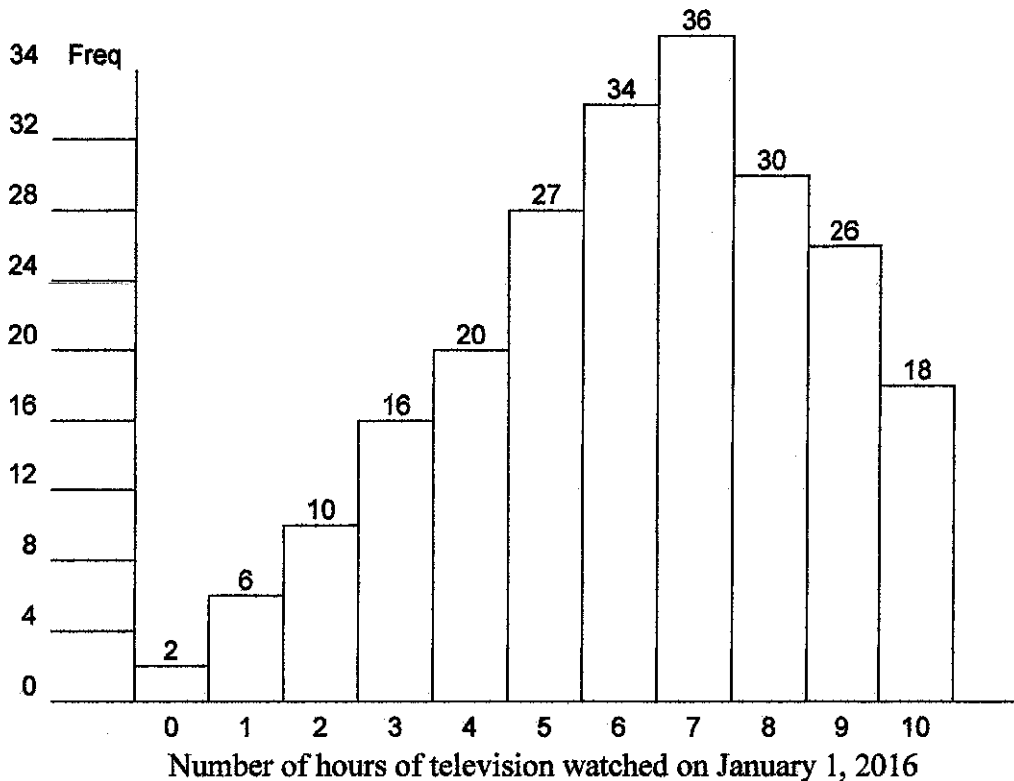
- A. 3 B. 1 C. 2 D. 4

7. Find the 86th percentile.

- A. 6 B. 5 C. 4.5 D. 5.5

Questions 8 – 11 refer to the following:

Two hundred twenty-five randomly selected households in Santa Clara County were asked how many hours of television were watched in their household on January 1, 2106. The data are summarized in the histogram below.



8. What is a **VARIABLE** in this survey?
- A. Average number of hours of television watched on January 1, 2016 in Santa Clara County households
 - B. Number of cities in Santa Clara County
 - C. Number of hours of television watched on January 1, 2016 in one Santa Clara County household
 - D. Number of households
9. The average and standard deviation of the data are
- A. 6, 2.41
 - B. 6.22, 2.41
 - C. 5, 2.23
 - D. 6.22, 2.40
10. Find the median.
- A. 5.5 B. 6.5 C. 6 D. 7
11. What is the **POPULATION** in this survey?
- A. Cities surveyed in Santa Clara County
 - B. All households in Santa Clara County
 - C. Households surveyed in Santa Clara County
 - D. All households with televisions in Santa Clara County

12. Below are the results of the first exam for three students in three different courses.

| Student # | Score | Class Average Grade | Class Average Standard Deviation |
|-----------|-------|---------------------|----------------------------------|
| Student 1 | 82 | 75 | 7 |
| Student 2 | 84 | 75 | 14 |
| Student 3 | 91 | 93 | 1 |

Which student had the best score when compared to his/her class?

- A. Student 1
- B. Student 2
- C. Student 3
- D. None did better than the others when compared to his/her class.

Questions 13 and 14 refer to the following:

An apple farmer is attempting to determine the average number of apples per tree. The field is divided into 49 sections of trees. The farmer randomly selects 5 sections to get a sample by counting the number of apples on every tree in those sections.

13. Which of the following describes the **PARAMETER**?

- A. The total number of trees in the field.
- B. The average number of apples per tree for those chosen to be in the sample.
- C. The number of apples on one tree.
- D. The average number of apples per tree for the entire field.

