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You have 40 questions. You have 120 minutes to solve the exam. Make sure that the answer sheet form matches the question form. Please mark all your answers on the answer sheet provided to you.

Choose the best answer for each of the following questions:

1. For a normal curve with mean 8 and standard deviation 5, which of the following parts of the normal curve will have an area of approximately 95%?

A) from -2 to 18 B) from 8 to 23 C) from 3 to 13 D) from -7 to 23

Use the following to answer questions 2-4:

A box contains 16 mobiles is purchased. The probability that a mobile will be defective is 0.3. Use these information to answer the following three questions:

2. What is the probability of having 6 defective mobiles?

A) 0.164904 B) 0.000006 C) 0.005563 D) 0.000729

3. The variance of the number of defective mobiles is ...

A) 3.36 B) 4.8 C) 11.29 D) 1.83

4. The mean number of non-defective mobiles is ...

A) 1.83 B) 3.36 C) 4.8 D) 11.2

Use the following to answer questions 5-8:

The following table represents the cumulative relative frequency for 39 patients' height:

Class Boundary for heights	Cumulative Relative Frequency
4.5 – 9.5	0.1795
9.5 – 14.5	0.2051
14.5 – 19.5	0.2821
19.5 – 24.5	0.4615
24.5 – 29.5	0.7949
29.5 – 34.5	1

5. The class limit that has the largest frequency is ...

A) 29.5 - 34.5 B) 24.5 - 29.5 C) 30 - 34 D) 25 - 29

6. The sample size ...

A) cannot be determined. B) is 6. C) is 1. D) is 39.

7. The cumulative relative frequency of patients with heights less than or equal to 24 is ...

A) 0.4615 B) 0.7949 C) 24.5 D) 0.2821

8. The cumulative frequency for the second class ...
A) is 14.5. B) is 8. C) is 0.2051. D) can't be determined.

Use the following to answer questions 9-15:

The following data represents the temperature of seven consecutive days in a city:

$-7.5, -7.5, -7.5, -10.5, -7.5, -4.5, -7.5$

Use this data to answer the following seven questions.

9. The value of the median is ...
A) -7.5 B) 7.5 C) -10.5 D) -4.5
10. The value of the standard deviation is ...
A) 3 B) 134 C) 1.73 D) 11.6
11. The value of the mean is ...
A) -7.5 B) 58.8 C) 7.5 D) -58.8
12. The value of the range is ...
A) 0 B) 7 C) 6 D) -6
13. The value of the inter-quartile range (IQR) is ...
A) 3 B) -3 C) 0 D) 6
14. What can you say about the outliers?
A) Cannot be determined. C) There is one outlier.
B) There are two outliers. D) There is no outliers.
15. The value of the mode is ...
A) 7 B) -10.5 C) -4.5 D) -7.5
16. A store manager has 4 distinctive toothpastes, 2 distinctive toothbrushes and 3 distinctive mouthwashes and would like to arrange all of them in order on a shelf. In how many different ways can they be arranged?
A) 288 B) 24 C) 32 D) 362880
17. When 2 dice (6-sided each) are rolled, find the probability of getting a sum of 12.
A) $2/36$ B) $1/6$ C) $1/36$ D) $2/6$
18. "Grade letters (A, B, C, D, F)" is an example of ... level of measurement.
A) can not be determined B) a nominal C) an ordinal D) nominal and ordinal
19. If a variable has possible values $-4, -1, 7, 11$ and 13 , then this variable is ...
A) both a continuous and a discrete variable. C) a continuous variable.
B) neither a continuous nor a discrete variable. D) a discrete variable.
20. The best graph for displaying the birth weights data is the ...
A) bar chart. B) histogram. C) Pareto chart. D) pie graph.

21. In a multiple choice questions exam, the complement of guessing 14 correct answers on a 14-question exam is ...
 A) guessing at least 1 correct answer. C) guessing six incorrect answers.
 B) guessing at least 1 incorrect answer. D) guessing no incorrect answers.
22. What type of sampling is being employed if the population is divided into groups and a sample is chosen from some groups to be surveyed?
 A) Systematic sampling. B) Random sampling. C) Stratified sampling. D) Cluster sampling.
23. For the class 10 - 20, the upper class limit is ...
 A) 9.5 B) 20.5 C) 10 D) 20
24. In a club there are 7 teachers and 17 students. A committee of 2 teachers and 3 students is to be chosen. How many different possibilities are there?
 A) 119 B) 14280 C) 42504 D) 701
25. In a medical study, it is always preferable for the researcher to choose his participants ...
 A) in sequence. B) as carefully as possible. C) in order. D) randomly.
26. The probability of winning a car that priced at 85000 SAR is 0.006. The cost to enter the pull is 860 SAR. Then, the expected value of the gain is ...
 A) -350 B) -344.84 C) 1359.68 D) 1364.84

Use the following to answer questions 27-30:

The following table represents the probability distribution of the number of boys in a sample of families:

X	0	1	2	3
P(X)	K	0.2	0.3	0.3

Use the information given to answer the following four questions:

27. What is the probability of getting at most 2 boys?
 A) 0.3 B) 0.7 C) cannot be determined. D) 0.5
28. The probability that a family will have no boys (the value of K) ...
 A) is 1. B) is 0. C) cannot be determined. D) is 0.2.
29. The standard deviation of the number of boys in a family ...
 A) is 2.02 B) is 1.21 C) cannot be determined D) is 1.1
30. The mean number of boys in a family ...
 A) is 1.5 B) is 1.7 C) is 4.1 D) cannot be determined.

Use the following to answer questions 31-32:

The following equation describes the relationship between two variables x and y:

$$y' = 6 - x$$

Use these information to answer the following two questions:

31. The relationship between x and y ...
A) is positive linear. B) is negative linear. C) cannot be determined. D) is not linear.
32. The value of the correlation coefficient between x and y is approximately ...
A) -0.4 B) 0 C) 0.4 D) 1

Use the following to answer questions 33-39:

The mean value for the scores of 5000 preparatory year students is 80. If we assume that the scores are normally distributed with standard deviation 5. Answer the following seven questions

33. What is the probability that a randomly selected student will have a score greater than 84?
A) 0.0228 B) 0.2119 C) 0.7881 D) 0.6554
34. What is the probability that a randomly selected student will have a score less than 84?
A) 0.7881 B) 0.2119 C) 0.6554 D) 0.0228
35. If a random sample of 36 students is selected, what is the probability that the **mean** score will be less than 78 **or** greater than 81?
A) 0.8767 B) 0.8849 C) 0.1233 D) 0.0082
36. If entry to the medical collage requires a test score in the upper 10.2%, what is the lowest acceptable score that would qualify a student to enter the medical college?
A) 84.05 B) 86.35 C) 91.45 D) 89.8
37. What is the percentage of students who have scores greater than 86?
A) 78.81% B) 88.49% C) 11.51% D) 65.54%
38. What is the probability that a randomly selected student will have a score between 72 and 85?
A) 0.8413 B) 0.7865 C) 0.0548 D) -0.7865
39. How many students will have scores between 76 and 90?
A) 530 B) 1060 C) 3827 D) 4886
40. If the standard deviation of a population is 50 and we take a sample of size 25, then the standard error (the standard deviation of the sample mean) is
A) 2.00 B) 5.00 C) 10.00 D) 250.00

THIS IS THE END OF THE EXAM
Stat 110 Team