

Intermediate Level

Paper 5 Business Statistics

Extended Syllabus

INTRODUCTION

Extended Syllabuses are part of a comprehensive package of support materials offered by SIAT. This package includes past question papers, Model Answers, and a range of How to Pass books, all of which are designed to offer help and guidance to teachers and candidates, and to enhance chances of success in SIAT examinations.

What are they?

Extended Syllabuses specify in detail the learning and assessment requirements of SIAT examinations.

Each one, produced by the subject Chief Examiner, will state in detail the following:

- Aims and assessment objectives of the examination
- Level of English
- Syllabus topics and syllabus coverage in examinations
- Examination format
- Guided learning hours
- Candidate answer guidance
- Pass mark information and mark allocation
- Recommended reading list and support material
- Detailed listing of syllabus topics and syllabus elements

Who are they for and how can they be of use?

They are designed for:

- Teachers who will find them invaluable when designing courses and planning lessons.
- Candidates who will find them essential because they can be used as checklists when preparing for examinations. Candidates will also be able to refer to Extended Syllabuses when planning revision programmes.

Paper 5 Business Statistics

Aims

The aims of this syllabus are to enable candidates to develop:

- a knowledge and understanding of some basic statistical techniques
- the ability to apply this knowledge and understanding in solving business problems

Assessment Objectives

The examination will assess the candidate's ability to:

- demonstrate a knowledge and understanding of some basic statistical techniques including the collection and presentation of data
- apply the above knowledge and understanding in solving business problems

Level of English

Candidates should have a standard of English equivalent to the Foundation Level Paper 3 English for Business or LCCIEB English for Business Level 1.

Syllabus Topics

1. Quantitative information
2. Descriptive Statistics
3. Forecasting
4. Uncertainty

Coverage of Syllabus Topics in Examinations

Four questions are set from Syllabus Topics 2 and 3. The remaining 2 questions are set from Syllabus Topics 1 and 4. Questions may be drawn from 2 or more syllabus topics.

Examination Format

- The time allowance for the examination is 2 hours 30 minutes
- Candidates will be required to answer 4 questions from a choice of 6
- All questions carry equal marks

Guided Learning Hours

SIAT recommends that 140-160 Guided Learning Hours (GLHs) provide a suitable course duration for an 'average' candidate at this level. This figure includes direct contact hours as well as other time when candidates' work is being supervised by teachers. Ultimately, however, it is the responsibility of training centres to determine the appropriate course duration based on their candidates' ability and level of existing knowledge. SIAT experience indicates that the number of GLHs can vary significantly from one training centre to another.

Candidate Answer Guidance

Marks are awarded for correct working as well as for correct answers and for an appropriate level of accuracy.

Where a correct answer is provided, without working, a candidate will normally be given full marks for that section. However, where a question asks for a specific method, then that method must be used and shown, otherwise the candidate will normally receive no marks for that section. Candidates are advised that it is normally to their advantage to show all working.

Candidate Performance Measurement

For questions involving numerical processes, examination marks are divided into 'method' marks and 'accuracy' marks. Method marks are awarded for following the correct method for each step. To score accuracy marks, the correct method mark for that step must have been scored. In general accuracy marks are subdivided into 2 categories 'correct answer only' and 'follow through'. 'Correct answer only' means that only the correct answer is acceptable (but some latitude is usually allowed for very minor errors). 'Follow through' mark is awarded if subsequent work is correct following an earlier arithmetic error provided the method is correct.

For the 'comment' or descriptive parts of questions, 1 or 2 marks are awarded for each relevant point.

Pass Mark Information

Pass 50%
Credit 60%
Distinction 75%

Mark Allocation

Marks will be awarded for the appropriateness of the method used as well as for the accuracy of the answer.

Marks will not normally be reserved for appropriate use of English, correct use of grammar, for a specific format of answer, or for presentation, except where specifically stated in the question (such as asking for the answer in a particular format). Candidates should, however, be aware of the need for clear, intelligible and unambiguous answers. An answer must be comprehensible in order to gain marks.

Recommended Reading List and Support Material

Reading List

Title	Author	Publisher	ISBN Code
How to Pass Business Statistics Second and Third Levels	D Friend	LCCIEB	1 86247 005 7

Support Material

Model Answers and past question papers are available from the SIAT Customer Service Team.

Formulae

A list of formulae for use at Paper 5 Business Statistics is printed at the rear of this syllabus. This formulae list is available to candidates at the examinations. The list contains the principal formulae appropriate to this level but is not intended to be exhaustive. Centres and candidates should pay careful attention and note those syllabus items where the relevant formulae are not given in the list.

