Started on	Monday, 31 January 2022, 3:01 PM
State	Finished
Completed on	Monday, 31 January 2022, 3:36 PM
Time taken	34 mins 57 secs
Grade	**19.00** out of 20.00 (**95**%)

Question **1**

Correct

Mark 5.00 out of 5.00

We know that the IQ test is designed such that the mean = 100 and standard deviation = 15 and IQ test scores are normally distributed. Now assume we measure IQ in a small set of 100 people in a small town in Maharashtra and obtain a mean = 95 and standard deviation = 11. Match the following

Population standard deviation	15 ✔
Sample mean	95 ✔
Standard error of the mean	1.5 ✔
Sample standard deviation	11 ✔
Population mean	100 ✔

The correct answer is:
Population standard deviation → 15,

Sample mean → 95,

Standard error of the mean → 1.5,

Sample standard deviation → 11,

Population mean → 100

Question **2**

Correct

Mark 1.00 out of 1.00

Data visualization tools provide an accessible way to see and understand _____ in data.

a. trends

b. all of the above ✔

c. outliers

d. patterns

The correct answer is:
all of the above

Question **3**

Correct

Mark 1.00 out of 1.00

Many laboratory memory studies use artificial lists of words. However, when analogous experiments are done using more naturalistic stimuli in real-world ecologically valid scenarios, researchers have found that the memory theories developed in the lab based on artificial lists of words generalize well to the real-world scenarios. Based on this, we can conclude that artificial word list-based lab experiments have (pick the BEST option):

a. high internal validity

b. high external validity ✔

c. high ecological validity

d. high face validity

The correct answer is:
high external validity

Question **4**

Correct

Mark 1.00 out of 1.00

An exit poll based on a data sample of 100 people suggests that 30% of the population is likely to vote for XYZ party. A statistician makes an assumption that the population distribution (of this proportion) is a Normal distribution with mean = 0.3 and standard deviation = 0.1. He now wants to create a sampling distribution of the mean proportion using simulations. What is the right way to do this?

- a. Randomly draw 100 values from a Normal(0.3, 0.1), compute the standard deviation of this sample of 100 values, and simulate this process 10,000 times to get the mean of all such standard deviations. Therefore, the sampling distribution would be a Normal distribution with mean = 0.3 and standard deviation calculated from the mean of 10,000 simulated samples.
- b. Randomly draw 10,000 values from a Normal(0.3, 0.1), and plot the distribution and compute the mean of this distribution. The answer will be very close to 0.3 that was observed as the mean of the real data sample, and therefore is the closest approximation to the sampling distribution of the mean.
- c. Randomly draw 100 values from a Normal(0.3, 0.1), compute the mean of this sample, and repeat 10,000 times to get and plot a distribution of 10,000 means. This is called the sampling distribution of the mean, given N = 100 ✔

The correct answer is:
Randomly draw 100 values from a Normal(0.3, 0.1), compute the mean of this sample, and repeat 10,000 times to get and plot a distribution of 10,000 means. This is called the sampling distribution of the mean, given N = 100

Question **5**

Correct

Mark 1.00 out of 1.00

There is a bag with 10 red balls and 10 blue balls, each marked with a distinct number. I shake up the bag and randomly draw 5 balls, note down the number of red and blue balls I picked as well as the numbers printed on them, and replace the 5 balls and repeat the process many times. These samples of 5 features (color + number printed on the balls) were

- a. Sampled in a simple random way with replacement
- b. Sampled in a biased way with replacement
- c. Sampled in a biased way without replacement
- d. Sampled in a simple random way without replacement ✔

