Chapter 2

<= **1 / 10**=>

1. The base year has an index of 1.
   1. True
   2. **False**
2. A simple index is where you have only one item or variable to monitor.
   1. **True**
   2. False
3. The Laspeyres' index is an example of a base weighted index.
   1. **True**
   2. False
4. The Paasche's index is an example of a current weighted index.
   1. **True**
   2. False
5. The weights used in the RPI are derived from the business expenditure survey.
   1. True
   2. **False**
6. The RPI is updated each week.
   1. True
   2. **False**
7. The Laspeyres' index is easier to calculate.
   1. **True**
   2. False
8. The Laspeyres' index requires quantities as well as prices to be obtained each year.
   1. True
   2. **False**
9. You cannot directly compare years with the Paasche's index.
   1. **True**
   2. False
10. It is not possible to have an index below 100.
    1. True
    2. **False**

Chapter 3

<= **1 / 15**=>

1. All the people or things of interest together are called a population.
   1. **True**
   2. False
2. A subset of the population is called a sample.
   1. **True**
   2. False
3. A list of members of the population is called a sampling procedure.
   1. True
   2. **False**
4. The simplest method of probabilistic sampling is called simple random sampling.
   1. **True**
   2. False
5. If the sample is not representative of the population you would say that there is bias in the sample.
   1. **True**
   2. False
6. Two or more samples from the same population could give quite different results. This is due to sampling mistakes.
   1. True
   2. **False**
7. Multi-stage sampling allows categories within a population to be considered.
   1. True
   2. **False**
8. Systematic sampling takes every *n*th member of the population.
   1. **True**
   2. False
9. Data collected from a survey is called secondary data.
   1. True
   2. **False**
10. A census is when all members of the population are surveyed.
    1. **True**
    2. False
11. A postal questionnaire is the fastest method of conducting a survey.
    1. True
    2. **False**
12. Stratified sampling reduces sampling error.
    1. **True**
    2. False
13. Cluster sampling is used in conjunction with a sampling frame.
    1. True
    2. **False**
14. Systematic sampling can be both a probabilistic method and a non-probabilistic method.
    1. **True**
    2. False
15. Dichotomous questions have more than two answers.
    1. True
    2. **False**

Chapter 4

<= **1 / 14**=>

1. Data that is collected at source is called primary data.
   1. **True**
   2. False
2. Data that is obtained by counting is called ordinal data.
   1. True
   2. **False**
3. Weight measurements are an example of ratio data.
   1. **True**
   2. False
4. Data can be aggregated using a bar chart.
   1. True
   2. **False**
5. A diagram that is circular in shape is called a pie chart.
   1. **True**
   2. False
6. If you want to compare totals a multiple bar chart may be applicable.
   1. True
   2. **False**
7. A histogram is used to display data that has been aggregated into a grouped frequency table.
   1. **True**
   2. False
8. To show the shape of the distribution a frequency ogive can be used.
   1. True
   2. **False**
9. A histogram must not have gaps between bars.
   1. **True**
   2. False
10. A histogram compares the heights of the bars.
    1. True
    2. **False**
11. The upper end of each interval should be plotted for a cumulative frequency o give.
    1. **True**
    2. False
12. A survey into types of heating found in domestic property would form a set of discrete data.
    1. True
    2. **False**
13. Data is aggregated into a grouped frequency table if the quantity of data is very large.
    1. **True**
    2. False
14. Data obtained from a survey into the occupancy of cars could be displayed by a pie chart.
    1. **True**
    2. False

Chapter 5

<= **1 / 14**=>

1. The mean is the sum of all the values divided by the number of values.
   1. **True**
   2. False
2. The median is the largest value once the values have been arranged in ascending order.
   1. True
   2. **False**
3. The mode is the value that occurs most frequently.
   1. **True**
   2. False
4. The variance is the simplest measure of spread.
   1. True
   2. **False**
5. The interquartile range represents the middle 95% of the data.
   1. True
   2. **False**
6. The standard deviation represents the mean deviation from the mean.
   1. **True**
   2. False
7. The coefficient of variation is the ratio of the variance to the mean.
   1. True
   2. **False**
8. A box and whisker plot allows the shape of the distribution to be observed.
   1. **True**
   2. False
9. The mean is usually one of the data values.
   1. True
   2. **False**
10. The mean is easy to calculate.
    1. **True**
    2. False
11. The median divides the data exactly in half.
    1. **True**
    2. False
12. The modal class is the middle of a distribution.
    1. True
    2. **False**
13. A symmetrical distribution always has a mean and median with the same value.
    1. **True**
    2. False
14. To calculate the mean of grouped data it is necessary to `sum the mid-interval values, multiply by the total of the frequencies and then divide by the total frequency'.
    1. **True**
    2. False

