

**HKSS Exam Ex1
(For May 2012 Round Exam)**

THE HONG KONG STATISTICAL SOCIETY

GUIDE TO EXAMINATIONS

**The information and regulations in this document
should be read in conjunction with the
Society's examination syllabus**

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INTRODUCTION

Vision and Mission

The Hong Kong Statistical Society is a professional society. It was founded in 1977 with the aim of promoting the development of statistics by providing a medium for advancing knowledge and enhancing appreciation of the theory and application of statistics.

The Society provides a forum for practising statisticians in Hong Kong to exchange research findings and opinions. It also has a keen interest in promoting the correct use and interpretation of statistics among non-professional statisticians in the community. One main objective of the Society is to establish a complete accreditation and examination system for the statistical profession.

Membership Categories

The Society has about 300 members, mainly comprising training and/or research professionals and students in institutions, government statisticians, and people having keen interest in the development of statistics.

There are six categories of membership for the Society, viz. Full Member, Professional Member, Honorary Member, Student Member, Corporate Member and Examination Associate. Except for the category of Examination Associates where entry does not require nomination by existing members, entry to other categories of membership of the Society requires the support of two existing members.

Activities and Functions of the Society

The Society organises from time to time seminars and talks on topics of professional interest to its members. A society Bulletin, issued at regular intervals, serves as a vehicle for keeping members informed of the Society activities and also as a means for exchange of professional opinions among members. To promote students' interest in statistics, a [Statistical Project Competition for Secondary School Students](#) is organised every year. A [Professional Services Sub-committee](#) has been formed to provide statistical consultancy service to the public on projects of wide community interest. It also keeps a close watch on the proper use of statistics and statistical methods published in the mass media and where appropriate, will issue statements to comment on any statistical analysis which displays serious abuse of statistics.

The Society has embarked on the project of establishing a local accreditation and examination system for statistical professionals since 1995. Its proposal secured in 1998 a financial sponsorship from the Service Support Fund established by the Government of the Hong Kong Special Administrative Region (which has been replaced by the Innovation and Technology Fund since 2000). The proposal materialized when in August 2001, the HKSS reached an agreement with the Royal Statistical Society (RSS). Under the agreement, the examination which had for many years been held by the RSS in Hong Kong has been replaced by the HKSS examination since the May 2002 round of the examination. A [Joint Announcement](#) has been made by the RSS and HKSS.

EXAMINATION STRUCTURE

Equivalent Qualification

The Hong Kong Statistical Society (HKSS) examination is a recommendable avenue for pursuing qualifications at various levels of the statistical profession. Through an agreement between the HKSS and the Royal Statistical Society (RSS), the HKSS examination has replaced the RSS examination as from the May 2002 round for candidates who sit for the professional statistical examination in Hong Kong. A Joint Announcement has been made by the RSS and the HKSS on the Agreement. Under the Agreement, the qualifications conferred by the HKSS are recognized by the RSS as of a standard equivalent to the same qualifications conferred by the RSS.

The qualifications awarded by the HKSS have been accepted by the Hong Kong Special Administrative Region Government for appointment to entry ranks of government statistical grades. Specifically, the HKSS Ordinary Certificate is accepted as meeting the entry requirements for the rank of Statistical Officer II and the HKSS Graduate Diploma for the rank of Statistician. The HKSS Higher Certificate is also accepted as meeting the further qualification requirement for a Statistical Officer II to be considered for promotion to a Statistical Officer I.

Examination Structure

The Structure of the HKSS examination, similar to the RSS examination, consists of three levels viz. the Ordinary Certificate level, the Higher Certificate level and the Graduate Diploma level.

The pass mark for each paper is 50%.

Ordinary Certificate in Statistics

The Ordinary Certificate of the Hong Kong Statistical Society is offered in a modular form with two modules. This gives the opportunity for candidates to proceed at their own pace. The object of this first level certificate is to provide a sound grounding in the principles and practice of statistics with emphasis on practical data collection, presentation and interpretation. It is intended both as an end in itself in terms of being a first qualification in statistics, and as a basis for further work in statistics, as for example in the more advanced syllabuses of the Society. In addition, the individual modules are intended as valuable free-standing elements in their own right; they may for example be useful components of a formal or informal continuing professional development programme. The entry level is a credit (i.e. C or above) in Mathematics of the Hong Kong Certificate of Education Examination (HKCEE) or an equivalent qualification, or relevant work experience.

