

MCQ1: What is the probability of any specific, infinitely long sequence of coin?

Answer: zero

MCQ2: In an experiment of a single toss of a coin, the coin might come up heads with probability  $P$  and tails with probability  $1-P$ . The experiment is called fair if,

Answer:  $P=0.5$

MCQ3: Find the probability of getting 5 in a single throw of a dice.

Answer: one -sixth

MCQ4: The outcome of the random experiment (trial) results in the \_\_\_\_\_ classification of events.

Answer: Dichotomous

MCQ5: Using normal tables, find the values of  $P(z \leq 0.50)$

Answer: 0.6915

MCQ6: Which is termed as the probability of failure (non-occurrence of the event) and is constant for each trial?

Answer:  $q = 1-p$

MCQ7: What is the probability of getting heads in two coins flips?

Answer: 0.75

MCQ8: In a normal distribution, the mode which is the point on the horizontal axis where the curve is a maximum occurs at \_\_\_\_\_

Answer:  $X = \mu$

MCQ9: The normal distribution was first discovered by English Mathematician De-voire in \_\_\_\_\_

Answer: 1733

MCQ10: In normal distribution, the curve is \_\_\_\_\_ about a vertical axis through the mean  $\mu$

Answer: asymmetric

MCQ11: The first meaning of non-parametric covers \_\_\_\_\_ that do not rely on data belonging to any particular distribution.

Answer: techniques

MCQ12: A \_\_\_\_\_ is a succession of identical letters (or other kinds of symbol) which is preceded and followed by different letters or no letters at all.

Answer: Run

MCQ13: Correlation coefficients have a value between \_\_\_\_\_

Answer: -1 and +1

MCQ14: Which of the following is not an example of negative correlation?

Answer:  
age and marriage  
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MCQ15: If  $x: 1\ 2\ 3\ 4\ 5$  and  $y: 2\ 5\ 8\ 11\ 14$ , then this relationship can be expressed as

Answer:  $y = 2 + 3x$

MCQ16: Let the variance of each  $X_i$  be  $\sigma^2$ . It then follows from the Chebyshev's inequality that for every number \_\_\_\_\_

Answer:  $\hat{\mu} > 0$

MCQ17: A Bernoulli process is a finite or infinite sequence of \_\_\_\_\_ random variable

Answer: Binary

MCQ18: A Bernoulli process is also a \_\_\_\_\_ stochastic process

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Answer: discrete- time

MCQ19: The component Bernoulli variables  $X_i$  are identical and

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Answer: Independent

MCQ20: The two possible values of each  $X_i$  are often called \_\_\_\_\_

Answer: "success" and "failure"

MCQ21: The total area under the curve and above the horizontal axis is equal to

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Answer: 1

MCQ22: Ten cartons are taken at random from an automatic filling machine. The mean net weight of the 10 cartons is 11.8kg and standard deviation is 0.15kg. Does the sample mean differ significantly from the intended weight of 12kg? Note that  $\hat{\alpha} = 0.05$

Answer: Yes

MCQ23: Given a normal distribution with mean of 230 and standard deviation of 20, what is the probability that an observation from this population is Less than 220?

Answer: 0.3085

MCQ24: The \_\_\_\_\_ of a hypothesis test is the set of all outcomes which cause the null hypothesis to be rejected in favour of the alternative hypothesis.

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Answer: critical region

MCQ25: Statistical hypothesis testing is sometimes called \_\_\_\_\_ data analysis.

Answer: Confirmatory

MCQ26: Another name for f-test is \_\_\_\_\_

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Answer: ANOVA

MCQ27: Two variables are said to be linearly related if they have a relationship of the form \_\_\_\_\_

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Answer:  $y = a + bx$

MCQ28: Another name for ANOVA is \_\_\_\_\_

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Answer: f-test

MCQ29: One may observe a high degree of correlation between the height and intelligence in a group of people. Such correlation is called \_\_\_\_\_ correlation.

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Answer: spurious or non-sense

MCQ30: \_\_\_\_\_ is not one of the methods of studying correlation

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Answer: Scatter Table method

MCQ31: Given two variables X and Y: If  $r = -1$ , there is a perfect \_\_\_\_\_ relationship between Y and X.

Answer: inverse or negative

MCQ32: A coin is tossed thrice, so what is the probability of getting at least one tail?  
Answer: 0.875

MCQ33: The assumptions for Student's  $t$ -test do not include \_\_\_\_\_  
Answer: The population standard deviation  $\sigma$  is known

MCQ34: Prices of shares of a company on the different days in a month were found to be: 76, 75, 79, 70, 79, 81, 80, 73, 74 and 78. What is the mean price of the price of the shares in the month?  
Answer: 76.5

MCQ35: F-statistic is the ratio of \_\_\_\_\_ chi-square variates divided by their respective degrees of freedom  
Answer: two independent

MCQ36: Typical regression model is specified in form of \_\_\_\_\_  
Answer:  $Y = a + bX + e$

