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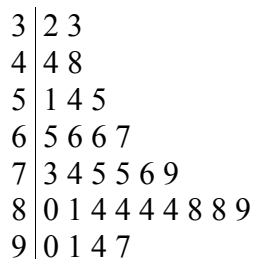
You have 45 questions and 90 minutes to solve the exam. Please mark all your answers on the answer sheet provided to you. You have to submit both question paper and answer sheet but only answer sheets will be graded. Good luck

Choose the best answer for each of the following questions:

1. The ..... level of measurement ranks data, and precise differences between units of measure exist but there is no meaningful zero.  
A) ordinal  
B) ratio  
C) nominal  
D) interval
2. The main branches of statistics are .....  
A) predictive and inferential statistics.  
B) descriptive and inferential statistics.  
C) descriptive and predictive statistics.  
D) differential and inferential statistics.
3. A statistic that allows one to compare standard deviations when the units are different is called the .....  
A) z score  
B) range  
C) coefficient of variation  
D) variance
4. "The number of dresses at a shop" is an example of the ..... level of measurement.  
A) ratio  
B) interval  
C) nominal  
D) ordinal
5. "Every fifteenth customer entering a supermarket is asked about his or her favorite fruit". What type of sampling is used?  
A) Cluster sampling  
B) Stratified sampling  
C) Random sampling  
D) Systematic sampling
6. When a distribution is bell-shaped, approximately what percentage of data values will fall within 1 standard deviation of the mean?  
A) 99.7%  
B) 95%  
C) 50%  
D) 68%

7. Find the class boundaries for the class 2.15-3.93.
  - A) 2.145-3.940
  - B) 1.65-4.43
  - C) 2.155-3.925
  - D) 2.145-3.935
  
8. "Our brand of cookies has two-fifth fewer calories". This is an example of .....
  - A) changing the subject
  - B) detached statistics
  - C) implied connections
  - D) suspect samples
  
9. A characteristic or measure obtained by using the data values from a sample is called a .....
  - A) quartile
  - B) parameter
  - C) statistic
  - D) percentile

The following stem and leaf plot represents the scores for 30 students on a Statistics exam.



**Use this plot to answer the questions (10-11)**

10. Find the mode.
  - A) 84
  - B) 4
  - C) 9
  - D) 48
  
11. Based on the distribution shape of the stem and leaf plot, choose the correct statement that describes the relationship between the measures: mean, median and mode.
  - A) Mean = Median = Mode
  - B) Mean < Median < Mode
  - C) Mean > Median > Mode
  - D) The exact relationship cannot be determined.
  
12. A researcher wishes to represent the percentage of students in the department of statistics using a pie graph. If the percentage of statistical department students is 25%, then their corresponding degree of the angle on the pie graph is .....
  - A)  $30^{\circ}$
  - B)  $108^{\circ}$
  - C)  $90^{\circ}$
  - D)  $180^{\circ}$

13. Calculate the mean for the following numbers:  
0, 14, 9, 0, 12
- A) 9  
B) 7  
C) 11.7  
D) 35
14. The ..... is the sum of the frequencies accumulated up to the upper boundary of a class in the distribution.
- A) cumulative frequency  
B) frequency distribution  
C) percent frequency  
D) relative frequency
15. Find  $Q_1$ ,  $Q_2$  and  $Q_3$  for the following data set:  
12, 50, 22, 18, 15, 13, 5, 6
- A)  $Q_1=9$ ,  $Q_2=14$ ,  $Q_3=20$   
B)  $Q_1=6$ ,  $Q_2=14$ ,  $Q_3=22$   
C)  $Q_1=5$ ,  $Q_2=18$ ,  $Q_3=50$   
D)  $Q_1=9$ ,  $Q_2=16.5$ ,  $Q_3=36$
16. If you classified "the vegetables in a basket as carrot, tomato and potato", then this is an example of which level of measurement?
- A) ratio  
B) interval  
C) nominal  
D) ordinal
17. An instructor grades exams 20%, term paper 30% and final exam 50%. A student had grades of 83, 72 and 90, respectively for exams, term paper and final exam. Compute the student's final average using the weighted mean.
- A) 83.2  
B) 57.5  
C) 33.3  
D) 81.7

A pharmaceutical company (شركة أدوية) wants to test the effectiveness of their new drug compared to an existing drug. They divide up the subjects randomly into two groups, one group getting the new drug and one group getting the existing drug.