Candidates may enter for either or both modules in any examination session. Candidates may resit any module any number of times; the highest mark achieved will stand. The pass mark for each individual module is 50%. Module marks are "banked" without time limitation.

Each module is examined by a 3-hour written paper containing from 7 to 9 (inclusive) questions of different lengths. There are no restrictions on the number that may be answered. The marks available for each question are printed on the examination papers.

Candidates will be advised of their marks for each module taken. Candidates will receive a separate certificate for each module in which they are successful.

Candidates who are successful in both modules (not necessarily in the same session) will be awarded the Ordinary Certificate in Statistics. The Ordinary Certificate will only be awarded on the first occasion when a candidate becomes eligible for it. If a candidate, having been awarded the Ordinary Certificate, takes either or both modules again, advice of the marks earned will be issued and, if appropriate, a certificate to indicate success in the individual module(s); but the Ordinary Certificate itself will not be re-awarded.

Higher Certificate in Statistics

The Higher Certificate is offered in a modular form with eight modules. This gives the opportunity for candidates to proceed at their own pace. The Certificate as a whole is intended both as an end in itself in terms of being a qualification in statistics at a more advanced level than that of the Ordinary Certificate, and as a basis for further work in statistics. In addition, the individual modules are intended as valuable free-standing elements in their own right; they may for example be useful components of a formal or informal continuing professional development programme.

Candidates may enter for any number of modules, either singly or in any combination, in any examination session. Candidates may resit any module any number of times; the highest mark achieved will stand. Module marks are "banked" without time limitation.

Each module is examined by a 1½-hour written paper containing four questions of which candidates are asked to answer three. Candidates will be advised of their marks for each module taken. Candidates will receive a separate certificate for each module in which they are successful.

Candidates who are successful in **six** modules **including modules 1 to 4** (not necessarily all in the same session) will be awarded the Higher Certificate in Statistics. The Higher Certificate will only be awarded on the first occasion when a candidate becomes eligible for it. If a candidate, having been awarded the Higher Certificate, takes any module(s) again or takes any further module(s) not already taken, advice of the marks earned will be issued and, if appropriate, a certificate to indicate success in the individual module(s); but the Higher Certificate itself will not be re-awarded.

Candidates who wish to proceed to the Graduate Diploma in Statistics are particularly advised that it will be expected that they are familiar with the material in **modules 1 to 6** of the Higher Certificate.

Graduate Diploma in Statistics

The Graduate Diploma is offered in a modular form with five modules. This gives the opportunity for candidates to proceed at their own pace. The Graduate Diploma as a whole is a qualification in applied statistics at a level equivalent to that of a good Honours Degree in Statistics. It is widely recognised and respected as such, locally and internationally, by employers in the public and private sectors. It is also widely recognised by universities as being sufficient for admission to an MSc course in

Statistics. In addition, the individual modules are intended as valuable free-standing elements in their own right; they may for example be useful components of a formal or informal continuing professional development programme.

Candidates may enter for any number of modules, either singly or in any combination, in any examination session. Candidates may resit any module any number of times; the highest mark achieved will stand. Module marks are "banked" without time limitation.

Each module is examined by a 3-hour written paper containing eight questions of which candidates are asked to answer five. Candidates will be advised of their marks for each module taken. Candidates will receive a separate certificate for each module in which they are successful. Candidates who are successful in **all five** modules (not necessarily all in the same session) will be awarded the Graduate Diploma in Statistics. The Graduate Diploma will only be awarded on the first occasion when a candidate becomes eligible for it. If a candidate, having been awarded the Graduate Diploma, takes any module(s) again, advice of the marks earned will be issued and, if appropriate, a certificate to indicate success in the individual module(s); but the Graduate Diploma itself will not be re-awarded.