MCQ37: The best fit line can be given as \_\_\_\_\_  
Answer:  $y = a + bx$

MCQ38: \_\_\_\_\_ is NOT one of the ways to evaluate the reliability of a linear regression model  
Answer: the econometric confidence interval

MCQ39: A particular value of the population, such as the mean income or the level of formal education, is called a \_\_\_\_\_  
Answer: parameter

MCQ40: Another name for standard error is \_\_\_\_\_  
Answer: error margin

MCQ41: The component Bernoulli variables  $X_i$  are \_\_\_\_\_ and independent.  
Answer: identical

MCQ42: . A numerical value used as a summary measure for a sample, such as sample mean, is known as a \_\_\_\_\_.  
Answer: Sample statistic

MCQ43: The sum of the percent frequencies for all classes will always equal \_\_\_\_\_.

Answer: 100

MCQ44: The following data show the number of hours worked by 150 statistics students.Â

Number of Hours

Frequency

0-9

30

10-19

40

20-29

40

30-39

40What is the class width for this distribution?

Answer: 10

MCQ45: What is the opposite of confirmatory data analysis?

Answer: Exploratory data analysis

MCQ46: The term Analysis of Variance was introduced by Prof. R.A Fisher in 1920s to deal with problems in the analysis of \_\_\_\_\_ data.

Answer: Agronomical

MCQ47: Non-parametric methods are widely used for studying populations that take on a \_\_\_\_\_ order

Answer: ranked

MCQ48: In terms of levels of measurement, non-parametric methods result in \_\_\_\_\_ data

Answer: ordinal

MCQ49: Spearman's rank correlation coefficient: measures statistical dependence between two variables using a \_\_\_\_\_ function

Answer: monotonic

MCQ50: The negative Binomial variables may be interpreted as \_\_\_\_\_ waiting times.

Answer: random

FBQ1: Since the calculated F is less than tabulated F, it is not significant. Hence, Ho may be \_\_\_\_\_ at 5% level of significance or risk level.Â

Answer: Accepted Â

FBQ2: On the other hand, if calculated value of  $\chi^2$  is greater than the tabulated value, it is said to be \_\_\_\_\_.

Answer: significant

FBQ3: The variation due to assignable causes can be detected and \_\_\_\_\_ whereas the variation due to chances is beyond the control of human and cannot be traced separately.

Answer: Measured

FBQ4: The main objective of the analysis of variance technique is to examine if there is significant difference between the class \_\_\_\_\_ in view of the inherent variability within the separate classes.

Answer: means

FBQ5: To obtain the variation between samples, we compute the sum of the \_\_\_\_\_ of the deviations of the various sample means from the overall (grand) mean.

Answer: square

FBQ6: ANOVA is very useful in the multiple comparison of mean among other important uses in both social and applied \_\_\_\_\_.

Answer: sciences

FBQ7: The outcome of the \_\_\_\_\_ experiment (trial) results in the dichotomous classification of events.

Answer: random

FBQ8: Non-parametric methods are widely used for studying \_\_\_\_\_ that take on a ranked order (such as movie reviews receiving one to four stars).

Answer: populations

FBQ9: The \_\_\_\_\_ or the Kruskal-Wallis Test is usually based on large sample theory that the sampling distribution of H can be closely approximated with a chi-square distribution with k-1 degree of

freedom.

Answer: H-Test

FBQ10: A \_\_\_\_\_ coefficient means that x and y values increases and decrease in the same direction.

Answer: positive

FBQ11: The correlation measures only the degree of linear association between two variables while regression analysis is a statistical process for estimating the \_\_\_\_\_ among variables.

Answer: relationships

FBQ12: Regression

\_\_\_\_\_ is a mathematical measure of the average relationship between one or more variables in terms of the original units of the data.

Answer: Analysis

FBQ13: The convergence to the normal distribution is \_\_\_\_\_, in the sense that the entropy of  $Z_n$  increases monotonically to that of the normal distribution.  
Answer: monotonic

FBQ14: The law of large numbers says that the sample mean of a random sample converges in probability to the mean  $\bar{X}$  of the individual random variables, if the \_\_\_\_\_ exists.  
Answer: variance

FBQ15: Kendall's W: a measure between 0 and 1 of inter-rater \_\_\_\_\_.  
Answer: agreement

FBQ16: Kaplan-Meier: estimates the \_\_\_\_\_ function from lifetime data, modelling censoring  
Answer: survival

FBQ17: Correlation coefficients have a value between -1 and \_\_\_\_\_.  
Answer: +1

FBQ18: Coefficient of \_\_\_\_\_ means x and y are associated randomly.  
Answer: 0

FBQ19: Irving Fisher advocated the \_\_\_\_\_ cross of Laspeyres's and Paasche's Price index numbers  
Answer: geometric

FBQ20: The Bernoulli process can be formalized in the language of \_\_\_\_\_ spaces as a random sequence of independent realisations of a random variable that can take values of heads or tails.  
Answer: probability