**Use this information to answer the questions (18-19).**

18. This is an example of what type of study?
- A) outcomes study  
B) independent study  
C) observational study  
D) experimental study
19. "The type of drug" here is the ..... variable.
- A) outcome  
B) dependent  
C) quantitative  
D) independent

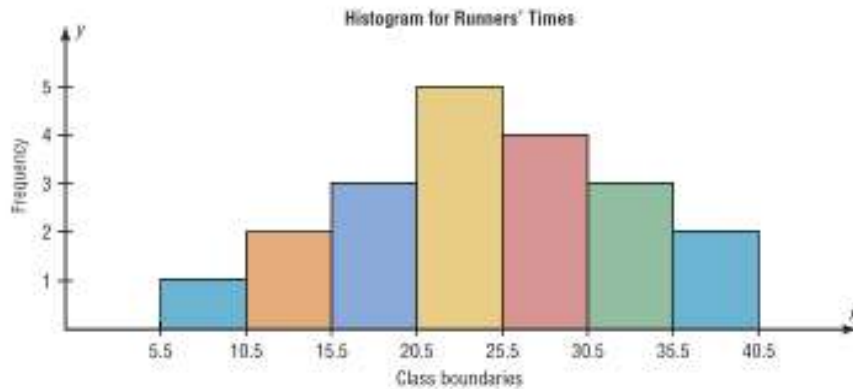
20. For the boxplot, the five number summary includes:
- A) (min,  $Q_1$ , MD,  $Q_3$ , max)
  - B) (min,  $Q_1$ , MD,  $\bar{x}$ , max)
  - C) ( $Q_1$ ,  $Q_2$ ,  $Q_3$ , MD, max)
  - D) (min, MD,  $Q_2$ ,  $\bar{x}$ , max)
21. If a sample of data has mean 25 and variance 25, then its coefficient of variation is .....
- A) 1%
  - B) 0.2%
  - C) 20%
  - D) 100%
22. When all subjects under study are used, the group is called a .....
- A) study group
  - B) sample
  - C) population
  - D) small group
23. What is the midrange of the following numbers?  
4, 7, 3, 16, 5, 22, 8
- A) 19
  - B) 12.5
  - C) 6
  - D) 25
24. "A diet high in fruits and vegetables will lower blood pressure". The branch of statistics used in this statement is .....
- A) descriptive statistics
  - B) predictive statistics
  - C) inferential statistics
  - D) differential statistics
25. In a stem and leaf plot, the leaf part for the data value 347 is .....
- A) 34
  - B) 7
  - C) 47
  - D) 3
26. The range of the data set -3, -7, -13, 0, -1 is .....
- A) -13
  - B) 13
  - C) 2
  - D) 12
27. Bar graphs are used to represent .....
- A) quantitative variables.
  - B) dependent variables.
  - C) explanatory variables.
  - D) qualitative variables.

28. Calculate the standard deviation for this sample:

2, 5, 3, 5, 4

- A) 4.3
- B) 18.8
- C) 1.7
- D) 1.3

29. From the histogram shown below, the midpoint of the last class is .....

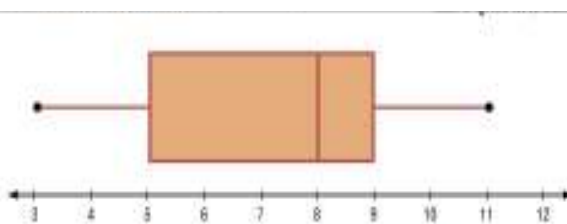


- A) 33
- B) 35.5
- C) 40.5
- D) 38

30. Classify the variable "ice cream flavors (نكهات) at an ice cream store".

- A) ratio
- B) continuous
- C) qualitative
- D) discrete

From the boxplot below below, **answer the questions (31-32)**.



