King Abdul-Aziz University | Final Exam | 2nd term | **Time allowed: 120 min** | **A**
Faculty of Science | Stat 110 | 1431-1432 | Total score : 40
Statistics Department

Please Select the BEST ANSWER and mark your answer in the answer sheet:

1- The time needed for a student to reach KAU from his home is an example of …
A) an ordinal variable B) a nominal variable C) a continuous variable D) a discrete variable

2- Which of the following correctly describes the relationship between a sample and a population?
A) A population and a sample are not related.
B) A sample is a group of subjects selected from a population to be studied.
C) A sample is a group of populations that are subject to observation
D) A population is a group of samples that may or may not be included in a study.

3- An independent variable can also be called …
A) a suggestive variable B) an outcome variable C) an explanatory variable D) a free variable

4- What type of sampling is being employed if the country is divided into economic classes and a random sample is chosen from each class to be surveyed?
A) cluster sampling B) stratified sampling C) random sampling D) systematic sampling

5- What are the boundaries of the class limit 2-18?
A) 2 and 18 B) 2.5 and 17.5 C) 1 and 19 D) 1.5 and 18.5

6- A weatherman records Jeddah's daily temperature. What type of graph should he use to represent this kind of data?
A) Time series graph B) Pie graph C) Bar graph D) Ogive

7- An automobile dealer sold 72 cars; 16 of which were black. The black cars will represent how many degrees in the pie graph?
A) 60° B) 80° C) 100° D) 50°

The following are the ages for 11 football team players:

23, 26, 23, 30, 23, 28, 19, 31, 24, 27, 21

According to these information, **answer questions 8-12**

8- The value of the mean is …
A) 24 B) 25 C) 23 D) 31

9- The value of the mode is …
A) 23 B) 25 C) 19 D) 24

10- The value of the median is …
A) 25 B) 24 C) 26 D) 23

11- If the value of the standard deviation is 3.85 then the coefficient of variation (C.V) equals …
A) 15.40% B) 16.04% C) 16.74% D) 59.29%

12- The distribution of the age …
A) is symmetric B) is skewed to the left C) is skewed to the wright D) can't be determined

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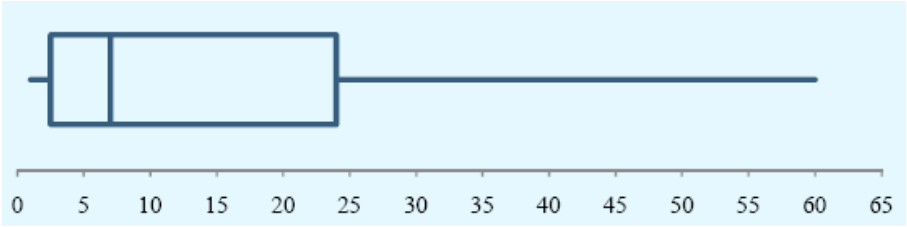
13- If a set of 9 numbers has standard deviation 8, then its variance is …
A) 81 B) 2.67 C) 64 D) 3

14- If the mean of a set of data is 19.00, and 13.80 has a z-score of –1.30, then the standard deviation is …
A) 4 B) 8 C) 2 D) 16

Given the following box plot , **answer questions 15-18**



15- The value of the median Q_2 =
A) 7 B) 2.5 C) 24 D) Can't be determined

16- The Interquartile range IQR =
A) 2.5 B) 24 C) 21.5 D) Can't be determined

17- The value 57 is considered to be …
A) an outlier B) the minimum value C) the maxim value D) a regular value

18- The distribution is …
A) symmetric B) left skewed C) wright skewed D) can't be determined

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A sample of 100 employees at a hospital is distributed in the following table:

	Doctor	Nurse	Employee
Males	25	15	10
Females	30	10	10

If a person is selected randomly, **Answer questions 19-21**

19- what is the probability that the person is a Nurse?
A) 0.50 B) 0.55 C) 0.20 D) 0.25

20- what is the probability that the person is either a Nurse or a Doctor?
A) 0 B) 0.80 C) 1 D) 0.75

21- what is the probability that the person is either a male or a Doctor?
A) 1.05 B) 0.80 C) 0.55 D) 0.50