FBQ21: These sets of finite \_\_\_\_\_ are referred to as cylinder sets in the product topology.  
Answer: sequences

FBQ22: In the Binomial distribution, the outcome of the random experiment (trial) results in the \_\_\_\_\_ classification of events.  
Answer: dichotomous

FBQ23: If we toss a fair coin n times (which is fixed and finite) then the outcome of any trial is one of the \_\_\_\_\_ exclusive events, viz., head (success) and tail (failure).  
Answer: mutually

FBQ24: The normal curve approaches the \_\_\_\_\_ axis asymptotically as we proceed in either direction away from the mean.  
Answer: horizontal

FBQ25: In statistics, a result is interpreted as being statistically significant if it has been

predicted as unlikely to have occurred by \_\_\_\_\_ alone, according to a pre-determined threshold probability, the significance level.Â

Answer: chance

FBQ26: The outcomes region of a hypothesis test is the set of all outcomes which cause the null hypothesis to be rejected in favour of the \_\_\_\_\_ hypothesis.Â

Answer: alternative Â

FBQ27: F-statistic is the ratio of two \_\_\_\_\_ chi-square variates divided by their respective degrees of freedom.Â

Answer: Independent

FBQ28: An important example of a log-concave density is a function constant inside a given convex body and \_\_\_\_\_ outside.Â

Answer: vanishing

FBQ29: The condition  $f(x_1, \dots, x_n) = f(|x_1|, \dots, |x_n|)$  ensures that  $X_1, \dots, X_n$  are of zero mean and uncorrelated; still, they need not be independent, nor even \_\_\_\_\_ independent.Â

Answer: pairwise

FBQ30: The \_\_\_\_\_ of a product is simply the sum of the logarithms of the factors.Â

Answer: logarithm Â

FBQ31: The logarithm of a product is simply the \_\_\_\_\_ of the logarithms of the factors

Answer: sum

FBQ32: Because a normal curve is symmetrical about its mean,  $P(z \leq -a) = P(z \geq a)$  and  $P(z \leq a) + P(z \geq a) =$  \_\_\_\_\_ Â

Answer: 1 Â

FBQ33: If you are investigating consumer behaviour in a particular city, you might define the population as all the \_\_\_\_\_ in that city

Answer: households

FBQ34: Chi-square distribution has a number of applications, one of which is to test the equality of several \_\_\_\_\_ proportions

Answer: sample

FBQ35: If the calculated  $\chi^2$  value is 57.97 and the tabulated value of  $\chi^2_{(r-1)(s-1)} = 12.59$  (critical value), then decision is \_\_\_\_\_

Answer: reject  $H_0$

FBQ36: The variation due to \_\_\_\_\_ is beyond the control of human and cannot be traced separately.

Answer: chances



FBQ37: The Problem of determining the process, given only a limited sample of the bernoulli trials, may be called the problem of checking if a coin is .....  
Answer: fair

FBQ38: The two possible values of each  $X_i$  are often called "success" and "failure". Thus, when expressed as a number 0 or 1, the outcome may be called the number of successes on the  $i$ th \_\_\_\_\_.  
Answer: trial

FBQ39: The Bernoulli process can be formalized in the language of \_\_\_\_\_ spaces as a random sequence of independent realisations of a random variable that can take values of heads or tails.  
Answer: Probability

FBQ40: The normal distribution was first discovered by English Mathematician De-voire (1667-1754) in 1733 who obtained the mathematical equation for this distribution while dealing with problems arising in the game of \_\_\_\_\_.  
Answer: Chance

FBQ41: The normal distribution with  $\hat{\mu} = 0$  and  $\hat{\sigma} =$  \_\_\_\_\_ is referred to as the standard normal distribution.  
Answer: 1

FBQ42: The condition under which Poisson distribution is obtained is in a \_\_\_\_\_ case of Binomial Distribution.  
Answer: limiting

FBQ43: The critical region of a hypothesis test is the set of all outcomes which cause the null hypothesis to be \_\_\_\_\_ in favour of the alternative hypothesis.  
Answer: rejected

FBQ44: The parent \_\_\_\_\_ from which the sample is drawn is normal  
Answer: Population

FBQ45: Since the calculated F is \_\_\_\_\_ than tabulated F, it is not significant.  
Answer: Less

FBQ46: A particular value of the sample, such as the mean income or the level of formal education, is called a \_\_\_\_\_.  
Answer: statistic

FBQ47: There are three methods of data collection with survey and these are the following. These are mail questionnaires, personal interviews and \_\_\_\_\_ interviews.  
Answer: telephone

FBQ48: The probability of getting a head in a single toss of a coin is \_\_\_\_\_.  
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Answer: 0.5

FBQ49: \_\_\_\_\_ is termed as the probability of failure (non-occurrence of the event) and is constant for each trial

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Answer:  $q = 1 - p$

FBQ50: For the Binomial Distribution; Mean= $np$ ; and Variance =

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Answer:  $npq$

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