**Suppose that you toss a coin 100 times and get 95 heads and five tails. Based on these results, what is the estimated probability that the next flip results in a head?**(1 mark)

Top of Form

None of the options

0.9025

~~0.05~~

0.95

0.475

Bottom of Form

**What is the confidence coefficient when the level of significance is 0.05?**(1 mark)

Top of Form

0.80

0.75

0.05

0.95

None of the options

Bottom of Form

**\_\_\_\_\_\_\_ is the probability of occurrence of one event A, given that another event B is known to be true or has already occurred.**

(1 mark)

Top of Form

~~Relative frequency definition~~

Joint probability

Conditional probability

Experiment

Event

Bottom of Form

**The distribution for students’ examination scores follow a normal distribution with a mean of 78 and variance of 100. What is the probability that a student’s examination score will be at least 80?**

(1 mark)

Top of Form

0.5000

~~0.5793~~

0.5080

0.4920

0.4207 (P(X>=80) = P(Z > ) = 0.2; Z-table = 0.4207

Bottom of Form

**X is a random variable that is normally distributed with mean of 60 and standard deviation of 15. Which of the following is the R code that computes P(X>75)?**

(1 mark)

Top of Form

pnorm(75,360,15,lower.tail=FALSE)

1-pnorm(75,15,60)

pnorm(75,60,15,lower.tail=TRUE)

pnorm(75,60,15,lower.tail=FALSE)

pnorm(60,15,75,lower.tail=FALSE)

Bottom of Form

**The collection of all possible outcomes of an experiment is called the \_\_\_\_\_\_\_\_.**

(1 mark)

Top of Form

Experiment outcome

None of the options

Sample space

Probability

Relative frequency definition

Bottom of Form

**A \_\_\_\_\_\_\_\_ is a range of values between which the value of the population parameter is believed to be, along with a probability that the interval correctly estimates the true (unknown) population parameter.**(1 mark)

Top of Form

Point estimate

*In statistics,****point estimation****involves the use of sample data to****calculate****a single value (known as a****point estimate****since it identifies a****point****in some parameter space) which is to serve as a "best guess" or "best****estimate****" of an unknown population parameter (for example, the population mean).*

Confidence interval

*In statistics, a****confidence interval****(****CI****) is a type of estimate computed from the statistics of the observed data. This proposes a range of plausible values for an unknown parameter (for example, the mean). The****interval****has an associated****confidence****level that the true parameter is in the proposed range.*

None of the options

Standard error of the mean

*The****standard error****is a statistical term that measures the accuracy with which a sample distribution represents a population by using****standard****deviation. In statistics, a sample****mean****deviates from the actual****mean****of a population; this deviation is the****standard error of the mean****.*

Sampling distribution of the mean

Bottom of Form

**Which of the following is true about the relative frequency definition of probability?**

(1 mark)

Top of Form

It is based on empirical data.

It is based on judgment and experience.

The process that generates the outcomes is known and probabilities are deduced from theoretical arguments.

It is not accurate.

None of the options.

Bottom of Form

**A (n) \_\_\_\_\_\_\_\_ random variable is one for which the number of possible outcomes can be counted.**(1 mark)

Top of Form

Discrete

Dependent variable

Independent variable

Continuous

None of the options

**A \_\_\_\_\_\_\_\_ is one that provides a range for predicting the value of a new observation from the same population.**(1 mark)

Top of Form

Sampling distribution of the mean

None of the options

Standard error of the mean

Prediction interval

Confidence interval

Bottom of Form

**While rolling two dice, what is the probability of rolling a sum of 7 or more?**

(1 mark)

Top of Form

5/9

2/3

5/36​

7/12

1/6

**Which of the following is the appropriate test to check whether a variable follows a normal distribution?**

(1 mark)

Top of Form

Shapiro Wilkins

T test

Chi-square

Normal test

Smirnov

Bottom of Form

**Which of the following is true of normal distributions?**

(1 mark)

Top of Form

The range of the random variable *X*is bounded.