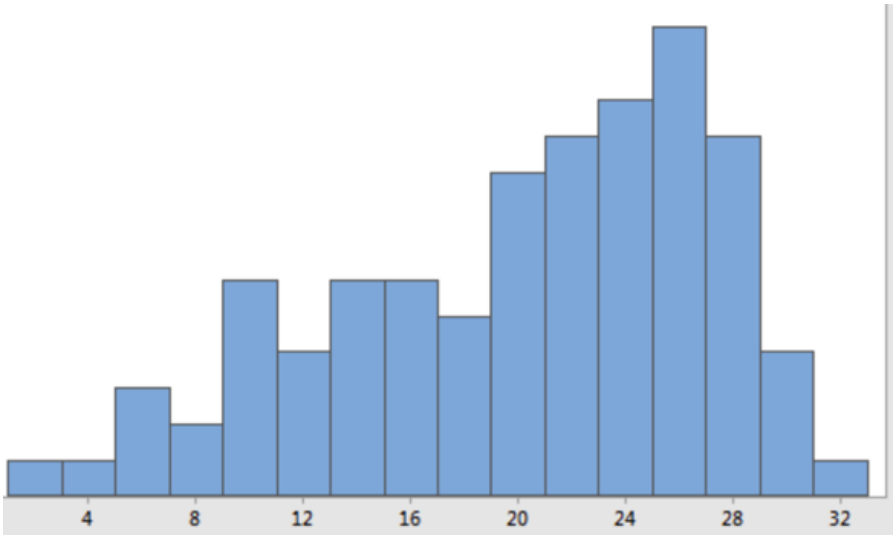
The correct answer is:
Sampled in a simple random way without replacement

Question **6**

Correct

Mark 1.00 out of 1.00

Given this histogram of the population distribution of the age of chess players on a small island (assume mean = 24, standard deviation = 8), if you draw a sample of 100 ages from this population, and plot the distribution of the means of 10,000 such samples, what would you expect the resulting distribution to be?



- a. A positively skewed distribution with mean around 8
- b. A Normal distribution with mean around 8
- c. A Normal distribution with mean around 24 ✔
- d. A negatively skewed distribution with mean around 24

The correct answer is:
A Normal distribution with mean around 24

Question **7**

Correct

Mark 1.00 out of 1.00

The monthly income distribution of a sample of 11 residents of Hyderabad was found to have a mean of Rs 50,000 and a variance of Rs 10,000. I would like to come up with an unbiased estimate of the variance of the monthly income amongst ALL residents of Hyderabad. Which of the following (approximately) is my best such unbiased estimate of the variance?

- a. 11,000 ✔
- b. 14,600
- c. 10,000
- d. 9,000

The correct answer is:
11,000

Question **8**

Correct

Mark 1.00 out of 1.00

Akash measures people's preference for chocolate brand A based on a survey sent out to 500 people and reports that 68% of people like brand A with a 95% confidence interval of [55%,81%]. This means that:

- a. Akash is 95% confident about 68% being the true percentage of all people who like brand A.
- b. If Akash were to repeat the measurement many times, he would expect to find that around 68% of the people preferred brand A in about 95% of future measurements.
- c. Akash is 95% confident that the true percentage of all people who like brand A lies in the interval of 55% - 81%.
- d. If Akash were to construct confidence intervals using a similar procedure in the future, he believes that 95% of those confidence intervals will contain the true percentage of all people who like brand A. ✔

The correct answer is:
If Akash were to construct confidence intervals using a similar procedure in the future, he believes that 95% of those confidence intervals will contain the true percentage of all people who like brand A.

Question **9**

Correct

Mark 1.00 out of 1.00

Consider the following data set: 13, 18, 28, 28, 31, 26, 35, 20. Which measure of central tendency will change the most if the "20" would have been a "48"?

- a. median
- b. mode
- c. mean ✔

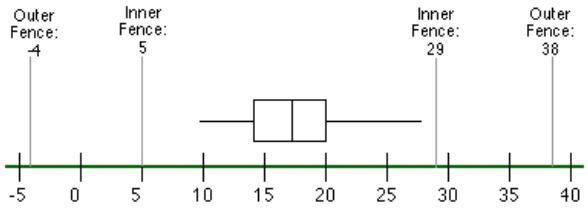
The correct answer is: mean

Question **10**

Correct

Mark 1.00 out of 1.00

Although not shown in the plot, which of the following values would be considered an outlier in this data set?



