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 describes how a random variable is distributed,it tells us which values a random*

*# variable is most likely to take on and which values are less likely.Based on the previous data and the*

*# occurences of the random event, we can predict the outcome in terms of probabilities.*

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(TRN) and pseudo-random number(PRN), is that TRN's are unpredictable*

*# physical values means (like atmospheric noise), and PRN are generated using mathematical algorithms (completely*

*# computer-generated).The PRN's are good enough as they follow a uniform distribution and the seed for generating*

*# PRN is unpredictable and unknown.*

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

Ans:- *A normal distribution is determined by two parameters the mean and the variance. A normal distribution with a*

*# mean of 0 and a standard deviation of 1 is called a standard normal distribution.*

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

Ans:- *A fair rolling of dice is also a good example of normal distribution.*

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:- *When trails are less, the variance will large. As the number of trials increase , the variance will reduce.*

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

Ans:- *random.shuffle can used to shuffle list object*

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

Ans:- *The general categories of math package are*

*# 1) Trigonometric functions*

*# 2)Quadratic functions*

*# 3)Exponential functions*

*# 4)Hyperbolic functions*

*# 5)Periodic functions*

*# 6)Arithmetic functions*

*# 7)Logarithimic functions*

*# 8)Conversions to Integer*

Q8. What is the relationship between exponentiation and logarithms?

Ans:- *The exponential function is given by ƒ(x) = ex, whereas the logarithmic function is given by g(x) = ln x, and former is the inverse of the latter.*

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

Ans:- *1)log2(x) - logarithmic value of x to base 2*

*# 2)log10(x) - logarithmic value of x to base 10*

*# 3)log(x,base) - logarithmic value of x to base. If only first parameter is given , it computes its*

*# value tp base e,natural logarithm*

*# 4)log1p(x) - natural logarithm (base e) value of 1+x*