22- What probability value would be needed to complete the following probability distribution?

x	-2	-1	0	1
P(x)	0.09	0.23	?	0.44

A) 0.24 B) 0.41 C) 0.12 D) 0.76

23- The following distribution **is not** a probability distribution because …

X	-4	-3	-2	-1
P(x)	0.52	-0.23	0.24	0.47

A) the probability values are not discrete B) values of x are negative C) the sum of probability values is not equal 1 D) a probability is negative

Use the following probability distribution to **answer questions 24 and 25**

x	0	1	2	3
P(x)	0.4	0.2	0.1	0.3

24- The mean value …
A) equals 1.3 B) equals 1.5 C) equals 0.9 D) can't be calculated

25- The value of the variance is …
A) 3.3 B) 1.26 C) 1.61 D) All are wrong

A multiple choice quiz consists of 6 questions, each with 4 possible answers. Use these information to **answer questions 26 to 28**

26- If a student guesses the answer of a question, then the probability to answer it correctly is …
A) 0 B) 1 C) 1/4 D) 1/2

27- If a student guesses the answer to each question, then the mean number of correct answers is …
A) 1.5 B) 4.5 C) 6 D) 0

28- If a student guesses the answer to each question, then the variance of number of correct answers is …
A) 6 B) 3.125 C) 2 D) 1.125

29- Which of the following properties **does not apply** to a theoretical normal distribution?
A) The normal distribution is bimodal B) The normal distribution is bell-shaped C) The curve never touches the x-axis D) The mean, median, and mode are equal

A recent study found the average life span of portable compact disc players to be 3.7 years with a standard deviation of 0.6 year. According to these information, **answer questions 30-32**:

30- If a portable compact disc player selected at random, then the probability that its lifetime will be between 3 and 4 years is …
A) 0.6915 B) 0.1210 C) 0.5705 D) 0.8125

31- If a portable compact disc player selected at random, then the probability that its lifetime will be less than 3.4 years is …
A) 0.3085 B) 1 C) 0.6915 D) an impossible event

32- If a random sample of 32 portable compact disc players is selected, then the probability that the **mean** lifetime of the sample will be more than 3.4 years is …
A) 0.0571 B) 0.9977 C) 0.0023 D) 0.1814

33- Membership in an elite organization requires a test score in the **upper** 30% range. If $\mu=115$ and $\sigma=12$, find the lowest acceptable score that would enable a candidate to apply for a membership. Assume the variable is normally distributed.
A) 112.78 B) 129.93 C) 123.65 D) 121.24

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The grades obtained by 6 students in both STAT and MATH exams are shown in the following table:

STAT	A	F	C	B	D+	D
MATH	B+	D	C	A	B	C+

According to these information, **answer questions 34-36**:

34- The suitable correlation coefficient to be used is …
A) Spearman B) Pearson C) Pearson or Spearman D) All are wrong

35- The value of the correlation coefficient is …
A) 0.229 B) 0.771 C) - 0.771 D) -0.229

36- If the value of the correlation coefficient equals 2 then this mean that …
A) the relation is very strong B) the relation is moderate C) the relation is very weak D) there is a wrong calculations

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When testing the relation between the income (x) and expenditure (y), the following results for 5 parsons were obtained: $\Sigma x=17$, $\Sigma y=18$, $\Sigma x^2=75$, $\Sigma y^2=70$, $\Sigma xy=70$
According to these information, **answer questions 37-40**:

37- The Pearson correlation coefficient equals …
A) 0.322 B) -0.322 C) 0.931 D) -0.931

38- The value of the correlation coefficient indicates …
A) a strong negative linear relationship B) a strong positive linear relationship C) a weak negative linear relationship D) a weak positive linear relationship

39- What is the equation for the regression line if the slope(b) = 0. 512 ?
A) y = 1.860 + 0.512 X B) y = 1.860 – 0.512 X C) y = 0.860 + 0.512 X D) y = -1.860 + 0.512 X

40- If the value of X is 4 then the corresponding value of y is
A) 0.188 B) -0.188 C) 2.908 D) 3.908

We wish you good luck