14. What kind of sampling was used?

- A. Stratified Sampling
- B. Cluster Sampling
- C. Simple Random Sampling
- D. Systematic Sampling

Questions 15 – 17 refer to the following table of student population by ethnicity. The data were obtained from www.cccco.edu for the academic year 2014 - 2015.

| | African-American | White | Asian/Pacific Islander | Hispanic | Other | TOTAL |
|---------------------|------------------|--------------|------------------------|--------------|-------------|--------------|
| De Anza College | 1101 | 7186 | 15009 | 8214 | 2160 | 33670 |
| West Valley College | 406 | 6460 | 2679 | 3251 | 2558 | 15354 |
| Foothill College | 951 | 9606 | 8085 | 6305 | 3332 | 28279 |
| Mission College | 510 | 2734 | 6508 | 3200 | 1615 | 14567 |
| TOTAL | 2968 | 25986 | 32281 | 20970 | 9665 | 91870 |

15. Find the probability that a randomly chosen student is from De Anza College OR is African American.

- A. $\frac{36638}{91870}$ B. $\frac{2968}{91870}$ C. $\frac{35537}{91870}$ D. $\frac{33670}{91870}$

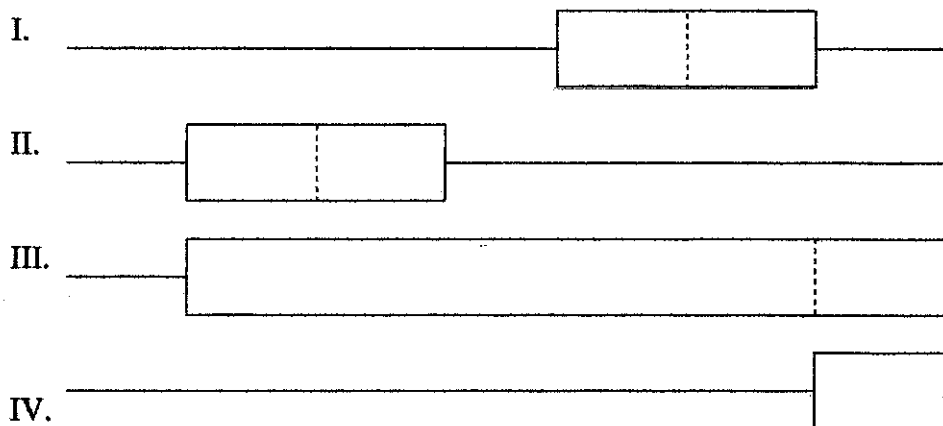
16. Find the probability that a randomly chosen student is Hispanic AND from Mission College.

- A. $\frac{20970}{91870}$ B. $\frac{3200}{91870}$ C. $\frac{3200}{14567}$ D. $\frac{3200}{20970}$

17. Find the probability that a randomly chosen student is African American GIVEN the student is from Foothill College.

- A. $\frac{951}{28279}$ B. $\frac{951}{2968}$ C. $\frac{951}{91870}$ D. $\frac{2968}{91870}$

Questions 18 – 19 refer to the following box plots: (Assume that they are all on the same numerical scale.)



18. Which box plot above would represent the most desirable overall grade distribution for the most number of students for this exam?

- A. I B. II C. III D. IV

19. Which box plot above displays data has the largest IQR?

- A. I B. II C. III D. IV

Questions 20 - 21 refer to the following:

An experiment consists of two actions. The FIRST action is tossing an unfair die with four sides (pyramid-shaped). The four sides of the die are numbered 1, 2, 3, and 4. The probabilities for tossing each of the 4 numbers on the die are: $P(1 \text{ on die}) = 1/4$, $P(2 \text{ on die}) = 1/2$, $P(3 \text{ on die}) = 1/8$, $P(4 \text{ on die}) = 1/8$. The tossing of the die is followed by a SECOND action, drawing one bead from a cup containing 4 red, 7 green and 6 blue beads.

20. Find the probability of getting 1 on the die and drawing a red bead from the cup.

A. $\frac{4}{21}$

B. $\frac{1}{17}$

C. $\frac{4}{34}$

D. Not enough information

21. Find the probability of getting a green bead GIVEN the number 2 appeared on the die.

A. $\frac{7}{17}$

B. $\frac{7}{34}$

C. $\frac{6}{17}$

D. Not enough information

| | Form A |
|----|--------|
| 1 | C |
| 2 | C |
| 3 | A |
| 4 | A |
| 5 | B |
| 6 | D |
| 7 | A |
| 8 | C |
| 9 | B |
| 10 | C |
| 11 | B |
| 12 | A |
| 13 | D |
| 14 | B |
| 15 | C |
| 16 | B |
| 17 | A |
| 18 | D |
| 19 | C |
| 20 | B |
| 21 | A |