Transitional arrangements are available for candidates who have successfully completed part of the previous non-modular version of the Graduate Diploma which was offered for the last time in 2009, so that they may transfer to the modular version with credit given for work already completed. Any such candidates should contact the Society for advice.

Entry requirements

There are no formal entry requirements for any of the levels of the examinations. The Society's view is that responsibility for entry to the examinations at an appropriate level rests with the candidate. Yet, in order to facilitate candidates in deciding the appropriate level of examinations to be taken, the Society will continue to offer the services of academic assessment.

As stated above, the overall entry level for the Ordinary Certificate should be seen as a credit (i.e. C or above) in Mathematics of the Hong Kong Certificate of Education Examination (HKCEE) or an equivalent qualification, or relevant work experience.

In the case of the Higher Certificate, the syllabus for each module assumes knowledge of the material in the Ordinary Certificate in Statistics, or equivalent. Candidates should ensure that they are familiar with this material before sitting for any modules. This is particularly important for candidates who wish to attempt several modules in the same session. Candidates are advised that the general level of the material in the Higher Certificate is similar to what is likely to be found in the first year, and perhaps the start of the second year, of an Honours Degree programme in Statistics at a university. Candidates are **very strongly advised** to consult the Society's syllabus for further information, including on the advised academic progression through the modules, and for information about the required mathematics background. Candidates are also **very strongly advised** to consult the Society's published past papers and solutions for further guidance.

In the case of the Graduate Diploma, the syllabus for each module assumes knowledge

of the material in modules 1 to 6 (inclusive) of the Higher Certificate in Statistics, or equivalent [note: the previous non-modular version of the Society's Higher Certificate in Statistics, offered for the last time in 2008, is equivalent]. Candidates should ensure that they are familiar with this material before sitting for any modules. This is particularly important for candidates who wish to attempt several modules in the same session. Candidates must not regard the Graduate Diploma modules as being fully academically separate from each other, because there are many interactions between branches of the subject at this level. In all cases, study of one module may require some study of work in other modules. Candidates are advised that the general level of the material in the Graduate Diploma is similar to what is likely to be found in the final year of an Honours Degree programme in Statistics at a university, and this includes work in appropriate mathematics at a commensurate level. Candidates are **very strongly advised** to consult the Society's syllabus for further information and for information about the required mathematics background. Candidates are also **very strongly advised** to consult the Society's published past papers and solutions for further guidance.

There are a few courses that are formally accredited by the Society to the effect that they are regarded as equivalent to part of a level of the Society's examinations. Persons who have passed such courses may complete that level by taking only the remaining modules; if they are successful in those modules, the appropriate Certificate or Diploma will be issued (though "pass with credit" or "pass with distinction" will not normally be conferred by this route). Persons who think they might have qualifications from such accredited courses should approach the Society for academic assessment, before commencing the process of registering for examinations.

Examination Schedule

The examinations are held once a year, usually in the second or third week of May. A detailed timetable for the examinations will be sent to candidates with their examination entry certificates upon registration. The examinations are conducted in the English language.

Language

For the Ordinary Certificate and the Higher Certificate, candidates may opt to sit for papers in either English or Chinese. For the Graduate Diploma examination, candidates must answer the questions in English. Candidates who plan to take the English papers should use the English application/registration forms, whilst candidates who plan to take the Chinese papers should use the corresponding Chinese registration forms.

Syllabuses and Fees

All candidates should ensure that they have a copy of the current syllabuses, fees, reference book lists and etc. for the examinations they intend to take. Such information can be downloaded from the Society website or hardcopy of the materials can be obtained from the Society upon request.

CALCULATORS

Candidates are expected to make appropriate use of electronic calculators in the examinations. It is the responsibility of each candidate to bring a suitable calculator to the examination and to ensure that it is in good working order.

Scientific calculators are permitted in all the Society's examinations, but, to ensure fairness to all candidates, the use of calculators with sophisticated graphical and other facilities is not allowed. Detailed regulations governing calculators are given below.

Invigilators are instructed to prevent the use of calculators that **appear to contravene** the regulations. If you feel that there is any possibility that your calculator may not be regarded as acceptable, you should have a **more basic model as a back-up**.

