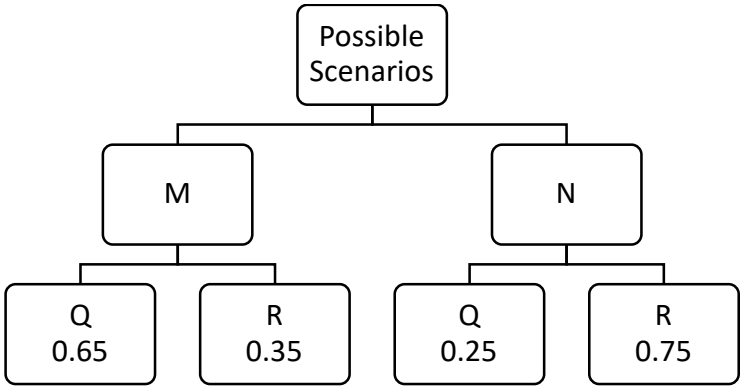
1. **Different data types provide different amount of information. What is the correct order of data types providing the most to the least information?**
   A) Interval > Ratio > Ordinal > Nominal
   B) Ordinal > Ratio > Nominal > Interval
   C) Ratio > Interval > Ordinal > Nominal
   D) Nominal > Ordinal > Interval > Ratio

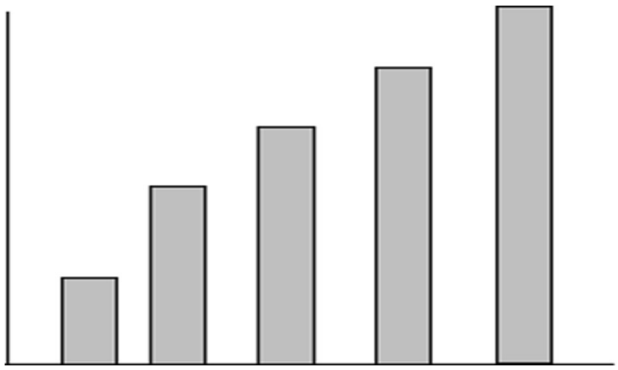
2. **There are 140 pens in a box. 11 of them are black, 8 of them are green, 15 of them are red, and the rest of them are all blue pens. You randomly take out a pen from the box to take some quick notes. What is the probability of it being a blue pen?**
   A) 24%
   B) 76%
   C) 32%
   D) 100%

3. **The following diagram depicts the probability of two possible scenarios M and N. What is the probability that event Q will take place considering that event M has occurred?**
   A) 0.90
   B) 0.45
   C) 0.25
   D) 0.65



4. **The _____ distribution is able to model variety of shapes and datasets.**
   A) Normal
   B) Poisson
   C) Exponential
   D) Weibull

5. **The following histogram shows the distribution of a dataset. What is the relative situation of mode, median and mean according to this histogram?**
    A) Mode > Median > Mean
    B) Mode < Mean = Median
    C) Median < Mode = Mean
    D) Mean > Median > Mode



6. **You are producing a product that has customers worldwide. According to the recorded data, it has an average of 0.8 complaints per hour. What is the probability that you get zero complaints in an hour?**
    A) 45%
    B) 0%
    C) 2%
    D) 36%

7. **A system is in its useful life period and has shown to have an MTBF of 800 hours. What is the reliability of the system at 400 hours?**
    A) 50%
    B) 25%
    C) 61%
    D) 2%

8. **When using the binomial distribution, what is the correct formula for the probability function?**
    A) $f(x) = \frac{e^{-\lambda}\lambda^x}{x!}$
    B) $f(x) = \binom{n}{x} p^x (1-p)^{n-x}$
    C) $f(t) = \frac{\beta}{\theta}(\frac{t}{\theta})^{\beta} e^{-(\frac{t}{\theta})^{\beta}}$
    D) $f(t) = 1 - e^{-(\frac{t}{\theta})^{\beta}}$

9. The standard deviation of a population is 36. We take 20 samples from this population. What's the standard deviation of sample means?

A) 3.33
B) 1.80
C) 36.0
D) 8.05

10. You have a dataset with normal distribution which has a mean of 23 and standard deviation of 3.2. Your LSL is 18. What portion of the results are in the accepted range?

A) 94%
B) 44%
C) 6%
D) Not Enough Information

11. Which of the following items increases the power of hypothesis tests?

A) Decreasing the alpha risk
B) Increasing sample size
C) Using a two-sided hypothesis test
D) All of the above

12. While performing an ANOVA Analysis, what is the null hypothesis?

A) Sample means are different
B) Sample variances are equal
C) Sample variances are different
D) Sample means are equal

13. For the data variables given in the following table, calculate the coefficient of correlation.

A) 1.00
B) 1.15
C) 0.87
D) 0.67

X	Y
2	1
4	3
7	6
8	7
12	10

14. What type of control chart is used for controlling defectives when the sample size is variable?

A) NP Chart
B) P Chart
C) C Chart
D) U Chart

15. We have the following information about a process. What is the lower control limit for the X-bar?

$$\bar{\bar{X}} = 40, \bar{s} = 10\ , n = 6\ , \sum s = 80,\ \sum \bar{X} = 320$$

A) 14.27
B) 27.13
C) 25.73
D) 12.87

16. Which of the following conditions are true when C_{pk} equals C_p?

A) $\frac{USL-LSL}{3\sigma} = \bar{\bar{X}}$
B) $\frac{USL+\bar{\bar{X}}}{\sigma} = LSL$
C) $USL - LSL = \bar{\bar{X}}$
D) $\frac{USL+LSL}{2} = \bar{\bar{X}}$

17. We are performing a 2^4 DOE, with one replicate measurement per treatment. What is the total degrees of freedom of this DOE?

A) 4
B) 7
C) 8
D) 15

18. The number of treatments in a DOE equals 2^{6-2}, and you have 6 factors. What kind of DOE is this?

A) ¼ Factorial
B) ½ Factorial
C) Full Factorial
D) Infinite

19. What is the disadvantage of using Latin Square method in DOE?

A) Not being able to study interactions
B) Requires more samples than a full factorial experiment
C) Does not allow for blocking
D) The results are often confounding

20. The air pressure is used in a process to change a critical dimension of the product. If we perform a DOE for this process, what is the air pressure considered to be?

A) Variable
B) Dependent
C) Independent
D) Covariant

21. You are planning to perform a DOE. How would you avoid confounding?

A) Increase blocking
B) Increase randomization
C) Increase variables
D) Plan for a fractional factorial DOE

22. Employees in an investment organization store documents both as scanned files in computers and also as hard copies in filing cabinets. Which type of waste is this?

A) Extra Processing
B) Over-Production
C) Inventory
D) Motion

23. Delivering goods directly to the _____ is called just-in-time.

A) Customer
B) Supply Chain Department
C) Engineering Department
D) Manufacturing Line

24. What is the correct order for a design process?

A) Design > Validation > Review > Verification
B) Inputs > Design > Verification > Validation
C) Review > Validation > Design > Verification
D) Inputs > Validation > Verification > Review