King Abdul Aziz University
Faulty of Sciences
Statistics Department

Final Exam

STAT 110

First Term
1429-1430

40

A

Name: **ID No:** **Section:**

You have 40 questions. You have 120 minutes to solve the exam. Please mark all your answers on the answer sheet provided to you. You can use your question paper to solve problems but **only answer sheets will be graded**. You have to submit both questions paper and answer sheet. Good luck

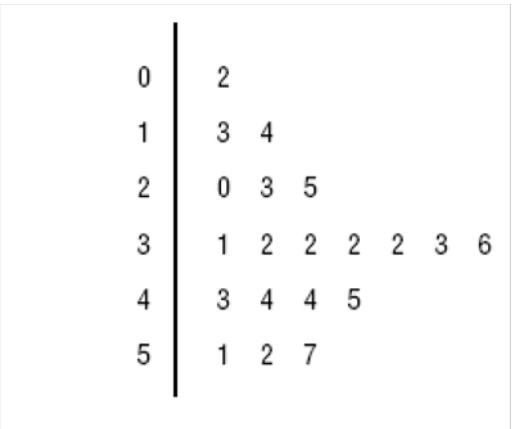
Choose the best answer for each of the following questions:

1. A store manager wants to display 5 different brands of toothpaste in a row. How many ways can this be done?
   A) 24 B) 5 C) 120 D) 20

2. What is the midpoint of the class 3-17?
   A) 3 and 17 B) 7 C) 10 and 14 D) 10

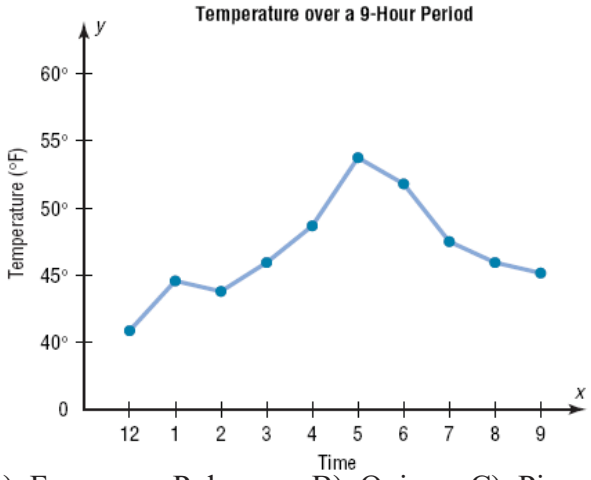
3. What is the mean, median, mode of the following numbers? 1, 3, 6, 8, 12
   A) mean= 5 median= 6 mode=1
   B) mean= 6 median= 6 mode= no mode
   C) mean= 4 median= 6.5 mode= 3
   D) mean= 20 median= 3 mode=12

4. From the stem and leaf graph below, what is the largest data value



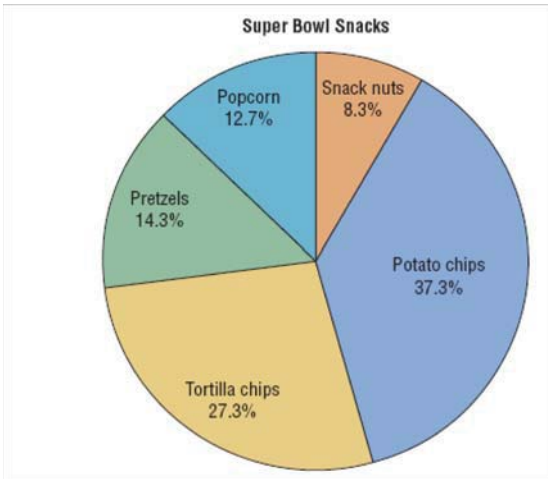
A) 2 B) 32 C) 7 D) 57

5. This graph is an example of



A) Frequency Polygon B) Ogive C) Pie graph D) Time series graph

6. This Pie graph represents snacks people eat at a sport game. What is the mode for this data



A) Pretzels B) Potato chips C) Popcorn D) Tortilla chips

7. A pareto chart is useful for which of the following purposes?
   A) Representing the frequencies of the data, sorted from largest to smallest
   B) Representing relative frequencies of categories in a specific year
   C) Representing the frequencies of a data category over a period of several years
   D) Representing the cumulative frequencies of the data

8. Which one of the following is an example of qualitative variable?
   A) Age B) Temperature C) Nationality D) Grade point average (GPA)

9. Find the mean of the distribution shown.

x	1	2
P(x)	0.40	0.60

A) 1.60 B) 0.87 C) 1.33 D) 1.09

10. An instructor grades

    exams 20%;
    term paper, 30%;
    final exam, 50%.

