

Name:

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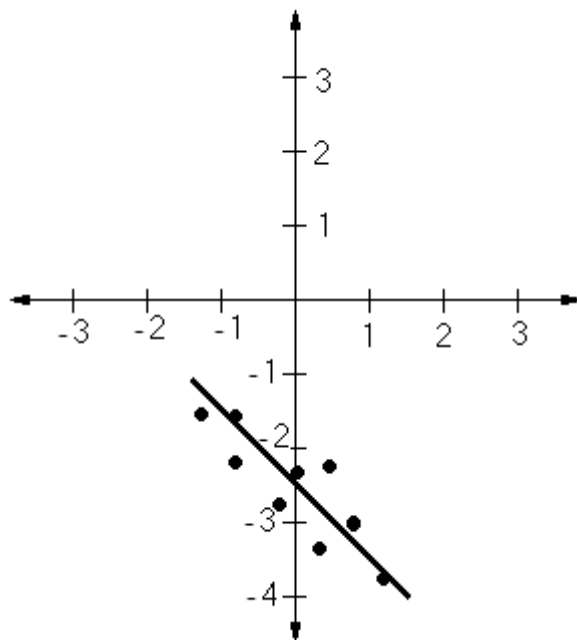
You have 40 questions and 100 minutes to solve the exam. Please mark all your answers on the answer sheet provided to you. You have to submit both question paper and answer sheet but **only answer sheets will be graded**. Good luck

Choose **the best answer** for each of the following questions:

1. Statistics is the science of conducting studies to
  - A) hypothesize, experiment, and form conclusions.
  - B) collect, organize, summarize, analyze, and draw conclusions from data.
  - C) monitor, study, and report on a subject.
  - D) solve a system of equations.
2. Calculate the mean for the following numbers:  
1.1    2.3    3.4    -1.5
  - A) 2.08
  - B) 5.3
  - C) 2.27
  - D) 1.33
3. Which one of these events is **not** mutually exclusive?
  - A) Select a student in your university: The student is married, and the student is a business major.
  - B) Select a ball from bag: It is a football, and it is a basket ball.
  - C) Roll a die: Get an even number, and get an odd number.
  - D) Select any course: It is an Arabic course, and it is a Statistics course.
4. In a binomial experiment, for each trial the probability of success must be.....
  - A) the same
  - B) different
  - C) large
  - D) small
5. If the equation for the regression line is  $y = -5x + 3$ , then the sign of the correlation coefficient between the two variables is
  - A) positive
  - B) -5
  - C) negative
  - D) can not be determined

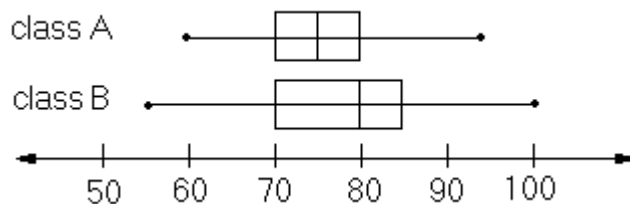
6. A person owns a collection of 25 movies, five of which are English. If four movies are selected at random, find the probability that three of them are English.
- A)  $\frac{1}{25}$   
 B)  $\frac{3}{5}$   
 C)  $\frac{1}{125}$   
 D)  $\frac{4}{253}$
7. If  $X$  is a discrete random variable with  $\sum X \cdot P(X) = 2.4$  and  $\sum X^2 \cdot P(X) = 8.88$ , the mean and variance for the probability distribution of  $X$  is
- A)  $\mu = 2.4, \sigma^2 = 6.48$   
 B)  $\mu = 2.74, \sigma^2 = 5.76$   
 C)  $\mu = 2.4, \sigma^2 = 8.88$   
 D)  $\mu = 2.4, \sigma^2 = 3.12$
8. The equation of the regression line between a person's height in centimeters ( $x$ ) and his weight in kilograms ( $y$ ) is given by :  $y' = 44 + 0.2x$  .  
 Predict Ali's weight if his height is 180 centimeters.
- A) 180 kg  
 B) 40 kg  
 C) 44.36 kg  
 D) 80 kg
9. If you know that  $\sum X^2 = 20$ ,  $\sum X = 4$  and  $n = 3$ , the sample standard deviation will be
- A) 6.67  
 B) 7.33  
 C) 2.71  
 D) 9.33
10. How many 3-digit passwords are possible if digits can be repeated?
- A) 720  
 B) 729  
 C) 1000  
 D) 120
11. Data such as car types (Toyota, Kia, Honda, Lexus) can be organized into a(n)..... frequency distribution.
- A) relative  
 B) categorical  
 C) grouped  
 D) ungrouped

12. If the mean of the daily income in your town is \$200, the mode is \$100 and the median is \$150, this means that the distribution shape of the daily income is
- A) left-skewed
  - B) uniform
  - C) right-skewed
  - D) symmetric
13. If all the points fall on the straight line the value of  $r$  will be
- A)  $\pm 0.01$
  - B)  $\pm 0.5$
  - C)  $\pm 1.5$
  - D)  $\pm 1$
14. Which of the following linear regression equations represent the graph below?



