Q1. What is a probability distribution, exactly? If the values are meant to be random, how can you predict them at all?

Ans: a probability distribution is a statistical function that describes all the possible values and likelihoods that a random variable can take within a given range.

Q2. Is there a distinction between true random numbers and pseudo-random numbers, if there is one? Why are the latter considered “good enough”?

Ans: The difference between true random number generators(TRNGs) and pseudo-random number generators(PRNGs) is that TRNGs use an unpredictable physical means to generate numbers (like atmospheric noise), and PRNGs use mathematical algorithms (completely computer-generated)

Q3. What are the two main factors that influence the behaviour of a "normal" probability distribution?

Ans: The mean, mode and median are all equal. The curve is symmetric at the centre (i.e. around the mean, μ).

Q4. Provide a real-life example of a normal distribution.

Ans: A fair rolling of dice is also a good example of normal distribution. In an experiment, it has been found that when a dice is rolled 100 times, chances to get '1' are 15-18% and if we roll the dice 1000 times, the chances to get '1' is, again, the same, which averages to 16.7% (1/6).

Q5. In the short term, how can you expect a probability distribution to behave? What do you think will happen as the number of trials grows?

Ans: A probability distribution is a table or an equation that links each outcome of a statistical experiment with its probability of occurrence. Consider the coin flip experiment

Q6. What kind of object can be shuffled by using random.shuffle?

Ans: list kind of object can be shuffled

Q7. Describe the math package's general categories of functions.

Ans: Category functions are one-one , one-many, many-one, many-many

Q8. What is the relationship between exponentiation and logarithms?

Ans: Logarithmic functions are the inverses of exponential functions. The inverse of the exponential function

y = ax is x = ay. The logarithmic function y = logax is defined to be equivalent to the exponential equation x = ay.

Q9. What are the three logarithmic functions that Python supports?

Ans; three logarithmic functions that Python supports are log2(x) log(x, Base) , log10(x)