When considering how to present results obtained from use of calculators, candidates should appreciate that examination questions do not normally focus solely on statistical calculations. Rather, calculations arise naturally in the context of solving statistical problems. Examiners expect candidates to understand the rationale behind required calculations, to be able to carry them out and to be able to interpret the results in the context of the practical problem being dealt with.

Candidates are therefore strongly advised to indicate methods lying behind calculations; examiners seek to award credit for use of correct methods whenever appropriate, even if numerical results are incorrect.

Detailed regulations

Candidates may use electronic calculators in all the Society's examinations subject to the following conditions.

- Calculators must be silent, must have visual display only and must be battery or solar powered. Candidates are not permitted to make use of external power sources for their calculators.
- The screen must not be capable of showing more than two lines of output.
- Hand-held personal computers are not permitted.
- Calculators with any of the following facilities are **not** permitted:
 - full alphabetic keyboard (including combined alphabetic and numeric keypads as found on mobile phones); but this ban does **not** apply to calculators with hexadecimal features that involve keys labelled A to F (these keys may also double as memory locations) – such calculators are permitted
 - capacity to display graphs
 - printing

- capacity to retrieve, manipulate or display text or formulae (apart from the names of mathematical functions, and error or other system messages)
 - data banks
 - dictionaries or language translation
 - communication with other devices or the internet
- Candidates may not bring instruction manuals for calculators into the examination room.

Examples of acceptable and prohibited calculators are shown on the next page.

Acceptable calculators

Examples of permitted calculators are shown below. Note that the keypad may contain digits, arithmetic operations and a selection of scientific functions; a "hexadecimal" calculator is also included among the examples. However, the keypad may not be a full alphabetic one, and the screen must have no more than two display lines.



Prohibited calculators

Examples of calculators which would **not** be permitted are shown below. Some have screens capable of displaying graphs, and some have full alphabetic keyboards. Please note that smartphones with a calculator function will also **not** be permitted.



STATISTICAL TABLES

The Society provides statistical tables for use in the examinations. The tables have been specially prepared for the purpose. **No other statistical tables may be used** in the examinations.

A set of tables will be supplied to each candidate in the examination room. **Candidates may not bring their own copies.** The copies supplied in the examination room must **not** be taken away.

The tables are available for download from the examinations section of the Society's website, or from the Society by post or as an email attachment. Sets of tables supplied in this way are clearly watermarked ("Not for exam use") to show that they may not be taken into the examination room. All candidates are strongly recommended to acquire a set of the tables and to familiarise themselves with their content and layout.

STATISTICAL FORMULAE

The Society does not provide any kind of "formulae sheet" for use in its examinations.

Candidates should recognise that there are certain details (definitions, formulae and the like) that they are expected to memorise. Definitions of all concepts relevant to the syllabus for an examination are expected to be known. In respect of formulae, the following illustration will make clear the Society's approach. It is of course only an example. Consider the probability function for the binomial distribution. A candidate who does not know this formula cannot fully understand the binomial distribution. It is therefore expected that candidates are able to quote it whenever it is relevant to a syllabus. Similar examples can be given for other areas, such as formulae for sample variance and conditional probability (at Ordinary Certificate level), and sums of squares for appropriate analysis of variance models (at higher levels); such formulae are expected to be known. Very detailed formulae, or formulae pertaining to very specialised areas of a syllabus, are sometimes quoted within a question, especially at the higher levels of the examinations.

Candidates may wish to consult the Society's past papers and solutions for general guidance on the extent of material that is expected to be memorised.

ENTRY TO THE EXAMINATION

Candidates wishing to sit for the Society's examinations have to register as Examination Associates or Members of the Society first AND to register for the examinations. People may opt to become Examination Associates or Student Members for the purpose of sitting for the examination and subsequently choose to become Full Members of the Society, after success in the examinations.