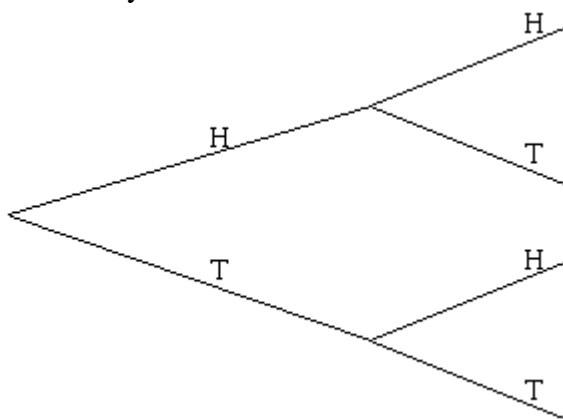
- A)  $y' = 0.5 - x$
  - B)  $y' = -1.5 + x$
  - C)  $y' = -2.5 + x$
  - D)  $y' = -2.5 - x$
15. If  $P(a < z < b) = 0.95$ , then the value of the standard deviation  $\sigma$  equals
- A) 2
  - B) 3
  - C) 0.05
  - D) 1

16. For a normal distribution with mean =  $-16$  and a z value =  $-0.5$  for the value  $x = -17$ , the standard deviation is
- 1
  - 1
  - 2
  - 2
17. Ahmad says: " my relative position in Math exam is higher than my relative position in History exam ". Which of the following z-score values are correct?
- z-score of Math =  $-1.5$  and z-score of History =  $-1.5$
  - z-score of Math =  $-1.5$  and z-score of History =  $-1.2$
  - z-score of Math =  $-1.2$  and z-score of History =  $-1.5$
  - None of the above
18. The following graph represents students marks in two classes A and B



- Choose the best statement that compares the variation between mark of them.
- the marks of the students in class A is less spread than the marks of the students in class B.
  - the marks of the students in class A and B is the same spread.
  - the marks of the students in class A is more spread than the marks of the students in class B.
  - the relation between spread of the class A and B can not be determined.
19. A correlation coefficient of 0.96 would mean that
- the values of x decrease as the values of y increase.
  - the values of x increase as the values of y decrease.
  - there is no relationship between x and y.
  - the values of x increase as the values of y increase.
20. A researcher finds that if expectant mothers (الأمهات الحوامل) use Vitamin Pills, the birth weight of the babies will increase. What type of study was this?
- Quasi-experimental study.
  - Independent study.
  - Observational study
  - Experimental study.
21. A Pareto chart does **not** have which of the following properties?
- It is used to represent categorical data
  - The bars have the same width
  - The frequencies are arranged from highest to lowest
  - The frequencies are arranged from lowest to highest

22. In a certain school, it is known that 81% of instructors are using e-mail to send messages. For a sample of 10 instructors, find the probability that exactly 6 of them are using e-mail.
- A) 0.0773  
B) 0.0004  
C) 0.2824  
D) 0.0043
23. The average height of Apple trees in a garden is 10.5 feet. If the heights are normally distributed with a standard deviation of 3, find the percentage that a tree is less than 12.5 feet tall
- A) 74.86%  
B) 24.86%  
C) 66.67%  
D) 25.14%
24. The area under the standard normal distribution curve equals to ..... .
- A) -1  
B) 0  
C) 1  
D) 0.5
25. The average weight of books on a library shelf is 8.3 grams. The standard deviation is 0.6 grams. If 20% of the books are oversized (ذات حجم کبیر), find the minimum weight of the large books on the library shelf. Assume the variable is normally distributed.
- A) 8.612 grams  
B) 0.3 gram  
C) 0.84 gram  
D) 8.804 grams
26. How many times was the coin tossed in the following figure?



- A) 4  
B) 2  
C) 6  
D) 3

27. If a normal distribution has a mean 22 and a standard deviation 4, then

- A) the median is 26 and the mode is 18
- B) the median is 22 and the mode is 22
- C) the median is 22 and the mode is 26
- D) the median is 18 and the mode is 26

28. Which of the following plots represents the stem and leaf for this data set?

537    512    529    514    521    520    536

A)

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5 | 12 14
5 | 20 21 29
5 | 36 37

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B)

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51 | 2 4
52 | 1 9
53 | 6 7

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C)

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51 | 2 4
52 | 0 1 9
53 | 6 7

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D)

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52 | 0 1 9
51 | 2 4
53 | 6 7

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29. When the subjects are selected by dividing up the population into groups, and subjects within groups are randomly selected, this is sample called a