- a. -5 ✔
- b. 6
- c. 25
- d. More than one of these values would be an outlier.
- e. 17
- f. None of these values would be outliers.

The correct answer is:
-5

Question **11**

Correct

Mark 1.00 out of 1.00

In which situation is it appropriate to use the mode as the preferred measure of central tendency?

- a. in reporting marks in a class quiz
- b. in reporting average selling price for homes in a community
- c. in determining what size shoes to reorder in a retail establishment ✔
- d. when the distribution is significantly skewed to the left or to the right

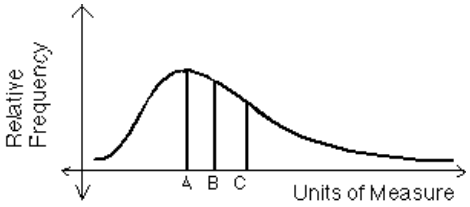
The correct answer is:
in determining what size shoes to reorder in a retail establishment

Question **12**

Correct

Mark 1.00 out of 1.00

Which of the following orders correctly represents the measures of central tendency for the distribution shown here?



a. A: median, B: mode, C: mean

b. A: mode, B: median, C: mean ✔

c. None of these orders are correct

d. A: mode, B: mean, C: median

e. A: median, B: mean, C: mode

f. A: mean, B: median, C: mode

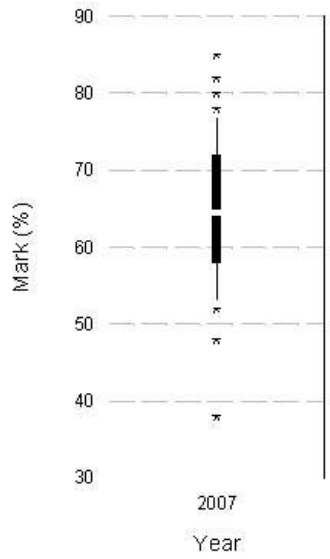
The correct answer is:
A: mode, B: median, C: mean

Question **13**

Incorrect

Mark 0.00 out of 1.00

The interquartile range of marks (approximately) is



- a. 47%
- b. 14%
- c. 22% ✖
- d. 7%

The correct answer is:
14%

Question **14**

Correct

Mark 1.00 out of 1.00

Imagine we took a group of excessive coffee drinkers, recorded the number of cups they drank each day, whether they considered cutting down their consumption or not, and then split them randomly into one of two 4-week interventions; 'hypnosis' or 'decaf'. After the 4 weeks, we again recorded how many cups they drank each day and subtracted this number from the number of cups they each drank pre-intervention, to produce an intervention success score for each participant. Out of the following options, which would be the best method of looking at which intervention was the most successful, taking into account whether the participant wanted to cut down their consumption or not?

- a. Pie Chart plot
- b. Funnel Chart
- c. Simple Histogram
- d. Boxplots ✔

The correct answer is:
Boxplots

Question **15**

Correct

Mark 1.00 out of 1.00

Dr. Singh wants to understand whether open workspaces are better than traditional office spaces and asks volunteers to indicate the degree to which they agree that open workspaces boost productivity by choosing from the following options: strongly agree, agree, neutral, disagree, strongly disagree. What type of variable best captures these responses?

- a. Nominal
- b. Ratio
- c. Ordinal ✔

The correct answer is:
Ordinal

Question **16**

Correct

Mark 1.00 out of 1.00

A histogram is a graph in which values of observations are plotted on the horizontal axis, and their density is plotted on the vertical axis.

Select one:

- True
- False ✔

The correct answer is 'False'.

◄ Probability Distributions (PDF)

Jump to...

Quiz 2 ►