Only Full Members, Student Members and Examination Associates are allowed to enter for the examinations of the Society. To do so, it is necessary

- (i) for Examination Associates to have paid the membership subscription fees for the year in which it is desired to sit examinations; and for Full Members and Student Members, to pay up, in addition, the difference between the subscription required of an Examination Associate and that required respectively of a Full Member or Student Member;
- (ii) to REGISTER for the examinations that are desired to be taken; and
- (iii) to pay the appropriate EXAMINATION FEES.

Becoming Examination Associates of the Society

Membership for Examination Associates is for a 12-month period from the membership payment date. It is important for candidates to enrol as Examination Associates by filling in the membership application form (HKSS Exam Fm2) and it is necessary to become an Examination Associate or Member by **31 JANUARY** of the year in which a candidate intends to take examinations. It is also necessary to ensure that their valid membership period covers the date(s) of examination that they wish to sit for.

Persons becoming Examination Associates for the first time will be issued a reference number. Both the name and the number must be quoted by the Examination Associate on all subsequent correspondence with the Society.

Registering for the Examination

All Members / Examination Associates who wish to enter for examinations in a particular year must register for the examination by submitting the duly completed registration form (HKSS Exam Fm 7) and the appropriate examination fees by **1 MARCH** of the respective year. Late entries will not be accepted.

All the above forms, together with the academic assessment form (HKSS Exam Fm3), order form for past papers and solutions (HKSS Exam Fm4), and other documents can be downloaded from the Society website. Alternatively, requests for the necessary form(s) / documents can be made by phone, by post, fax or e-mail to the Society. In the case of requests for hardcopies, a small fee will be charged by the Society to cover the photocopying and postal costs.

Acknowledgement of receipt of any form will not be sent unless it is requested by the candidate at the time of submission. At a later stage, the Society will send a certificate confirming the right to enter the examinations at a particular examination centre. A detailed timetable will also be sent. This certificate must be presented to the person in charge at the examination centre when the candidate attends to take the examinations.

Withdrawal from the Examination

No part of the fee will be refunded to candidates who withdraw from the examinations after the closing date for entries.

Likewise, no part of the fee will be refunded to candidates who fail to present themselves for the examinations, except in cases of illness or other exceptional mitigating circumstances. Under such circumstances, application coupled with documentary evidence such as a medical certificate must be submitted to the Society within two weeks after the examination date. If the Examination Board considers the circumstances to be satisfactory, it may allow the fees already paid to be held over and transferred to the next scheduled examinations session. This decision is at the discretion of the Board. The Board will not enter into correspondence in respect of its decision.

Examination admission slips

After registration has closed, the Society will issue an examination slip to each registered candidate, confirming the right to enter the examinations at a specified examination centre. This slip will be sent by post, usually towards the end of April.

The slip must be presented to the person in charge at the examination centre when the candidate attends to take the examinations.

Notification of Results

The Society will notify candidates of their results individually by post, approximately twelve weeks after the examinations have taken place. Results will not be notified or discussed over the telephone.

The decision of the Society, based on the recommendations of the Examination Board, is final and the Society will not enter into correspondence about examination results.

Publication of results

The pass list for each year's examinations is published in the Society's bulletin. Where appropriate, it will also be published in Royal Statistics Society's newsletter, *RSS NEWS*, which is circulated to all members of the Society.

Payment Method

All payments should be payable to "The Hong Kong Statistical Society Limited" by crossed cheque or bank draft or by depositing the required amount into the Society's HSBC bank account (HSBC bank account number 110-479482-002). In the case of the latter, the original bank receipt should be enclosed with the application form and sent to the HKSS Examination Office by post or by hand.

For details on [membership application, registration and examination fees](#), please see the relevant section of the website.

IMPORTANT DATES

Whilst all the three levels of examination are taken place in May of each year, candidates who wish to take part in the examination should have completed the registration and exemption procedures well in advance prior to the examination. The following are the important deadlines / dates :

1. Period for enrolment/renewal of Examination Associates : From 1st October of the year preceding to until 31st January of the year that the candidate plans to take the examination;
2. Registration for examination : After enrolling as or renewal of membership for examination associates and on or before 1st March of the year that the candidate plans to take the examination; and
3. Application for exemptions : Well in advance and not later than 1st of February in the year that the candidate plans to take the examination.

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