<= **1 / 14**=>

1. The mean is always greater than the median
   1. True
   2. **False**
2. The mean of 5, 7, 12 is 8
   1. **True**
   2. False
3. The median of 3, 4, 5, 8 is 4.5.
   1. **True**
   2. False
4. If data is in a frequency table then the mean is calculated using the lower class boundary.
   1. True
   2. **False**
5. The median for data in a frequency table is the 50th percentile .
   1. **True**
   2. False
6. You cannot find the median from a Stem and Leaf plot.
   1. True
   2. **False**
7. Modal class and modal value are the same thing.
   1. True
   2. **False**
8. To show the shape of the distribution a frequency ogive can be used.
   1. True
   2. **False**
9. IQR (interquartile is a measure of spread of data.
   1. **True**
   2. False
10. The Variance is in the same units as the data.
    1. True
    2. **False**
11. The standard deviation is the square root of the variance.
    1. **True**
    2. False
12. If you add the same number to each value in a dataset the standard deviation increases by this amount.
    1. True
    2. **False**
13. If you multiple each number in a dataset by a constant value the standard deviation would have increased by this factor.
    1. **True**
    2. False
14. The Coefficient of Variation allows different datasets to be compared.
    1. **True**
    2. False

Chapter 6

<= **1 / 14**=>

1. Probability is measured on a scale from 0 to 1.
   1. **True**
   2. False
2. Probabilities that are obtained by measurement are called subjective probabilities.
   1. True
   2. **False**
3. Probabilities that are obtained by guesses are called empirical probabilities.
   1. True
   2. **False**
4. The sum of the probabilities of a series of mutually exclusive and mutually exhaustive events is 0.
   1. True
   2. **False**
5. The additive law is used when you want to find the probability of Event A occurring or Event B.
   1. **True**
   2. False
6. The multiplicative law is applicable when you want to find the probability that both Events A and Event B will occur.
   1. **True**
   2. False
7. Bayes' theorem allows us to update our posterior probabilities.
   1. True
   2. **False**
8. The probabilities resulting from the application of Bayes' theorem are called the prior probabilities.
   1. True
   2. **False**
9. Probability cannot exceed 1 or 100%.
   1. **True**
   2. False
10. If you got 9 consecutive heads in 9 tosses of a coin, then the next toss will almost certainly be a tail.
    1. True
    2. **False**
11. Two tosses of the same coin is an example of independent events.
    1. **True**
    2. False
12. The correct name for a combination lock is a permutation lock.
    1. **True**
    2. False
13. Expected value is a long-run average.
    1. **True**
    2. False
14. A posterior probability follows the updating of a prior probability.
    1. True
    2. **False**

Chapter 7

<= **1 / 14**=>

1. The binomial is an example of a continuous distribution.
   1. True
   2. **False**
2. The Poisson distribution is used when events occur at random.
   1. **True**
   2. False
3. The normal curve is symmetrical about the mean.
   1. **True**
   2. False
4. The total area under the normal curve is 0.
   1. True
   2. **False**
5. The position and shape of the normal curve are described by the mean and standard deviation.
   1. **True**
   2. False
6. As the standard deviation gets larger, the spread of the curve decreases.
   1. True
   2. **False**
7. The normal distribution is an example of a discrete distribution.
   1. True
   2. **False**
8. Gender is an example of a binomial process.
   1. **True**
   2. False
9. The shape of the binomial distribution with n 10 and p 0.01 will be symmetrical.
   1. True
   2. **False**
10. Arrivals of cars at a petrol station are an example of a Poisson process.
    1. **True**
    2. False
11. A Z value is a probability.
    1. True
    2. **False**
12. The normal distribution is a `bell' shape.
    1. **True**
    2. False
13. If the area in the right-hand tail of the normal distribution is 5%, then the area to the left of this tail is 95%.
    1. **True**
    2. False
14. If the area in each tail of the normal distribution is 5%, then the area in the centre of the distribution is 95%.
    1. True
    2. **False**

Chapter 8

<= **1 / 14**=>

1. All items of interest are together called a survey.
   1. True
   2. **False**
2. A subset of all items of interest is called a sample.
   1. **True**
   2. False
3. A single estimate of some variable of interest is called a point estimate.
   1. **True**
   2. False
4. The best estimate of the true mean is the sample mean.
   1. **True**
   2. False
5. The standard deviation of a sample is more than the true figure, if *n* is used.
   1. True
   2. **False**
6. An interval estimate is also known as a confidence interval.
   1. **True**
   2. False
7. The *Z* table is used when the sample size is large.
   1. **True**
   2. False
8. The *t*-distribution approaches the normal distribution as the sample size increases.
   1. **True**
   2. False
9. It is necessary to be given the standard deviation of the population for the *t*-distribution to be used.
   1. True
   2. **False**
10. As the sample size increases, the error in your estimate decreases.
    1. **True**
    2. False
11. For small samples the *t*-distribution should be used.
    1. **True**
    2. False
12. The use of the normal distribution to calculate confidence intervals for a percentage is only an approximation.
    1. **True**
    2. False
13. If the sample size doubles, the half width of the confidence interval reduces by a half.
    1. True
    2. **False**
14. A 95% confidence interval means that 95% of samples will have a mean or percentage within this interval.
    1. True
    2. **False**