    A student had grades of 83, 72, and 90, respectively, for exams, term paper, and final exam. Find the weighted mean.
    A) 83.2 B) 91 C) 81.6 D) 70.2

11. Which is **not** part of a five-number summary?
    A) Q_1 and Q_3 B) The mean C) The median D) The smallest and the largest data values

12. A researcher divided subjects into two groups according to nationality (Saudi and non Saudi) and then she selected members from each group for her sample. What sampling method was the researcher using
    A) Cluster B) Stratified C) Convenience D) Systematic

13. This table represents

Purpose	Number
Personal business	146
Visit friends or relatives	330
Work-related	225
Leisure	299

    A) Probability distribution
    B) Grouped frequency distribution
    C) Ungrouped frequency distribution
    D) Categorical frequency distribution

Consider this table to answer the following two questions:

Cookie Types	Number Sold
Chocolate Chip	20
Peanut Butter	15
Oatmeal	30
Sugar	10

14. What is the probability of selecting a chocolate chip cookie?
    A) 1/15 B) 4/15 C) 1/4 D) 1/2

15. What is the level of measurement for the cookie type
    A) Nominal B) Ordinal C) Interval D) Ratio

16. Find the probability for $P(0 < z < 1.67)$.
    A) 0.3554 B) 0.4525 C) 0.4554 D) 0.4207

17. A study shows that 70% of drivers consider themselves above average in driving ability. If 10 drivers at random are chosen, what is the mean and variance of the number of drivers who consider themselves above average?
A) mean = 10 and variance = 10.
B) mean = 7 and variance = 2.1.
C) mean = 7 and variance = 7.
D) mean = 10 and variance = 1.45

18. The standard deviation of a distribution is 20. If a sample of 225 is selected, what is the standard error of the mean?
A) $\frac{3}{4}$ B) $\frac{4}{3}$ C) $\frac{4}{45}$ D) $\frac{7}{5}$

19. If there is a 20% chance that it will rain tomorrow, what is the probability that it will not rain tomorrow?
A) 0.80 B) 0.20 C) 0.08 D) 0

20. It is known that 9% of men have a type of color blindness that prevents them from distinguishing between red and green. If 3 men are selected at random, find the probability that all of them will have this type of red-green color blindness.
A) 0.09 B) 0.27 C) 0.0007 D) 0.07

21. A bag contains 22 white marbles and 37 black marbles. The probability P(X) of selecting without replacement a sample of size 10 consists of 4 white marbles and 6 black marbles is
A) $\{{}_{22}C_4 \times {}_{37}C_6\} / {}_{59}C_{10}$ B) $\{{}_{6}C_4 \times {}_{37}C_{22}\} / {}_{59}C_{10}$ C) ${}_{59}C_{10}$ D) ${}_{59}C_{10} / \{{}_{22}C_4 \times {}_{37}C_6\}$

22. To qualify for the medical school, the student must score in the top 10% on a general test. The test has a mean of 200 and a standard deviation of 20. Find the lowest possible score to qualify. Assume test scores are normally distributed.
A) 1.28 B) 25.6 C) 226 D) 276

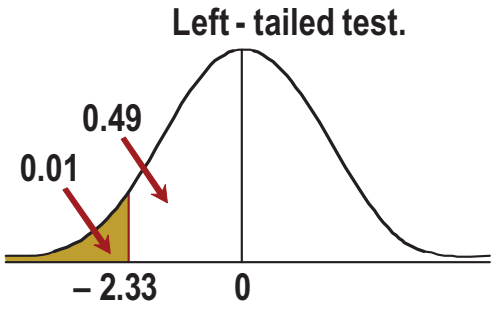
23. A student takes a 7 question multiple choice quiz with 4 choices for each question. If the student guesses at random on each question, what is the probability that the student gets exactly 3 questions correct?
A) 0.173 B) 0.346 C) 0.130 D) 0.043

24. If the scores for a test have a mean of 70 and a standard deviation of 12, find the percentage of scores that will fall below 50. Assume the test scores are normally distributed.
A) 42.07% B) 4.75% C) 35.54% D) 45.54%

25. It has been found that 6% of all automobiles on the road have defective brakes. If 5 automobiles are stopped and checked by the state police, find the probability that at least one will have defective brakes.
A) 0.734 B) 0.0127 C) .9872 D) 0.266

26. A married couple has three children, find the probability they are all boys or all girls
A) 3/8 B) 1/2 C) 1/8 D) 1/4

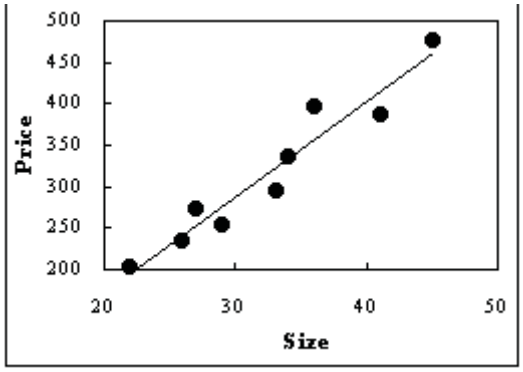
Use this graph to answer the following three questions



27. The value 0.49 represents
A) P($0 < \overline{X} < 2.33$) B) P($-2.33 < \overline{X} < 2.33$) C) P($\overline{X} > 2.33$) D) P($\overline{X} < -2.33$)

A home owner wanted to determine if there was a relationship between the size (in 100 square feet) of a new home and the price (in thousands of dollars) of the home. He found the equation of the regression line and graph the line on a scatter plot as presented below. $y' = -58.767 + 11.535$ **x**

Use this graph to answer the following four questions



28. From the graph, the relationship between size and prize is
A) Strong positive B) Strong negative C) Weak positive D) Weak negative

29. What would be the predicted home price y if x=40
A) 3419.15 B) 461.4 C) 402.63 D) 350

30. When the size of the home increases one unit (100 square feet), the expected change in home price is
A) 11.535 B) -58.767 C) 58.767 D) 0

31. The size of the home is called
A) Response variable
B) Outcome variable
C) Confounding variable
D) Explanatory variable

Good luck
Stat 110 Team