Syllabus

1 Quantitative Information

Candidates must be able to:

1.1 Graphical presentation

- 1.1.1 Differentiate alternative forms of data eg discrete and continuous
- 1.1.2 Know the circumstances in which the various graphs/ diagrams/ charts should be used
- 1.1.3 Construct the various types of bar charts, pie charts, pictograms, Z charts, Lorenz curve and graphs
- 1.1.4 Draw neat and tidy graphs/diagrams/charts
- 1.1.5 Label axes, give titles of diagrams; when given, state source of data
- 1.1.6 Use shading, where appropriate
- 1.1.7 Comment on graphs/diagrams/charts

1.2 Survey methodology

- 1.2.1 Understand the difference between primary and secondary data
- 1.2.2 Know the difference between a census and a survey and their relative advantages and disadvantages
- 1.2.2 Understand the nature of a sampling frame
- 1.2.3 Understand the term sampling fraction
- 1.2.4 Know the various methods of sampling and their advantages and disadvantages
- 1.2.5 Know the advantages and disadvantages of the interview and the postal questionnaire as methods of collecting data
- 1.2.6 Understand the problem of interviewer bias
- 1.2.7 Understand the principles of questionnaire design
- 1.2.8 Design a questionnaire
- 1.2.9 Recognise the problem of non response and know the methods of attempting to overcome the problem

1.2.10 Understand the need for a pilot survey before conducting a large scale survey

2 Descriptive Statistics

Candidates must be able to:

2.1 Measures of location and dispersion - grouped data

2.1.1 Construct a cumulative frequency table

2.1.2 Draw a cumulative frequency curve (ogive)

2.1.3 Draw a histogram, and be able to deal with unequal class intervals

2.1.4 Calculate mean, median and quartiles (the relevant formulae are given in the formulae list)

2.1.5 Obtain the median and quartiles from the cumulative frequency curve

2.1.6 Obtain the mode from either a histogram or from a formula (the relevant formula is **not** given in the formulae list)

2.1.7 Calculate standard and quartile deviations (the relevant formulae are given in the formulae list)

2.1.8 Understand what measures of location and dispersion represent

2.2 Measures of location and dispersion - ungrouped data

2.2.1 Calculate the mean, median, mode, quartiles and geometric mean (the formulae are **not** given in the formulae list)

2.2.2 Calculate the standard deviation (the relevant formula is **not** given in the formulae list)

2.2.3 Calculate the quartile deviation (the formula is given in the formulae list)

2.2.4 Calculate the mean deviation (the formula is **not** given in the formulae list)

2.3 Coefficient of variation

2.3.1 Calculate a coefficient of variation (the relevant formula is given in the formulae list)

2.3.2 Understand the use of the coefficient of variation

2.4 Index numbers

- 2.4.1 Calculate Laspeyres and Paasche index numbers (both price and quantity formulae for these index numbers are given in the formulae list)
- 2.4.2 Understand the advantages and disadvantages of Laspeyres and Paasche index numbers
- 2.4.3 Calculate a weighted index number (the relevant formula is given in the formulae list)
- 2.4.4 'Splice' index numbers (the relevant formula is **not** given in formulae list)
- 2.4.5 Use an index of retail prices for 'index linking' eg of pensions
- 2.4.6 Understand the construction and use of at least one major index eg the index of retail prices or the index of industrial production

3 Forecasting

Candidates must be able to:

3.1 Correlative and regression

- 3.1.1 Draw a scatter diagram, know how to place the dependent variable on the vertical axis and the explanatory variable on the horizontal axis
- 3.1.2 Comment on the data from a scatter diagram – whether the data lies on a line or a curve and the presence of outliers
- 3.1.3 Calculate a least squares regression line (the relevant formulae are given in the formulae list)
- 3.1.4 Plot regression line on scatter diagram
- 3.1.5 Use regression line for forecasting purposes and be able to comment on the likely accuracy of forecasts
- 3.1.6 Calculate the product moment correlation coefficient (the relevant formula is given in the formulae list)
- 3.1.7 Rank a set of data and be able to deal with ties
- 3.1.8 Calculate Spearman's rank correlation coefficient (the relevant formula is given in the formulae list)
- 3.1.9 Obtain the coefficient of determination (the relevant formula is **not** given in the formulae list) and understand what this coefficient measures

3.2 Time Series

Candidates must be able to:

- 3.2.1 Plot a time series – time along the horizontal axis
- 3.2.2 Use a moving average to calculate the trend and to know when the trend needs to be centred
- 3.2.3 Plot trend on time series graph
- 3.2.4 Calculate the seasonal factors for either the additive or multiplicative model.
- 3.2.5 Calculate seasonally adjusted values
- 3.2.6 Understand why seasonally adjusted values are found
- 3.2.7 Find likely future values of the trend – either graphically or by a simple method (fitting a least squares regression line is not expected, as this is too time consuming)
- 3.2.8 Use the future trend to forecast future values
- 3.2.9 Discuss the likely accuracy of any forecast

4 Uncertainty

Candidates must be able to:

- 4.1 Probability
 - 4.1.1 Understand the classical and the empirical definitions of probability
 - 4.1.2 Understand the concept of ‘mutually exclusive events’
 - 4.1.3 Understand the addition and multiplication rules of probability
 - 4.1.4 Draw a Venn diagram
 - 4.1.5 Draw a tree diagram
 - 4.1.6 Use Venn and tree diagrams to solve probability problems