31. The minimum value is .....

- A) 9
- B) 4
- C) 5
- D) 3

32. The interquartile range (IQR) is .....

- A) 8
- B) 9
- C) 4
- D) 7

33. If a set of 49 data values has the variance 36, then the standard deviation is .....
- A) 0.73
  - B) 6
  - C) 7
  - D) 1.36
34. What type of sampling is used if the patients are divided into smokers and nonsmokers and 50 patients are chosen from each group?
- A) Systematic sampling
  - B) Cluster sampling
  - C) Random sampling
  - D) Stratified sampling
35. What is the most appropriate measure of central tendency for the following data set?  
male, female, female, male, male, male, female
- A) The midrange
  - B) The mode
  - C) The median
  - D) The mean

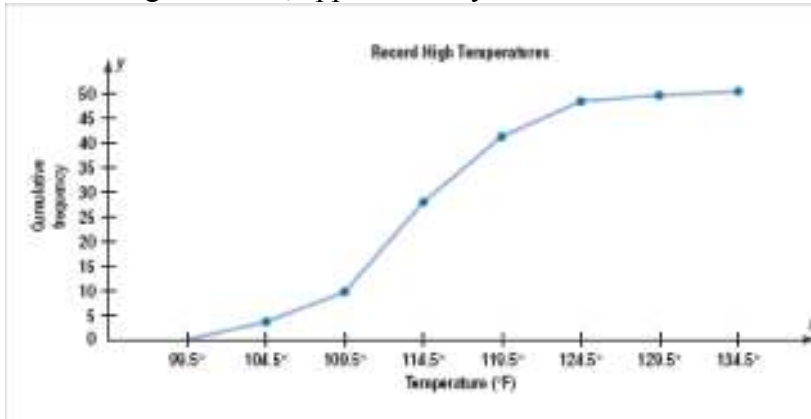
The following table shows the frequency distribution of the heights (in inches) of 49 walls.

Height (in inches)	
Class	Frequency, f
50 - 52	5
53 - 55	8
56 - 58	12
59 - 61	13
62 - 64	11

Use the above table to answer the questions (36-37).

36. The number of walls whose heights are less than 55.5 inches is .....
- A) 5
  - B) 13
  - C) 8
  - D) 25
37. The class width is .....
- A) 5
  - B) 2
  - C) 3
  - D) 14

38. Which value in the given data set would affect the mean?  
5000, 9000, 7000, 40, 6000, 8000
- A) 40  
B) 5000  
C) 8000  
D) None of the above
39. Which graph should be used to represent "types of cars sold in Jeddah"?
- A) Ogive  
B) Histogram  
C) Pareto chart  
D) Time series graph
40. A study that uses intact groups when it is not possible to randomly assign participants to the groups is called a(n) .....
- A) applied study  
B) quasi-experimental study  
C) observational study  
D) experimental study
41. A student scored 82 on an Arabic exam that had a mean of 88 and a standard deviation of 6; he scored 58 on a Mathematics exam with a mean of 60 and a standard deviation of 5. Which of these exam scores has a better position?
- A) Mathematics exam is better  
B) No difference between both exams  
C) Arabic exam is better  
D) None of the above
42. From the ogive below, approximately what is the total number of observations?



- A) 222  
B) 50  
C) 8  
D) 134.5
43. "Time spent by students each week on the internet" is an example of which type of variables?
- A) discrete  
B) ordinal  
C) qualitative  
D) continuous

44. If a data set contains values lower than  $Q_1 - 1.5(IQR)$ , then these values are called .....
- A) outliers
  - B) minimum
  - C)  $Q_3$
  - D) extremely high values

45. The following data represent a group of students' grades:

A    B    C    A    D  
 B    C    F    D    C  
 A    F    D    B    B  
 D    C    A    C    C

Choose the correct frequency distribution for these data.

A)

Class	Frequency
A	4
B	4
C	6
D	4
F	4

B)

Class	Frequency
A	4
B	4
C	6
D	4
E	1

C)

Class	Frequency
A	4
B	4
C	5
D	4
F	2

D)

Class	Frequency
A	4
B	4
C	6
D	4
F	2

Good Luck  
 STAT 110 Team  
 Tuesday 22/11/1430 H



## Answer Key

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