Its measure of skewness is always greater than 1.

The mean, median, and mode are all equal.

Mathematical formulas make it easier to compute normal distributions.

Its distribution is triangular in shape.

**B is a random variable that follows the normal distribution with mean of 300, and standard deviation of 100. What is the R code that computes P(250<=B<=400)?**

(1 mark)

Top of Form

pnorm(400,300,100) - pnorm(250,300,100)

1- norm(400-250, 300,100)

pnorm(400-250, 300,100)

pnorm(250,300,100) - pnorm(400,300,100)

pnorm (300,400-250,100)

Bottom of Form

**\_\_\_\_\_\_\_\_ states that if the sample size is large enough, the sampling distribution of the mean is approximately normally distributed, regardless of the distribution of the population and that the mean of the sampling distribution will be the same as that of the population.**(1 mark)

Top of Form

Central limit theorem

Oppermann's conjecture

None of the options

Prime number theorem

Chebyshev's theorem

Bottom of Form

**A\_\_\_\_\_\_\_\_ is the characterization of the possible values that a random variable may assume along with the probability of assuming these values.**(1 mark)

Top of Form

Random variable

None of the options

Probability distribution

Independent variable

Dependent variable

Bottom of Form

**Probability may be defined from one of three perspectives. If the process that generates the outcomes is known, probabilities can be deduced from theoretical arguments; this is the\_\_\_\_\_\_\_\_ definition of probability.**(1 mark)

Top of Form

None of the options

Classical

Relative frequency

Subjective

Experimental definition

Bottom of Form

**Which of the following is a difference between interval estimates and point estimates?**(1 mark)

Top of Form

Point estimates provide only a single value for a sample, while interval estimates provide a range of values.

Point estimates cannot be used to calculate statistical error, while interval estimate are used to calculate statistical error.

None of the options

Point estimates indicate the magnitude of potential error in the estimate, while interval estimates don't.

Point estimates on an average provide more information than interval estimates.

Bottom of Form

**A probability density function:**

(1 mark)

Top of Form

None of the options

suggests that the probability that a random variable assumes a specific value must be positive.

characterizes outcomes of a continuous random variable.

can yield negative values depending on the values of the random variable, *X*.

~~is the probability distribution of discrete outcomes.~~

Bottom of Form

**The probability of the intersection of two events is called a/an \_\_\_\_\_\_\_.**

(1 mark)

Top of Form

None of the options.

relative frequency definition

event

joint probability

experiment

Bottom of Form

**For a discrete random variable X, the probability distribution of the discrete outcomes is called a (n) \_\_\_\_\_\_\_\_ and is denoted by a mathematical function, f(x).**(1 mark)

Top of Form

Expected value

Probability distribution of x

None of the options

Cumulative distribution function

Probability mass function

Bottom of Form

**The distribution for students’ examination scores follow a normal distribution with a mean of 78 and variance of 100. Find *x* such that the probability of obtaining a score greater than *x* is 0.1587.**

(1 mark)

Top of Form

88 (0.1587) = P(Z > X-78 / 10) => 1 (from Z-table); X – 78 = 10; X = 88

86

89

85

87

**X is a random variable that is normally distributed with mean of 60 and standard deviation of 15. Which of the following is the R code that computes P(X>75)?**

(1 mark)

Top of Form

pnorm(75,360,15,lower.tail=FALSE)

pnorm(60,15,75,lower.tail=FALSE)

pnorm(75,60,15,lower.tail=TRUE)

1-pnorm(75,15,60)

pnorm(75,60,15,lower.tail=FALSE)

Bottom of Form

**Which of the following p-value from the Shapiro Wilkins test shows that the variable is normally distributed?**

(1 mark)

Top of Form

None of the options

0.04

0.035

0.99

0.01

Bottom of Form