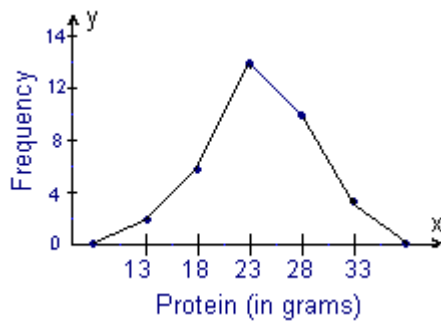
- A) stratified sample
- B) random sample
- C) cluster sample
- D) systematic sample

30. Find two z values so that 41.08% of the middle area is bounded by them

- A)  $\pm 1.35$
- B)  $\pm 0.4108$
- C)  $\pm 0.54$
- D)  $\pm 0.2054$

31. The standard deviation of the sample means will be .....the standard deviation of the population.
- A) equal to
  - B) larger than
  - C) smaller than
  - D) can not compare the two
32. The average repair cost (تكلفة الإصلاح) of a microwave oven is \$55, with a standard deviation of \$8. The costs are normally distributed. If 12 ovens are repaired, find the probability that the mean of the oven repair will be greater than \$60.
- A) 0.015
  - B) 0.4850
  - C) 0.2643
  - D) 0.985
33. Find the probability  $P(-0.09 < z < 2.37)$
- A) 0.4911
  - B) 0.527
  - C) 0.0359
  - D) 0.4552
34. A TV station interviews five movie viewers (مشاهدين) after the first showing of a movie. After finding out that all five enjoyed the movie very much, the reporter states that this movie will definitely (بالتأكيد) be the best movie for the summer. This is an example of
- A) detached statistics
  - B) suspect samples
  - C) ambiguous averages
  - D) changing the subject
35. Classify the number of schools in Florida in a given year.
- A) Nominal
  - B) Ordinal
  - C) Discrete
  - D) Continuous

36. For the following graph, the values on the x-axis represent.....



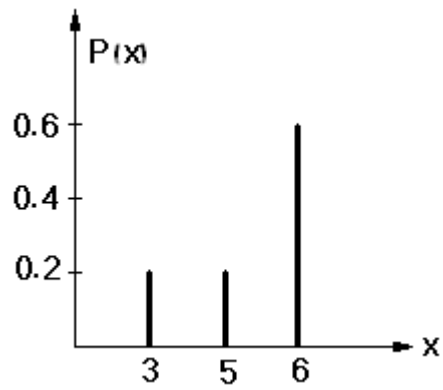
- A) cumulative frequencies  
 B) class limits  
 C) class boundaries  
 D) class midpoints
37. The frequency distribution shows the students hair colors in a classroom.

| Hair Color | No.of Students |
|------------|----------------|
| black      | 16             |
| brown      | 8              |
| blond      | 8              |

When constructing a pie graph, the angle degree of black hair students is

- A)  $160^\circ$   
 B)  $90^\circ$   
 C)  $50^\circ$   
 D)  $180^\circ$
38. How many times a die is rolled when the mean for the number of 3's that will be rolled=60?
- A) 20  
 B)  $\frac{1}{6}$   
 C) 360  
 D) 10
39. What is the set of all possible outcomes of a probability experiment?
- A) The Venn diagram  
 B) The outcome  
 C) The sample space  
 D) The event

40. For the following graph, the corresponding probability distribution is



A)

|      |     |     |     |
|------|-----|-----|-----|
| X    | 1   | 2   | 3   |
| P(X) | 0.2 | 0.4 | 0.2 |

B)

|      |     |     |     |
|------|-----|-----|-----|
| X    | 0   | 1   | 2   |
| P(X) | 0.2 | 0.4 | 0.4 |

C)

|      |     |     |     |
|------|-----|-----|-----|
| X    | 0.2 | 0.2 | 0.6 |
| P(X) | 3   | 5   | 6   |

D)

|      |     |     |     |
|------|-----|-----|-----|
| X    | 3   | 5   | 6   |
| P(X) | 0.2 | 0.2 | 0.6 |

Good Luck  
STAT110 TEAM  
Thursday 6-2-1431 H

## **Answer Key**

- 1. B**
- 2. D**
- 3. A**
- 4. A**
- 5. C**
- 6. D**
- 7. D**
- 8. D**
- 9. C**
- 10. C**
- 11. B**
- 12. C**
- 13. D**
- 14. D**
- 15. D**
- 16. C**
- 17. C**
- 18. A**
- 19. D**
- 20. C**
- 21. D**
- 22. A**
- 23. A**
- 24. C**
- 25. D**
- 26. B**
- 27. B**
- 28. C**
- 29. A**
- 30. C**
- 31. C**
- 32. A**
- 33. B**
- 34. B**
- 35. C**
- 36. D**
- 37. D**
- 38. C**
- 39. C**
- 40. D**