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