Chapter 9

<= **1 / 13**=>

1. H0 is called the null hypothesis.
   1. **True**
   2. False
2. H1 is called the alternative hypothesis.
   1. **True**
   2. False
3. The boundaries of the critical region are called *p*-values.
   1. True
   2. **False**
4. The test using the normal distribution is called the *t* test.
   1. True
   2. **False**
5. For a two tailed test at 5% confidence interval, the area in each tail is 5%.
   1. True
   2. **False**
6. The chi-test is applied to categorical data.
   1. **True**
   2. False
7. If the critical value is 1.96 and the test statistic is 2.34, the null hypothesis should be rejected.
   1. **True**
   2. False
8. In order to decide whether to use a one or two tailed test, you would inspect the data.
   1. True
   2. **False**
9. You would use the *t*-test if the population cannot be assumed to be normal.
   1. True
   2. **False**
10. Only one tail of the distribution is used in the chi-square test.
    1. **True**
    2. False
11. The chi-square distribution is symmetrical about the mean.
    1. True
    2. **False**
12. The chi-square test cannot be applied to a table of percentages.
    1. **True**
    2. False
13. The sample percentage P is used to calculate SEP when carrying out a hypothesis test of a percentage.
    1. True
    2. **False**

Chapter 10

1. A graphical picture of bivariate data is called a line diagram.
   1. True
   2. **False**
2. Correlation measures the strength of the association between two variables.
   1. **True**
   2. False
3. Regression defines the relationship between the two variables.
   1. **True**
   2. False
4. Correlation is measured on a scale from 0 to 1.
   1. True
   2. **False**
5. The least squares regression line maximises the sum of the squared errors.
   1. True
   2. **False**
6. A perfect linear relationship between two variables means that all the points lie on a straight line.
   1. **True**
   2. False
7. Spearman's rank correlation coefficient is used for nominal data.
   1. True
   2. **False**
8. A high correlation confirms a causal relationship.
   1. True
   2. **False**
9. A negative correlation coefficient means that there is no association between the two variables.
   1. True
   2. **False**
10. Pearson's product moment correlation coefficient can only be calculated for numerical data.
    1. **True**
    2. False
11. The coefficient *b* in the linear regression model represents the slope of the regression line.
    1. **True**
    2. False

Chapter 11

<= **1 / 14**=>

A rich picture diagram uses symbols such as stick men to illustrate a particular problem scenario

1. The maximax rule chooses the best of the best.
   1. **True**
   2. False
2. The maximax rule chooses the best of the best.
   1. **True**
   2. False
3. The minimax regret rule minimises the maximum opportunity loss.
   1. **True**
   2. False
4. EMV stands for expected monetary value.
   1. **True**
   2. False
5. Decision trees are suitable for multi-stage decision problems.
   1. **True**
   2. False
6. EVPI stands for expected value of personal information.
   1. True
   2. **False**
7. Decision trees are a diagrammatic way of solving decision problems.
   1. **True**
   2. False
8. Bayes' theorem can be used to update latest information.
   1. True
   2. **False**
9. Utility reflects the decision-maker's attitude to wealth.
   1. True
   2. **False**
10. The maximin rule chooses the `best of the worst'.
    1. **True**
    2. False
11. The maximax rule is the rule for decision-makers who are risk-averse.
    1. True
    2. **False**
12. Expected value is a long-run average.
    1. **True**
    2. False
13. In a decision tree, decision nodes are represented by circles.
    1. True
    2. **False**
14. If it takes a large change in a probability to make the decision change, we say that the decision is sensitive to changes in this probability.
    1. True
    2. **False**
15. A decision-maker whose utility function is convex in shape is said to be a risk-seeker.
    1. True
    2. **False**

16 The SMART technique is used to solve problems where there is more than one criteria.

**A True**

B False

17. The first step in the SMART technique is to create a Value tree

**A True**

B False

Chapter 12

<= **1 / 10**=>

1. Payback period is the number of years that an investment will take to be repaid.
   1. **True**
   2. False
2. ARR stands for accounting rate of return.
   1. **True**
   2. False
3. Simple interest is where the interest is paid as it is earned.
   1. **True**
   2. False
4. Compound interest is where the interest is reinvested.
   1. **True**
   2. False
5. NPV stands for net percentage value.
   1. True
   2. **False**
6. The smaller the ARR the better.
   1. True
   2. **False**
7. A future amount of money is worth less than it would be today.
   1. **True**
   2. False
8. The NPV of a project depends on the discount rate used.
   1. **True**
   2. False
9. A project is acceptable if the NPV is less than zero.
   1. True
   2. **False**
10. A project is acceptable if the IRR is less than the company's cost of capital.
    1. True
    2. **False**

Chapter 13

<= **1 / 9**=>

1. A time series is made up of a trend, seasonality, cyclic component and randomness.
   1. **True**
   2. False
2. It is normally difficult to isolate the seasonal component unless a very long time series is available.
   1. True
   2. **False**
3. The method of moving averages is used to remove the seasonal fluctuations.
   1. **True**
   2. False
4. The exponential model allows the seasonal component to be isolated.
   1. True
   2. **False**
5. MAD stands for mean additive deviation.
   1. True
   2. **False**
6. If the seasonal swings are increasing, it is likely that the multiplicative model will be more accurate than the additive model.
   1. **True**
   2. False
7. For a 12-point moving average, it is necessary to centre the moving averages.
   1. **True**
   2. False
8. To seasonally adjust a time series, you multiply by the seasonal factor.
   1. True
   2. **False**
9. Exponential smoothing is a short-term forecasting technique.
   1. **True**
   2. False

Chapter 14

<= **1 / 11**=>

1. Linear programming is concerned with the management of scarce resources.
   1. **True**
   2. False
2. An LP model consists of an objective and a series of linear equations.
   1. True
   2. **False**
3. The graphical method of linear programming can be used to solve four variable problems.
   1. True
   2. **False**
4. The region satisfying all constraints is called the optimal region.
   1. True
   2. **False**
5. The optimal solution of an LP model lies at the corner point of the feasible region.
   1. **True**
   2. False
6. A constraint that has reached its limit at the optimal solution is called a tight or binding constraint.
   1. **True**
   2. False
7. The change in the objective function as a result of a unit change to the right hand side of a tight constraint is called the shadow or dual price.
   1. **True**
   2. False
8. You can only solve LP problems graphically if there are no more than two constraints.
   1. True
   2. **False**
9. The line connecting points with equal profit is called an isoprofit line.
   1. **True**
   2. False
10. The line x + y = 10 is a horizontal line.
    1. True
    2. **False**
11. A feasible region must be bounded on all sides by constraints.
    1. True
    2. **False**
12. In the transportation method if total supply does not equal total requirement then this method cannot be used

A True

**B False**

13 In the transportation method if all the shadow prices are non-negative the solution is optimal

**A True**

B False

14.In multi-objective problems (or goal programming) all goals have to be met

A True

**B False**

Chapter 15

<= **1 / 8**=>

1. EST stands for earliest start time.
   1. **True**
   2. False
2. A backward pass through the network is used to obtain the EST and EFT for each activity.
   1. True
   2. **False**
3. A forward pass through the network is used to obtain the LST and LFT for each activity.
   1. True
   2. **False**
4. A critical activity has no float.
   1. **True**
   2. False
5. It is not possible to have more than one critical path in a network.
   1. True
   2. **False**
6. Every activity node must have at least one line leaving it.
   1. **True**
   2. False
7. `Float' is the difference between the EST and EFT.
   1. True
   2. **False**
8. To reduce the time for a project, you must reduce the duration of one or more activities of the critical path.
   1. **True**
   2. False
9. PERT stands for Programme Evaluation and Resource Technique

A True

**B False**

1. The average and standard deviation of each critical activity is summed along the critical path

A True

**B False**

1. The total project duration is assumed to follow a normal distribution

**A True**

B False

Chapter 16

<= **1 / 10**=>

1. Stock holding costs can be divided into two broad categories. These are storage costs and order costs.
   1. **True**
   2. False
2. EOQ stands for the Economic order Quantity model.
   1. **True**
   2. False
3. The EOQ model is an example of a stochastic model.
   1. True
   2. **False**
4. The EOQ model assumes that demand is known and variable.
   1. True
   2. **False**
5. In order to take discounts into account, the wastage cost must also be known.
   1. True
   2. **False**
6. A buffer stock is required to ensure that stock-outs do not occur.
   1. **True**
   2. False
7. At minimum cost the order cost equals the holding cost.
   1. **True**
   2. False
8. The product cost does not form part of the EOQ formula.
   1. **True**
   2. False
9. You do not need to know the product cost when deciding whether to take advantage of quantity discounts.
   1. True
   2. **False**
10. A buffer stock will guarantee that you never have a stock-out.
    1. True
    2. **False**